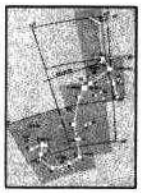
SCORPIUS



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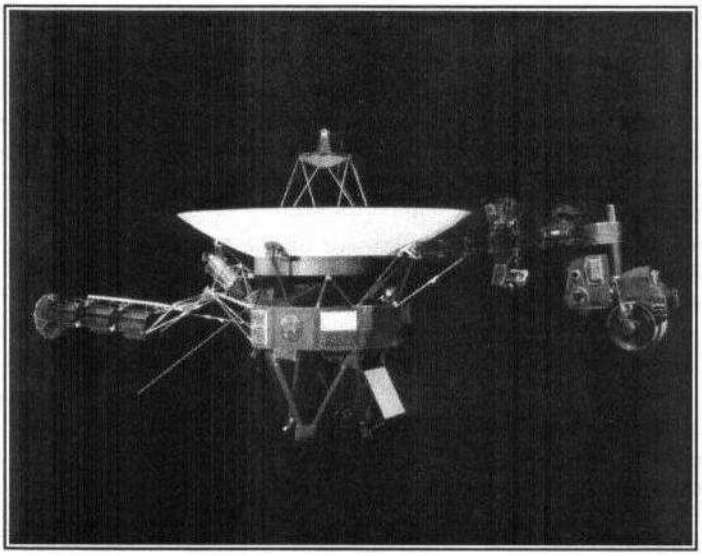
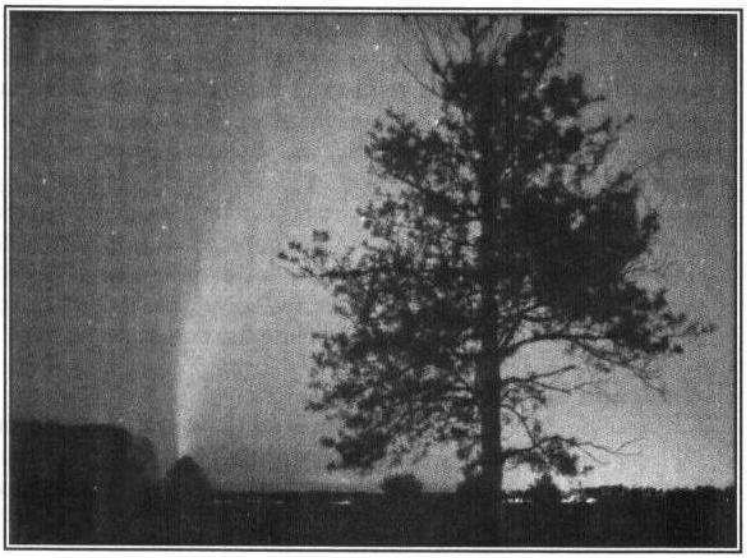
The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange 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.

Voyager spacecraft - where are they now



Comet McNaught what a sight



Plus :

More Stars for the Australian flag
Why go back to the Moon
Can cosmic rays affect climate

March - April field nights and events

MARCH	
Friday 2nd	Public Viewing (Briars)
Wed 7th	Mt Eliza Secondary School Night
Sat 10th	Ken Bryant Scope Day
Wed 14th	Camp Manyung School Night
Wed 21st	General Meeting (Peninsula)
23rd – 25th	VASTROC, Bendigo

APRIL	
Friday 6th	Public Viewing (Briars)
13th – 15th	South Pacific Star Party NSW
Wed 18th	General Meeting (Peninsula)
Sat 21st	Members & ASV Viewing Night

Mornington Peninsula Astronomical Society

Society News

January Meeting

The January General Meeting was a somewhat informal affair. At this time no one had been able to glimpse Comet McNaught and so we could only look at some photos taken by northern observers.
After Bob's "Sky for the Month" there was the usual coffee break.

Following coffee Peter Lowe gave a presentation of the latest thinking about "The Search for Life in Space" covering the three current avenues of research: firstly understanding the chemical nature of life processes, secondly exploring likely locations both here on Earth and within the Solar System and finally the SETI program.

The chemical production of organic molecules within the coalescing gas cloud that produced the Sun is fairly well understood and the early conditions on suitable planets like Venus, Earth and Mars were most probably very similar with copious amounts of organic raw materials. Given enough time and stable conditions self replicating molecules would have spontaneously formed leading to a form of chemical evolution based on a "Survival of the most stable" principle. Eventually complex molecules based on RNA formed and further evolution of RNA sets the scene for the emergence of life based on genetic materials. This suggests that given the right conditions the most common organic chemistry will be based on RNA such as virus or later more complex bacteria based on DNA.

Evolution from this stage does not guarantee a progression toward more complexity and so called higher life forms. Rather there is a base level of complexity, which is consistent over time, and given stable conditions more complex but rare life forms such as plants and animals develop. The diversity level of these life forms at any particular time is dependent entirely upon random events. Global catastrophes such as asteroid impacts or sudden climate changes can wipe this diversity away from which a new spectrum of life forms can evolve. There is no guarantee that technically advanced, intelligent life forms will develop, in fact this is most probably exceedingly rare. We therefore expect RNA life to be reasonable commonplace but technically advanced intelligence to be almost non-existent.

Based upon studies of life here on Earth, the past and current conditions on Mars seem excellent possibilities for life to have formed and possibly still exist. The data returned from space probes only serve to support this but we will have to wait for the next generation of Mars explorers to know for sure. The chances of discovering technically advanced life via SETI radio searches are exceedingly small but the search is still worth effort. The evening finished with a lively discussion.

January Public Viewing Night

As part of our usual summer programme the society held public viewing nights every Friday during Jan. Including the normal Feb viewing night this meant the public could come to six viewing nights during the summer period. As usual the weather was variable but we managed to show people something at the scopes on each night. Later in the month Comet McNaught became a highlight and the video presentations were adjusted to reflect this. All up we estimate between 400-500 people attended during this period. A great effort. Special thanks goes to all those members who came with their scopes or came as helpers. As usual Richard Pollard headed up the video presentations.

These viewing events are the lifeblood of the society. Membership subscriptions only provide for the normal operating costs of the society however the development of members' facilities such as The Briars Astronomy Centre comes from the fund raising viewing nights at the Briars and local schools. Further development of these facilities relies upon the dedication and commitment of members to support these fund raising activities.

Australia Day BBQ

Some 25 members turned up for the Australia Day BBQ, which became a combined members/public viewing night. Weather conditions were perfect for the BBQ but high cloud limited the viewing. This didn't deter people from enjoying a new bottle of port and a bit of armchair astronomy. The dedicated observers stayed outside waiting for that all-important "hole in the clouds". A great night.

Mixed Success at Arkaroola

The Arkaroola star party is renowned for its jet black skies however in a country known for its droughts and flooding rains this year's party was a bit of a mixed success. Member Helmuth Schmidt made the trip and managed to bring back some superb astrophotographs of Comet McNaught and other cosmic wonders despite the sudden downpour through January. Eventually the roads were washed out and Helmuth was trapped waiting for the water levels to fall and the roads to be repaired. The things people will do to get great astro-shots.

Volunteer's Small Equipment Grant

Over the past few years, the MPAS has applied for various grants, and we have been lucky enough to have been accepted for a couple of them. Grants have assisted the MPAS in purchasing the gardening equipment that is located at the Briars site (including the wheel barrow), as well as the projector, laptop computer and laser pointer that are used at the educational public viewing nights and school nights.

I'm now happy to report that the MPAS has been successful in receiving allocated funds through the 'Volunteer's Small Equipment Grant". These funds will go towards the purchase of a nice GOTO telescope and digital camera / video camera that can be used to show pictures to schools and public at out viewing nights as well to MPAS members on members viewing nights. Unfortunately the cheque was made out to the ASF and not the MPAS, even though all the application information was filled out as the MPAS, so there will be a delay until we get the funds as a new cheque will have to be issued.

Change of Editor

I have been editor of the MPAS 'Scorpius' newsletter for about two and a half years. Being editor of 'Scorpius' has been an enjoyable, educational and challenging experience but I have to cease doing this role due to increased work and family commitments; namely the birth of my son, Tyler (at right, one of Tyler's first words was 'moon' as he can see it through the skylight in our ceiling), and his seemingly sudden ascent to the age of two. I intend to continue writing articles for future editions and if any other members want to write a story, article or description of an astronomical event they saw or attended for the newsletter, then I'm sure the next editor will be more than pleased to have that input.

There was initially a bit of confusion about when the editorial position would change and who was going to take it over, hence the delay with this edition and I do apologise. But now, I'd like to thank Peter Lowe, as he has decided he'd like to have a crack at the editor position. I wish him all the best.
Marty Rudd (treasurer / editor)

I would like to express my thanks to Marty Rudd for his efforts in keeping the high standards of the Scorpius magazine. This is a major component of our communications to members and takes enormous time and effort to produce.
P.J.Lowe President MPAS

Membership Payments

Memberships for 2007 are now due. As we are trying to streamline the membership payment process, membership payments are due in January each year. If you are not sure if your membership is due as you may have joined in the middle of the year or if you have any other membership enquiries you can contact me (Marty Rudd) on 5977 8863.

For those of us who deal with the banks every day, security is now one of their main priorities. Having said that, I have in recent times had some trouble depositing membership renewal cheques that are not 'completed correctly'. I have been told that membership payment cheques that are filled out to the 'M.P.A.S' will no longer be accepted as that is not the name of the account that the cheques are deposited into.

If members who are paying their membership by personal cheque or postal cheque can make cheque payments out in full to the **Mornington Peninsula Astronomical Society**, it would be most appreciated. I pleaded a case to the bank that many members abbreviate the name, as it is understandably a long name to have to write on a cheque; and applied for an allowance for members to sign cheques in the abbreviated form of **M.P.A.S.** Apparently another company somewhere in Australia has an abbreviated name 'similar' to M.P.A.S, so my application for abbreviated cheque signing was denied. Sorry for any inconvenience that this imposes.

Please note that if you have paid your membership for 2007 recently, then please disregard the due date notice on the newsletter envelope as the labels for the envelopes were printed a few weeks ago.

New members

I'd like to welcome these new members who have joined the MPAS over the last couple of months :

Steven Mohr and family
Ken, Rohan, Tegan and Heather Martin
Martin, Rosita, Giverry and Boyd Meupelenberg
Terry, Janie, Simon, Paul and Rosie Dougherty
Michele Frolla
Merril Hutchins
Robert King
Cristian Abarca

Hope you all enjoy being part of our little group and look forward to meeting you all at some of the future events.

Upcoming Events

There are a couple of school viewing nights coming up in March. Any help from members in assisting with the running of these nights would be welcomed :

Wednesday March 7th for the Mt. Eliza Secondary College. This night will be held in the art room of the college which is located on Canadian Bay Rd in Mt. Eliza (Melway reference 105 G3). Starting time is 8:00 pm. Around 25 Year 12 students are expected and 4 –6 scopes will be needed.

Wednesday March 14th for Camberwell Grammar. This viewing night will be held at Camp Manyung in Mt. Eliza (Melway reference 105 A6) which is located down Sunnyside Rd (before the nude Beach). Starting time is around 8:00 pm and around 65 Grade 6 students are expected to be attending so 6-7 scopes are needed. The lecture will be held at the new hall near the dining room and telescopes will be set up on the oval as per usual.

Ken Bryant Scope Day

Ken Bryant Scope Day (KBSD) at The Briars. SAT March 10th. KBSD will begin at 12pm. Short talks throughout the day, raffle, prizes for best display. This is our premier Telescope event so all members and their families are welcome. If you have anything of Astronomical interest for sale, then please bring it along. Anyone that is doing any Astronomical work, eg. Variable Star, Double Star, Meteor, Solar Viewing, Deep Sky cataloging or Astrophotography why not come along and show everybody your work. Anyone able to do Solar viewing through the day could they come along and show everyone how to do so safely. Also, new members attending with their new telescopes will be given assistance. BBQ evening dinner will be provided. BYO anything else. For further information please contact Peter Lowe on 0419 355 819.

Astro News

Voyager Spacecraft – where are they now

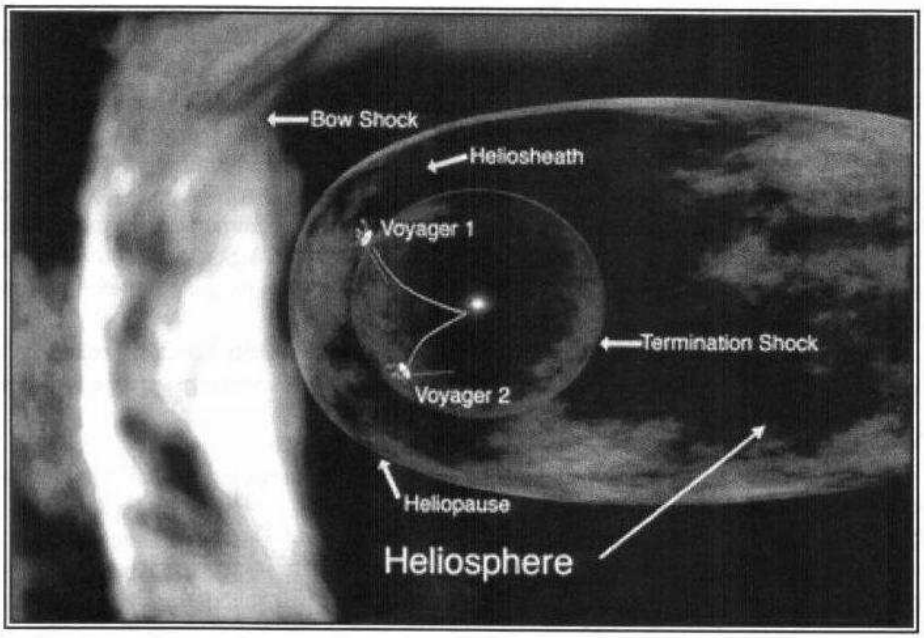
Voyager 1 and 2 were both launched in 1977 by NASA from Cape Canaveral aboard a Titan IIIE Centaur rocket. *Voyager 1* was launched on September 5, 1977, shortly after its sister craft, *Voyager 2* on August 20, 1977. Despite being launched after *Voyager 2*, *Voyager 1* was sent on a faster trajectory so it reached Jupiter and Saturn before its sister craft. Their missions were to vists planets of the outer solar system and take detailed photographs of them and their moons.

From the outset, they were designed to take advantage of the then-new technique of gravity assist. By fortunate chance, the development of interplanetary probes coincided with an alignment of the planets called the Grand Tour. The Grand Tour was a linked series of gravity assists that, with only the minimal fuel needed for course corrections, would enable a single probe to visit all four of the solar system's gas giant planets: Jupiter, Saturn, Uranus and Neptune. The identical *Voyager 1* and *Voyager 2* probes were designed with the Grand Tour in mind, and their launches were timed to enable the Grand Tour if desired. Because of this alignment, the Voyager spacecraft could visit each of these planets in just twelve years, instead of the 30 that would usually be required.

Voyager 1 had as its primary targets the planets Jupiter and Saturn and their associated moons and rings; its current mission is the detection of the heliopause and particle measurements of solar wind and the interstellar medium. *Voyager 2* followed a slower trajectory that allowed it to be kept in the ecliptic (the plane of the Solar System) so that it could be sent to Uranus and Neptune by means of gravity assist during the 1981 encounter at Saturn. It visited Jupiter first in 1979.

Since its planetary mission is over, *Voyager 2* is now described as working on an Interspace Mission, which NASA is using to find out what the solar system is like beyond the heliosphere. The heliosphere is a bubble in space produced by the solar wind. Although electrically neutral atoms from interstellar space can penetrate this bubble, virtually all of the material in the heliosphere emanates from the Sun itself.

Unlike *Voyager 1*, which is believed to have crossed the termination shock (the boundary marking one of the outer limits of the sun's influence) into the heliosheath (the zone between the termination shock and the heliopause at the outer border of the solar system) in December 2004, *Voyager 2* is currently not believed to have left the heliosphere yet. In addition, each Voyager carries a gold-plated audio-visual disc just in case either spacecraft is ever found by intelligent aliens. The disc carries images of Earth and its lifeforms, a range of scientific information, and a medley, 'Sounds of Earth', that includes the sounds of whales, a baby crying, waves breaking on a shore and a variety of music.

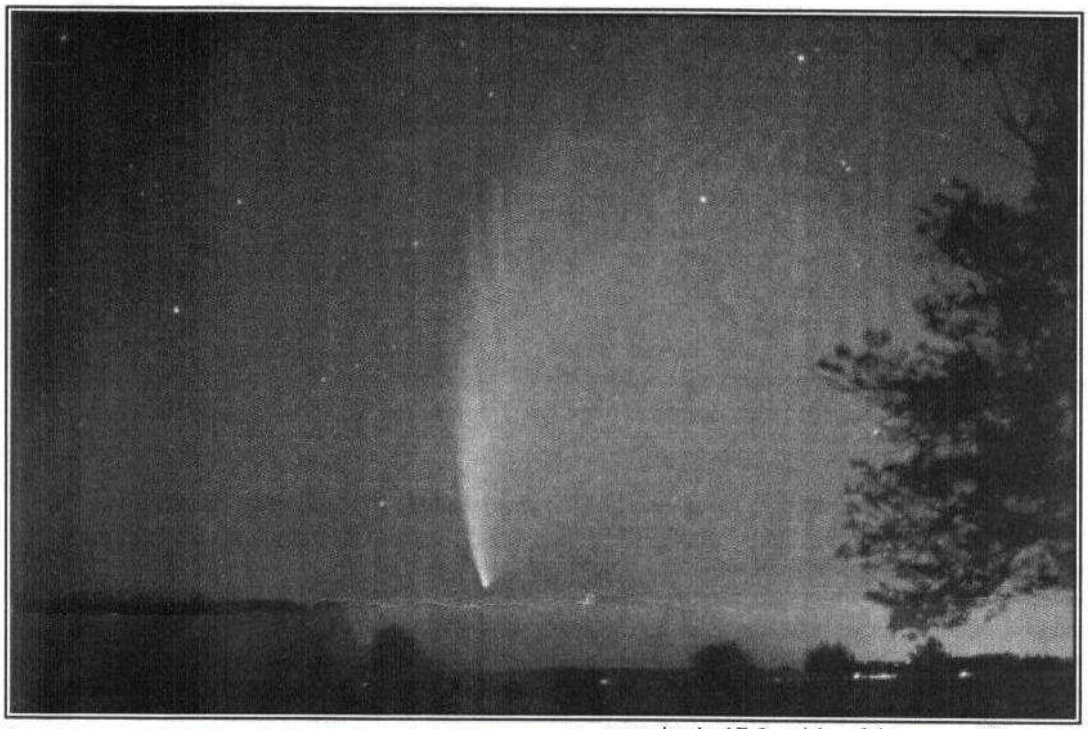


Both *Voyager* probes are powered by three radioisotope thermoelectric generators, which have far outlasted their originally intended lifespan, and are now expected to continue to generate enough power to keep communicating with Earth until at least around the year 2020.

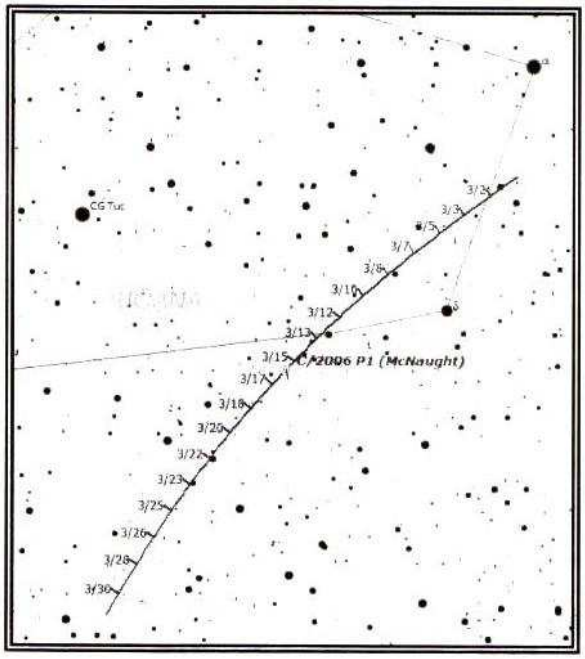
RANGE, VELOCITY AND ROUND TRIP LIGHT TIME AS OF 8/11/2006

	Voyager 1	Voyager 2
Distance from the Sun (Km)	14,960,000,000	12,022,000,000
Distance from the Sun (Mi)	9,296,000,000	7,470,000,000
Distance from the Earth (Km)	14,907,000,000	11,909,000,000
Distance from the Earth (Mi)	9,263,000,000	7,400,000,000
Total Distance Traveled Since Launch (Km)	18,011,000,000	17,023,000,000
Total Distance Traveled Since Launch (Mi)	11,192,000,000	10,578,000,000
Velocity Relative to Sun (Km/sec)	17.145	15.589
Velocity Relative to Sun (Mi/hr)	38,352	34,870
Velocity Relative to Earth (Km/sec)	42.974	36.897
Velocity Relative to Earth (Mi/hr)	96,130	82,536
Round Trip Light Time (hh:mm:ss)	27:36:52	22:04:08

Comet McNaught – The Great Comet of 2007



Discovered by Rob McNaught on August 7th, 2006, the Great Comet of 2007 (as it now also known), has been dazzling observers in both the northern and southern hemisphere since the start of the year. Given the designation C/2006 P1, comet McNaught is a non-periodic comet and is the brightest comet seen for over forty years. Rob McNaught (Siding Spring Observatory) discovered this comet on CCD images obtained with the 0.5-m Uppsala Schmidt telescope. The images had been obtained as part of the Siding Spring Survey. He described the comet as magnitude 17.3, with a faint coma 20 arc seconds across in moonlight.

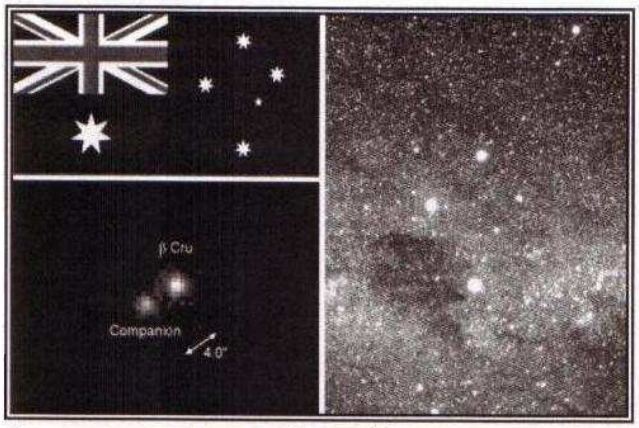


During late December the comet began to brighten rapidly and by January 13th, according to Northern hemisphere observers, had brightened to magnitude –6.0, although the comet was only visible during twilight. The comet was visible in daylight about 5°- 10° southeast of the sun from January 12 to 14. Perigee (closest approach to the Earth) was 15 January 2007, at a distance of 0.82 AU. Following it's closest approach to the Sun, comet McNaught moved into the evening skies of the Southern Hemisphere and developed a spectacular tail (**above photo taken by Marty Rudd from Somerville**) that was being compared to comet West during March of 1976. The comet is now fading rapidly but is still just visible to the naked eye as of 15th February. Comet McNaught will continue to fade as it moves away from the Earth as it heads out into the depths of space. The finder chart left will allow you to follow the comet's path through the month of March.

Ephemeris item details for the table below:
RA=right ascension decl =declination
r=distance from comet to sun in astronomical units
delta=distance from comet to earth in AU
m1=approximate brightness of comet
Elong=elongation from the sun Phase=earth-comet-sun angle

Date TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2007 03 01	22 19.72	-62 27.6	1.572	1.288	54.8	39.0	8.1	
2007 03 03	22 24.42	-62 57.8	1.594	1.328	56.1	38.3	8.2	
2007 03 05	22 29.12	-63 27.8	1.615	1.367	57.4	37.7	8.4	
2007 03 07	22 33.83	-63 57.8	1.635	1.405	58.7	37.1	8.5	
2007 03 09	22 38.57	-64 27.8	1.655	1.444	60.1	36.6	8.7	
2007 03 11	22 43.32	-64 58.0	1.673	1.481	61.4	36.1	8.8	
2007 03 13	22 48.11	-65 28.5	1.691	1.519	62.7	35.6	9.0	
2007 03 15	22 52.94	-65 59.3	1.708	1.556	64.1	35.1	9.1	
2007 03 17	22 57.82	-66 30.4	1.724	1.592	65.4	34.6	9.2	
2007 03 19	23 02.75	-67 02.1	1.740	1.629	66.8	34.2	9.3	
2007 03 21	23 07.74	-67 34.2	1.755	1.665	68.1	33.7	9.4	
2007 03 23	23 12.80	-68 06.8	1.770	1.700	69.5	33.3	9.5	
2007 03 25	23 17.94	-68 40.0	1.784	1.735	70.9	32.9	9.7	
2007 03 27	23 23.17	-69 13.8	1.798	1.770	72.2	32.5	9.8	
2007 03 29	23 28.51	-69 48.2	1.811	1.805	73.6	32.0	9.9	

More stars for the Aussie flag ?



The Australian flag is composed of three parts:
The Union Jack (British flag) in the top left corner, the 'Star of Federation' in the bottom left corner, and the Southern Cross, taking up the right half of the flag.

The Union Jack shows that the first colonisation by Europeans was by Britain. In case you didn't know, Australia started as a penal colony. The Star of Federation is a seven pointed star. They came to the number seven, by giving each state (six in all) a point on the star, and having one more point for Australia's territories (of which there are several). There are two mainland territories, and several overseas, including two in Antarctica. The Southern Cross is a constellation that can be seen from all of Australia's states and territories.

All the stars have an inner diameter (circle on which the inner corners rest) of 4/9 the outer diameter (circle of outer corners), even the 5-point star. The positions of the stars are as follows:

commonwealth star - centred in lower hoist,
alpha - straight below centre fly 1/6 up from bottom edge, **beta** - 1/4 of the way left and 1/16 up from the centre fly,
gamma - straight above centre fly 1/6 down from top edge, **delta** - 2/9 of the way right and 31/240 up from the centre fly,
epsilon - 1/10 of the way right and 1/24 down from the centre fly.

The positions of alpha-epsilon are given with respect to the centre of the square fly, and distances in terms of hoist width of the flag. (*Christopher Vance,* 26 February 1998).

Now it seems that astronomers have discovered a previously unknown star in the Southern Cross constellation. The flag displays five stars arranged in the constellation, which served as a crucial mark for navigators for hundreds of years, but a sixth star has now been found orbiting Beta Crucis, which is represented as the left-hand star on the flag's version of the Southern Cross, The Times of London reported Thursday.

Nick Lomb, a Sydney Observatory astronomer, said the star had not been noticed before because its light was swallowed by the glare coming off the larger star. "It would be like looking for a glow worm next to floodlight," he said. Lomb said changing the flag to include the extra star, as well as two others that were previously discovered orbiting Alpha Crucis and Beta Crucis, would require a very large flag to keep the representation to scale.
"The flag would have to be huge, probably the size of Sydney," he said.

Reasons to Go Back to the Moon

A radio telescope on the moon uses a crater to support its giant primary

These days NASA has its eye focused on Mars. The intention is to land humans around 2030AD but before that a lot of groundwork needs to be done. Principal amongst these is the development of a new generations of hardware to not only get there but to learn how to "live of the land" once your there. NASA believes that a lunar base is a necessary first step. As part of its push back to the Moon NASA is exploring what could be done if a lunar base could be established.
Canvassing views from over a 1000 scientists and space based organisations NASA has just released a list of "181 Things to do on the Moon".

The Moon is a unique observing platform. Its surface is a vacuum better than anything possible on Earth and the Moon's orbit is essential outside the Earth's magnetosphere. This means the entire electromagnetic spectrum is available for study as well as the solar winds and cosmic rays. A radio telescope on the far side of the Moon would be shielded from all of Earths radio noise. Very low and very high frequencies not accessible from Earth could be continuously observed.
The solar winds and cosmic ray particles can be directly monitored on the surface. Further the lunar surface has been bombarded by these particles for eons and a history of solar activity and cosmic ray is contained in lunar rocks. Not all the list is science based. People need to learn how to live on the Moon. Long term life support and power systems need to be developed so the lunar bases and eventually Mars based must become independent from Earth supplies. When Man went to the Moon in 1969 and today on the International Space Station people relied upon the supplies they brought with them.
Next time man goes to the Moon he's going there to stay.

Can Cosmic Rays affect Climate?

Cosmic rays are extremely high-speed particles created in supernova and exotic objects such as neutron stars. The Earth's upper atmosphere is bombarded by cosmic rays all the time but the flux of cosmic rays is thought to vary over time due to changes in the local magnetic field. The Earth's magnetic field regular reverses over thousands of years and this can deflect cosmic rays. The same story is probably true for the solar magnetic field.

It is already well established that when cosmic rays, penetrate Earth's atmosphere they produce substantial amounts of ions and release free electrons.Dutch scientists have shown how cosmic ray created electrons promote the formation of stable, ultra-small clusters of sulphuric acid and water molecules which are building blocks for the cloud condensation nuclei. This is the first time that a mechanism linking cosmic rays with weather formation and points to a possible link between cosmic ray flux and Earths climate.

Skywatchers Events

March

3rd	Full Moon
11th	Moon last quarter
19th	New Moon
26th	Moon first quarter

April

2nd	Full Moon
10th	Moon last quarter
15th	Mars and moon close (am / dawn)
18th	New Moon
19th	Venus and 1day old Moon close (twilight)
24th	Moon first quarter

Gemini – The Twins

Gemini, the Twins, are really only half-brothers. They share the same mother (Leda) but have different fathers. Castor's father was a king of Sparta, Tyndareus - who would be chased from his throne but later rescued by Heracles (who nevertheless wound up killing him).

The father of Pollux was none other than Zeus, or Jupiter. Zeus visited Leda on her wedding night in the guise of a swan. Thus the twins would be born. (In fact two twins came from this double union, but let's not complicate the matter even more...) It should be said, however, that Pollux had a sister as well by Leda and Zeus: the beautiful Helen, who would become Queen of Sparta, and whose abduction by Paris would lead to the Trojan War.

Castor was a great horseman and fighter. One of his pupils was Heracles. Like Heracles, both Castor and Pollux would become Argonauts, that is, join Jason in his quest for the golden fleece.The twins spent their time raiding cattle and abducting young women, as Greek gods were wont to do. During one such cattle raid a cousin (Idas) became enraged at Castor and killed him. Zeus threw a thunderbolt at Idas, killing him instantly.

Since Pollux was the son of Zeus, he was immortal. But Pollux mourned over his brother's loss to such a point that he wanted to follow Castor into Hades. Zeus was so stricken by Pollux's love for his brother, he allowed them both to share Hades and Olympus, (on alternate days). Later Greek writers had Zeus place the two in the heavens side by side.

The stars of Gemini :

The stars of Gemini include two of the most recognisable in the heavens: the twins Castor and Pollux.

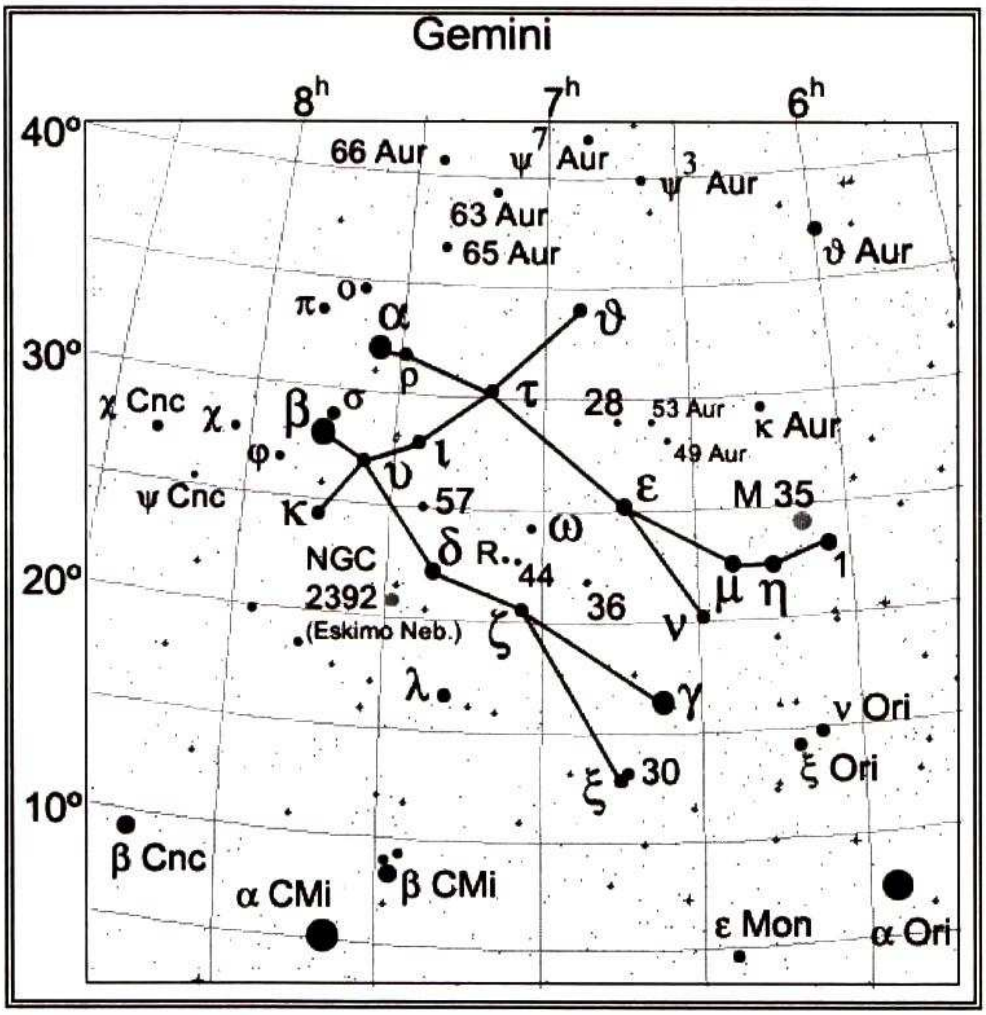
Castor (alpha Geminorum) is the slightly dimmer star. It has a visual magnitude of 1.93 and is 52 light years distant. It isn't a particularly large star, at about twice the Sun's diameter. The star is a noted binary, discussed below.

Pollux is the brighter of the two stars with a visual magnitude of 1.16 and a distance of 33.7 light years. It is also considerably larger, with an estimated diameter of about ten Suns.

Castor and Pollux are 4.5 degrees apart, which helps observers estimate separation distances between other stars.

Epsilon Geminorum is a supergiant at about 30 Sun diameters. This star may be as far away as 950 light years, but the combination of visual and absolute magnitudes suggests a much closer star, at only 190 light years.

Zeta Geminorum is the most distant of the bright stars in this constellation, at over 1200 light years. This is a cepheid variable (see below).



Eta Geminorum is a red giant, about 50 times the size of the Sun, at a distance of 280 light years. It is a visual binary and a variable (details below).

Double stars :

Alpha Geminorum is a well-known binary with the companion currently (2000.0) at a PA of 65° and separation 3.9". The visual magnitudes are 1.9 and 3.0. There is some disagreement over the precise period of the companion; one observer has it at 420 years, another at 511. More recent measurements put the orbit at 467 years and the orbit we've prepared uses this revised value.

This was the first binary system that was so recognised, in 1802 (or 1803, accounts vary) by William Herschel. However there is considerable speculation that the star was a known double long before that, perhaps even a century before Herschel made his announcement. The companion, Castor B, is also a spectroscopic binary, with its companion revolving around Castor B every three days. In fact, the entire system is comprised of six stars, including a red dwarf, Castor C, which slowly revolves around both Castor A and Castor B. This star is also a variable (and therefore catalogued as YY Gem).

Delta Geminorum: visual magnitudes 3.5, 8.2, PA 225°, separation 5.8". The period is estimated at 1200 years; the companion is an orange dwarf which may be difficult to resolve in smaller telescopes.

Eta Geminorum is a visual binary that takes some work to resolve; the companion is only 8.8 (primary is 3.3), the PA is 266° and separation 1.4". This is nearly a fixed binary, with very little movement.

Variable stars :

Zeta Geminorum is a cepheid variable, from 3.62 to 4.18 every 10.15 days.

Eta Geminorum is a semi-regular variable with an average period of 232.9 days. It ranges from 3.2 to 3.9.

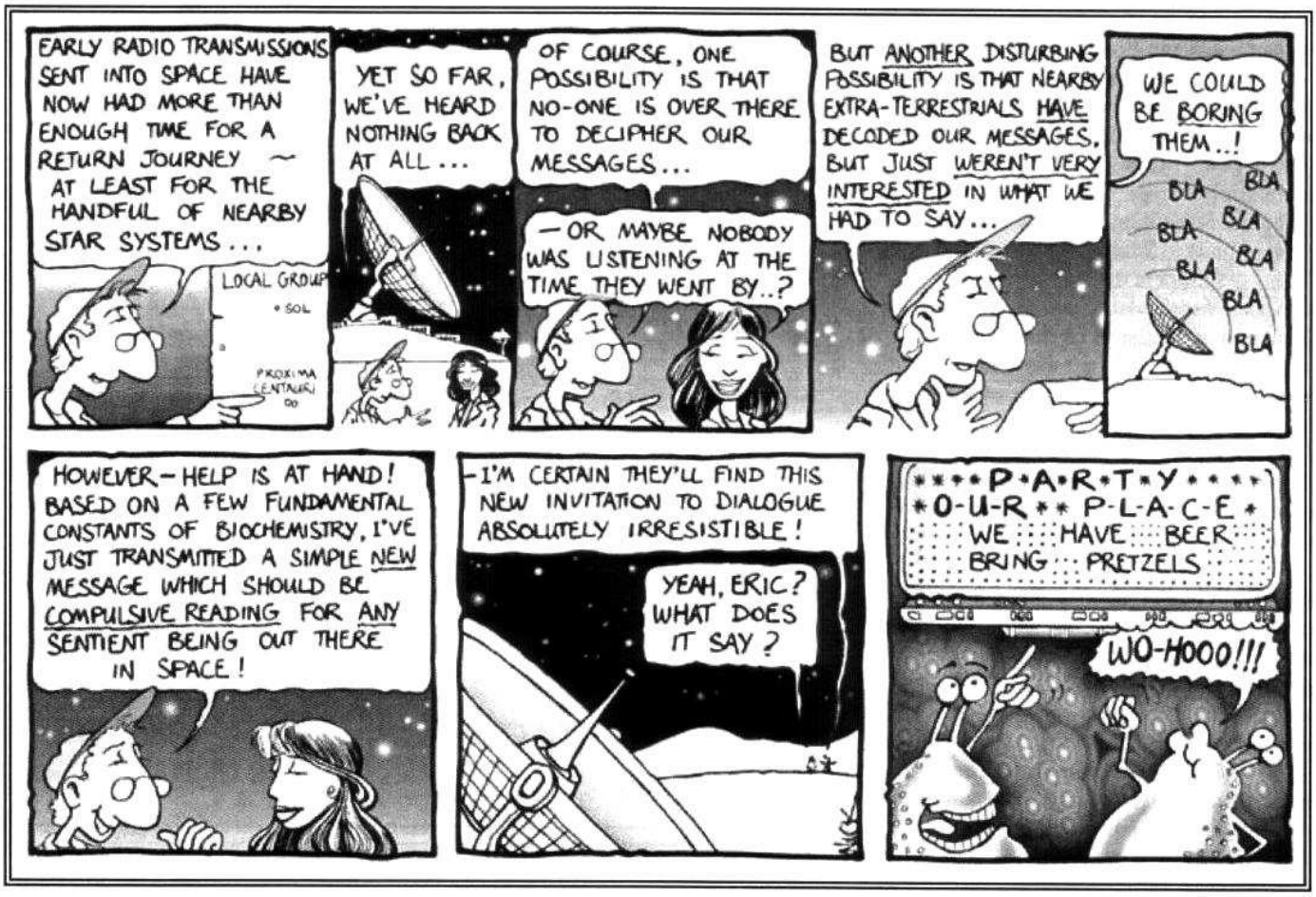
R Geminorum is a Mira-type long-period variable, with large variation from 6.0 to 14.0 every 370 days. The 2000 maximum should arrive in mid October

Deep sky objects :

The only Messier object in Gemini is *M35 (NGC 2168)*. This is an open cluster easily enjoyed in small scopes. It lies just 2.5 degrees northwest of eta Geminorum. This cluster is extremely attractive, with gently curving rows of glittering stars. Several hundred stars make up the group, which is perhaps 2500 light years away.

The Eskimo Nebula (NGC 2392) is one of the more distant nebulae at an estimated distance of 10,000 light years. There is a tenth-magnitude central star. If you do have a large enough scope, be prepared for anything: Burnham thought the Eskimo Nebula suggested "the classic and unforgettable features of W. C. Fields."

While you can locate this blue-green object in small scopes, it takes a very large telescope to see the "face" of this nebula, the eyes, nose, and mouth and the "fur collar" that gave it its name. To find this rather small planetary nebula draw an imaginary line between kappa Geminorum and lambda Geminorum. Now draw a perpendicular line from delta Geminorum, and just about where this line meets the other one is where you'll find the Eskimo Nebula.



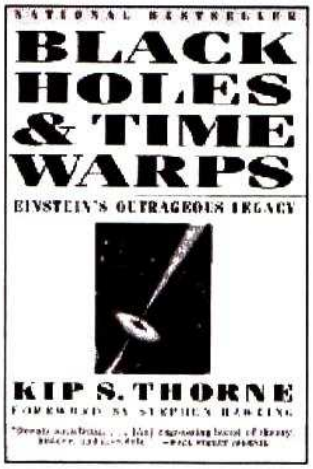
Mornington Peninsula Astronomical Society

A BOOK REVIEW

From Ian Sullivan

MPAS members are no longer borrowing books from our library. They are possibly surfing the net instead. This is fine for photos and astro news items, but often ignores basic understanding. Moreover reading is not comfortably done on a computer screen.

I am reviewing some of our books that members could borrow and thereby benefit their astronomical education.



BLACK HOLES AND TIME WARPS by Kip S. Thorne, Papermac 1994

While it weighs in with nearly 600 pages, it is not a hard read, and the diagrams, historical and biographical details catch the interest of anyone astronomically inclined.

First conceived by Englishman John Michell in 1783 the 'black hole' sank without trace until the twentieth century when Schwarzchild pointed the way during the Great War, and later named by John Wheeler in 1967. Thorne certainly features his colleague Stephen Hawking but he is but one of many lesser known, who have made brilliant contributions. An example is Zel' dovich the Russian jew born in 1914 and denied a university education. From laboratory assistant he leapt over most others to lead a nuclear bomb design team, and later proposed ideas like - super massive black holes power quasars.

Even political issues are described. Why did Russian scientists like Landau suffer imprisonment under Stalin, and the American, Oppenheimer lose his security clearance after condemnation by Edward Teller?

At the end there is a glossary, a chronological table, footnotes and bibliography. Even if you don't read it all, you are bound to feel wiser.

I nearly forgot, there is even some humour –

There was a lady named Bright,
Who traveled faster than light
She departed one day
In the usual way
And returned on the previous night

Join the E-scorpius newsgroup

The MPAS has an online newsgroup called E-Scorpius. Here you will be kept up to date with the latest MPAS news and event information as well as being able join in discussions and ask questions with other members. To join go to http://groups.yahoo.com/ and sign up to Yahoo groups. You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo Groups, email skywatch@iprimus.com.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list. Come on, join up. The more people in the group the better.

Snake Warning for the Briars

Over the last few months a couple of snake sightings have been made at the MPAS observing site at the Briars. The most recent sighting occurred during a recent viewing event where the MPAS hosted members of the Ice In Space website community. A snake was seen down near the shed by the lower observing slab. One of the MPAS members wanted to give it a poke to see whether or not it was awake, and was told in no uncertain terms that it would definitely not be awake if he poked it. If anyone does come across a snake on the site or in any part of the grounds at the Briars then the best thing to do is to walk away and alert other people of the presence of the snake. Do not disturb the snake or attempt to kill the snake under any circumstances as they are protected on the Briars site.

Ice In Space viewing night at the Briars

On Saturday 17th Feb., members of the MPAS and members of the online 'Ice In Space' (IIS) community gathered at the Briars for what turned out to be a very successful social gathering and viewing night. The event was organised by MPAS member Daivid Girling with the MPAS providing use of the Briars observing site.

Some members of the MPAS are also IIS members, and because IIS is an online community, the viewing night at the Briars turned out to be a great opportunity for many people to meet in the flesh for the first time. At least forty people attended with a plethora of telescopes in all shapes and sizes from the MPAS 18" and Greg's 22" down to small 70mm refractors.

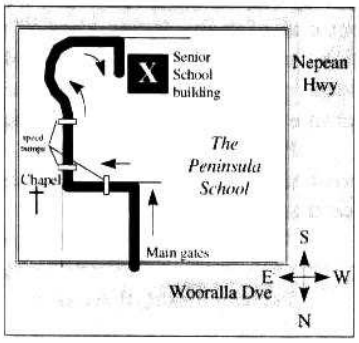
I didn't make it to the event until after midnight but for the next couple of hours I was able to view many NGC and Messier objects, most for the first time, thanks to the assistance of David and his telescope and the Argo Navis guidance computer system on his scope.

Office bearers of the Mornington Peninsula Astronomical Society

President	:	Peter Lowe – 0419 355 819	**Secretary**	:	Don Leggett - 5985 4927
Vice President	:	Ian Sullivan	**Treasurer**	:	Marty Rudd – 5977 8863
Editor	:	Marty Rudd	**Public Officer**	:	Rhonda Sawosz
Committee	:	Peter Skilton	Kevin Rossiter		
		Terry Ryan	Bob Heale		
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: skywatch@iprimus.com.au



Subscriptions

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

(Please send payments to the MPAS, PO Box 596, Frankston, Vic, 3199)

Loan Equipment

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

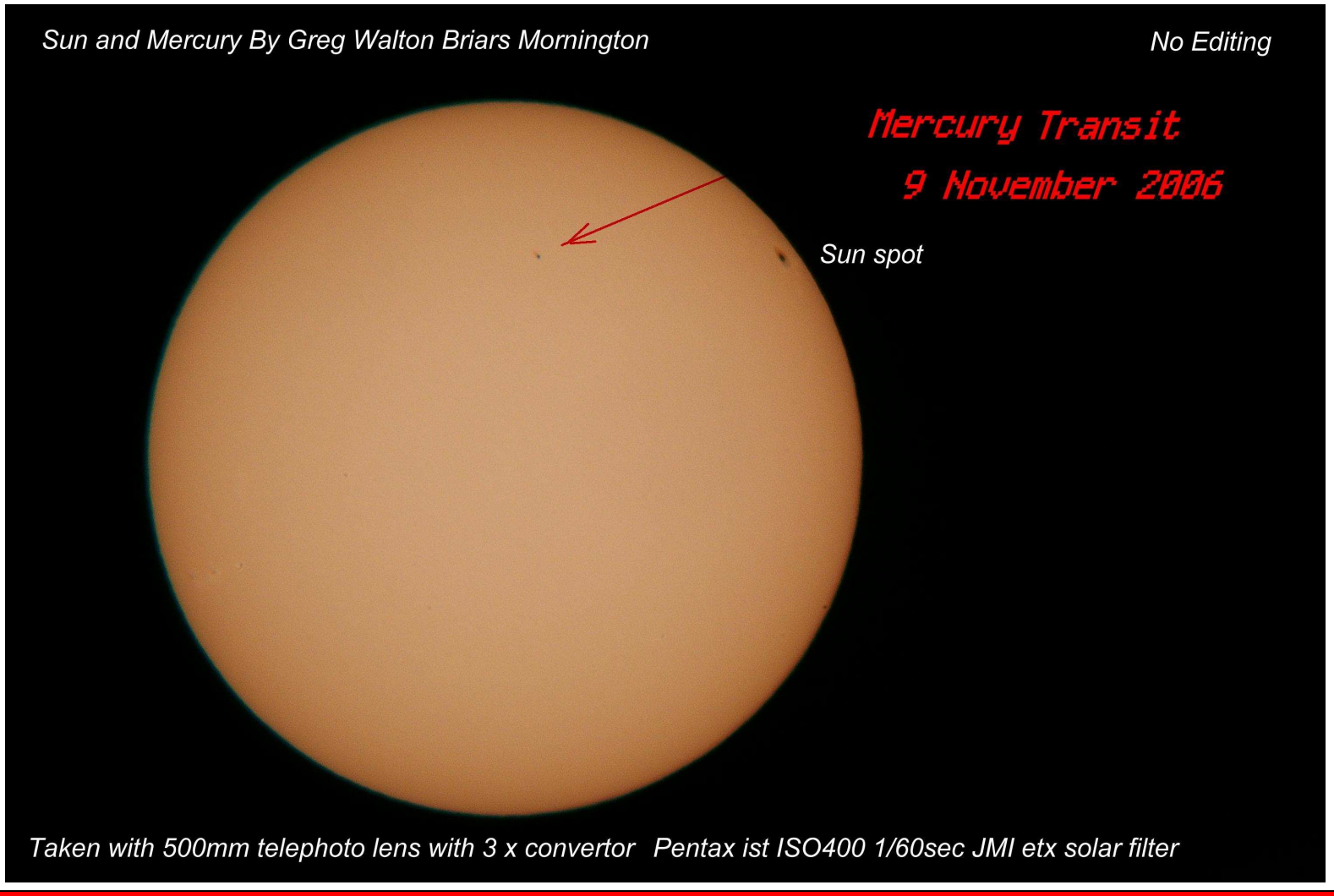
10th March, Saturday -	Ken Bryant Scope Day at Briars. Start 12:00 pm to late. Call Peter Lowe for enquiries on 0419 355 819.
21st March, Wednesday -	General meeting at the Peninsula School Session 1 : Speaker: Marty Rudd – 'Experiences in Astronomy' Session 2 : Video – none. Session 3 : Open forum and *Sky for the Month*
18th April, Wednesday -	General meeting at the Peninsula School Session 1 : Speaker: Professor Warrick Couch from Swinburne Univ – 'ELT The Next Generation of Very Large Optical and Infra-red Telescopes' Session 2 : Video – none. Session 3 : Open forum and *Sky for the Month*)
21st April, Saturday -	Members & ASV viewing night at the Briars starting 4:00pm with viewing into the evening.

Contributions to Scorpius

If you would like to submit an article or written contribution to Scorpius then please send your submission to MPAS, PO BOX 596, Frankston, Vic, 3198 or email to Peter.J.Lowe@pilkington.com.au (Peter Lowe)
Any astronomical events that you have witnessed or tales you would like to tell, things you have for sale (eg : telescopes, eyepieces etc.) then please send them in. All contributions are welcome.

Mornington Peninsula Astronomical Society

Below - Imaging the transit of mercury at the Briars on the 6 November 2006 by Greg Walton

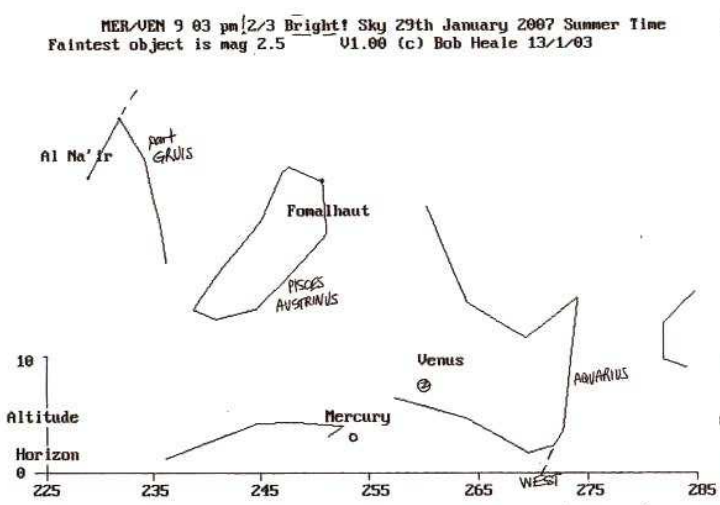


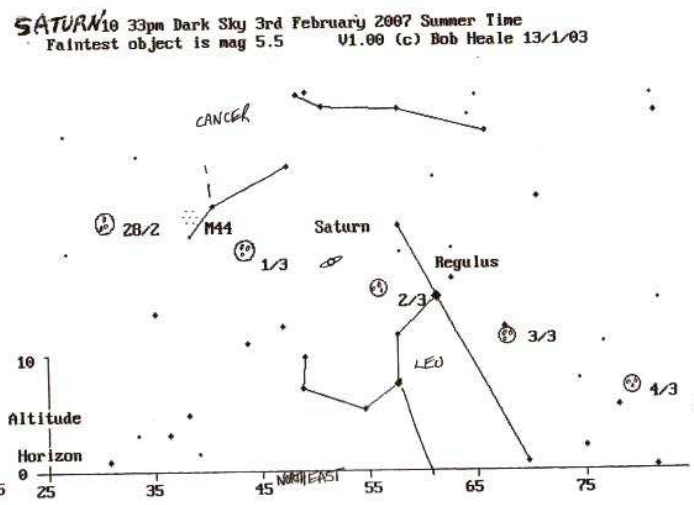
Below - Images taken with the MPAS 18 inch telescope at the Briars by Greg Walton

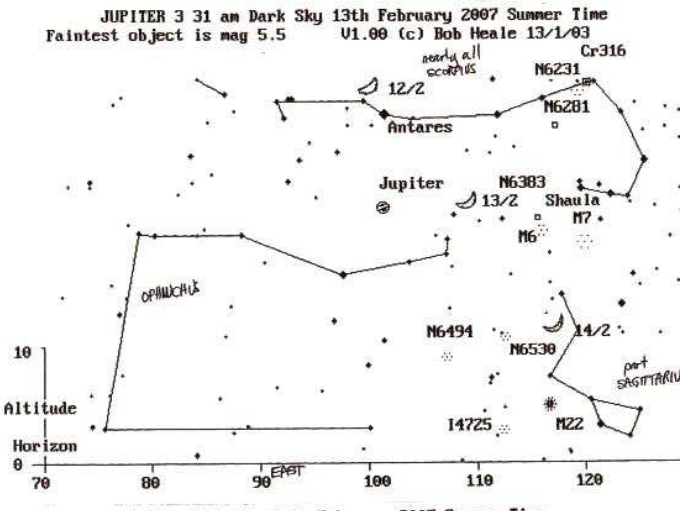
M42 taken with MPAS 18inch EQ F4.5 Pentax ist ISO3200 30sec 24Nov2006 By Greg Walton Briars Mornington No editing

NGC104 taken with MPAS 18 inch EQ F4.5 ISO 1600 20 sec Pentax ist 24Nov2006 By Greg Walton No Editing

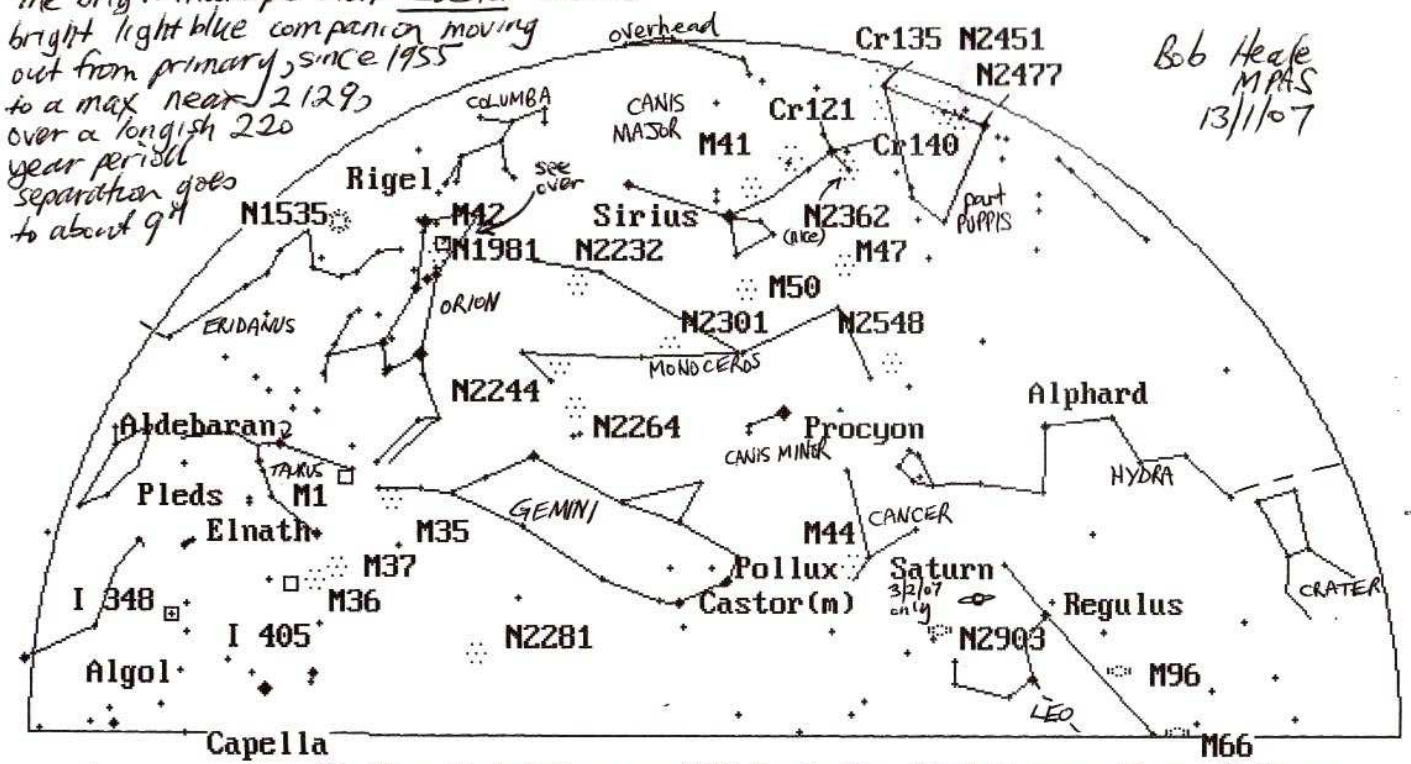
SKY FOR THE MONTH 17th JANUARY TO 20TH FEBRUARY 2007 MORNINGTON PENINSULA



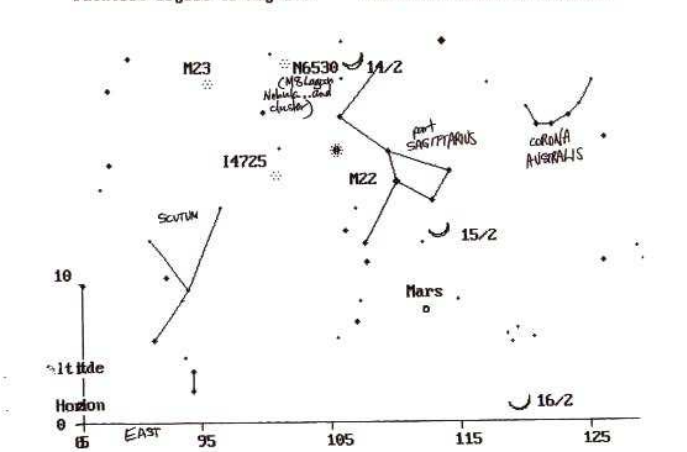




The bright multiple star Castor has its bright light blue companion moving out from primary, since 1955 to a max near 2129, over a longish 220 year period separation goes to about 9"



Bob Healе MPAS 13/1/07



Planet movements

Saturn – nothing near it, 3° NW of Regulus, increasing motion west, slightly north (as LEO rises)

Jupiter – nestled between Antares of SCORPIUS and OPHIUCHUS increasing motion essentially east, no real declination change

more over

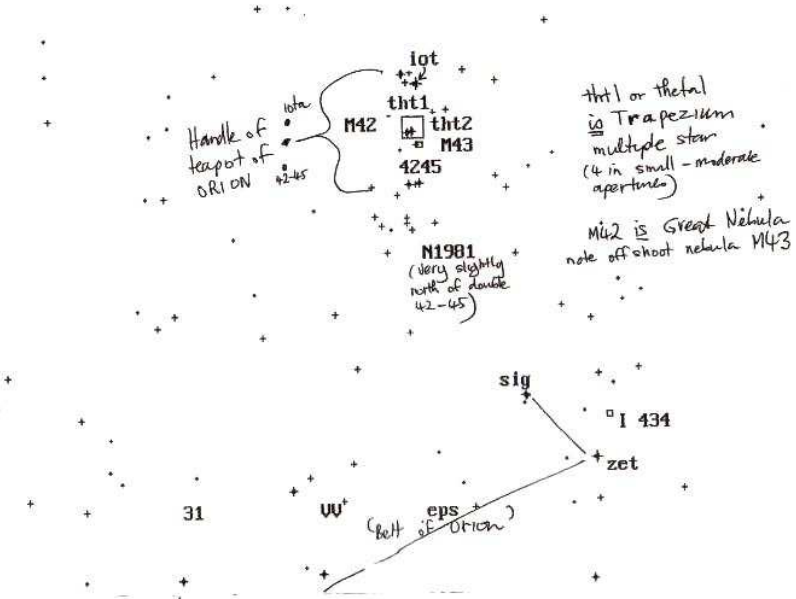
19th January 2007, 8 30pm 17th February 2007 10 30pm 3rd February NNE Dark Sky 2007 Summer Time, 12 30am

Mornington Peninsula Astronomical Society

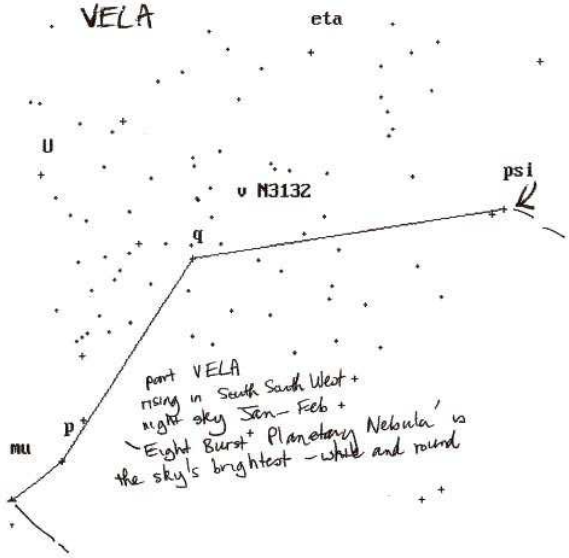
Planet movements

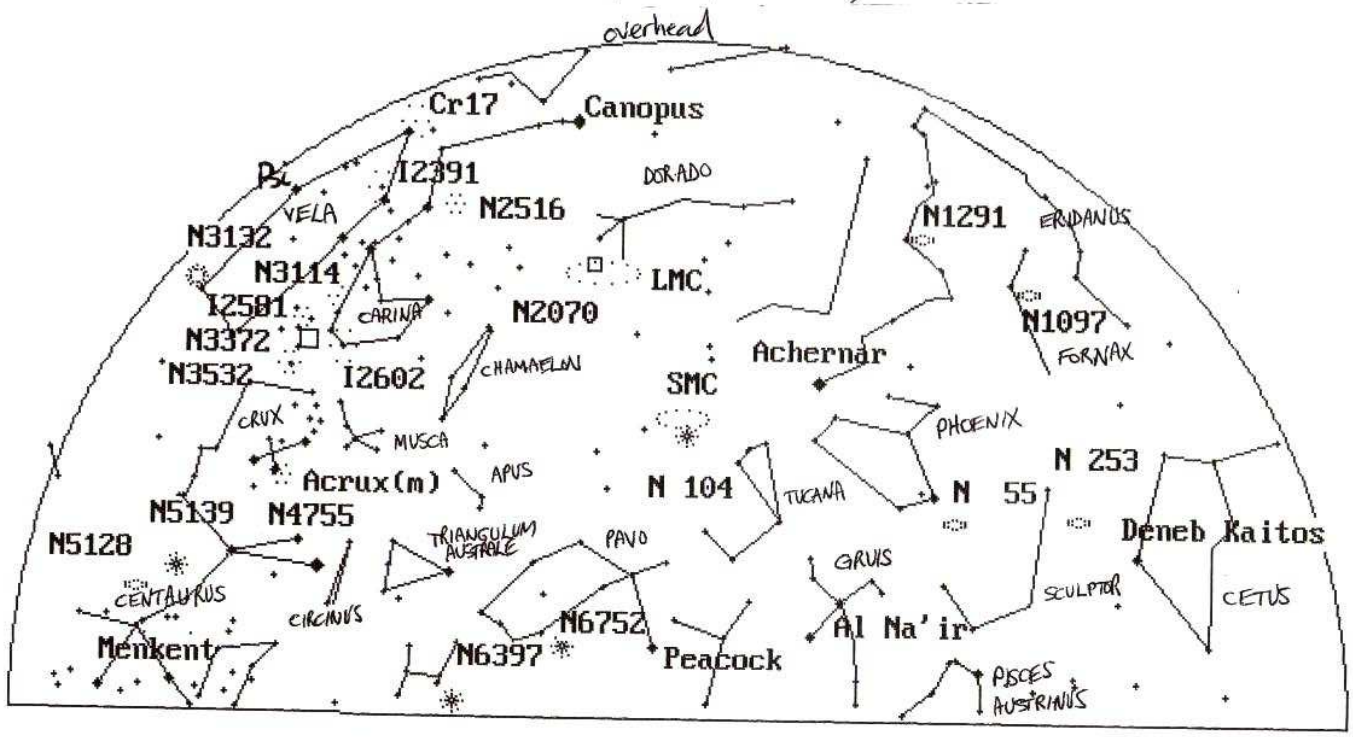
Mars having a bit of a frolic through northern SAGITTARIUS – 18/1, 19/1 edges nth of M8 Lagoon Nebula 28 – 29/1 seems to go across globular M22. The Moon tracks Mars above South mid Jan 07 and mid Feb 07

Mercury / Venus move through CAPRICORNUS, AQUARIUS, Cricket of PISCES in a very bright sky The Moon also tracks close by mid Jan and mid Feb.



By contrast to Multiple Castor, Psi Vela has a near equal brightness companion (mag 4.6 A7) in a near 22 year cycle, and pretty easy through a telescope, also opening now and on same chart below is a dying star in VELA, hidden within gas it is ejecting and making it look circular white and bright – we call it the Eight Burst Nebula NGC 3132





19th January 2007, 8 30pm 17th February 2007 10 30pm 3rd February SSW Dark Sky 2007 Summer Time, 12 30am

Bob Hoak MPAS
13/1/07

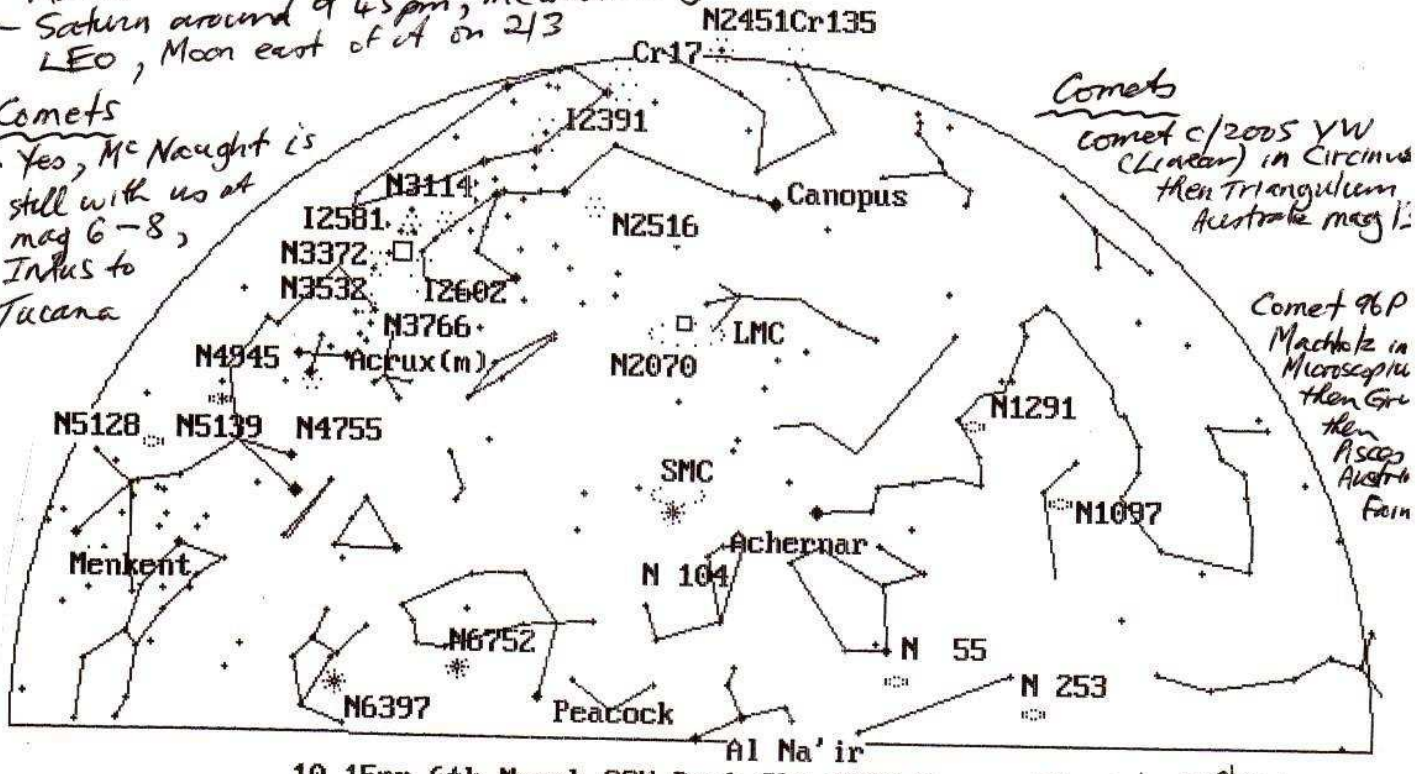
Mornington Peninsula Astronomical Society

Planets(ctd)
- Venus moves east through west to east PISCES in increasing RA/decreasing Dec, ~~III~~ ½ bright sky, with our Moon ~~&~~ jumping through in mid to lak February and March
- Saturn around 9 45pm, meandering in decreasing RA/increasing Dec in wester LEO, Moon east of it on 2/3

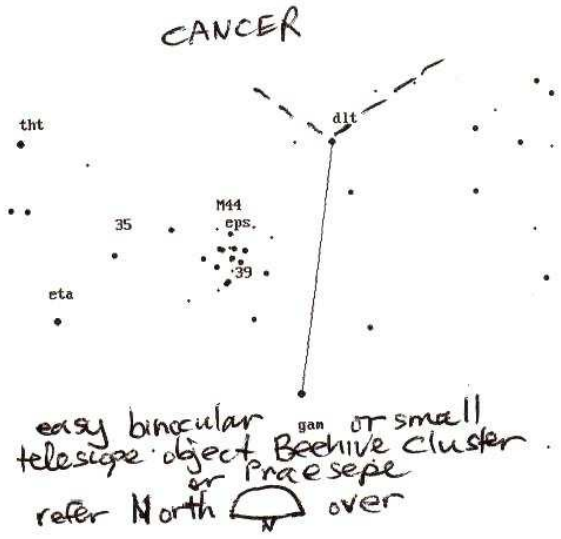
Comets
- Yes, Mc Naught is still with us at mag 6–8, Indus to Tucana

Comets
comet c/2005 YW (Linear) in Circinus then Triangulum Australe mag 1:

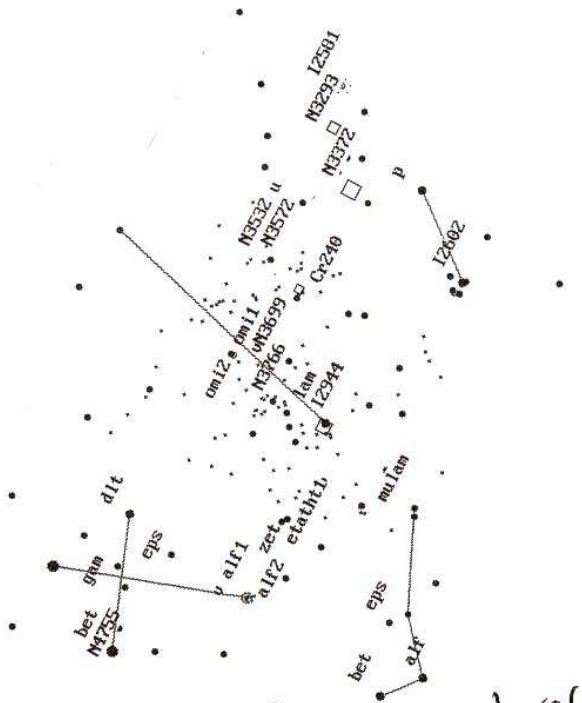
Comet 96P Machholz in Microscopiu then Gru then Ascap Austra Fain



10 15pm 6th March SSW Dark Sky 2007 Summer Times also 21st February
11 15pm, 20th March 9 15pm



easy binocular gan or small telescope object Beehive Cluster or Praesepe
refer North over

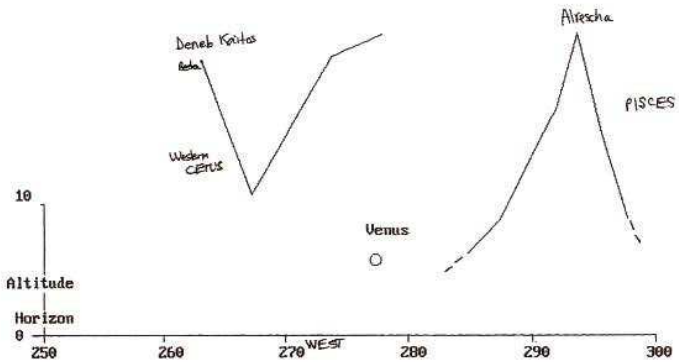


this chart refer above – lovely wide field above right of Southern Cross
N3766 wide bright open cluster
I2944 bright nebula/open cluster around Lambda Centaurie
Difficult? planetary N3699
Double omicron1/omicron2 Centaurie

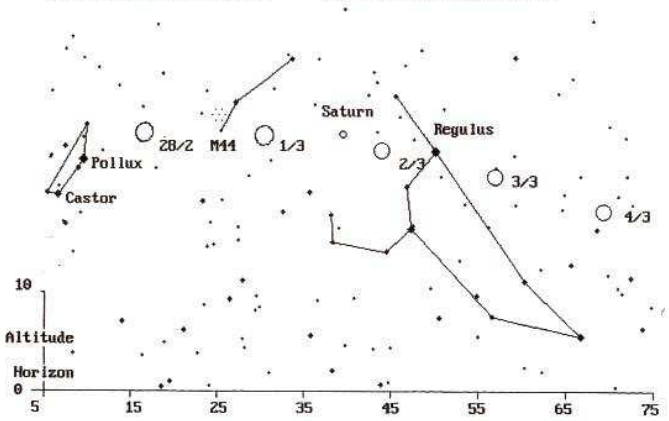
Bob Heale MPAS
17/2/2007

SKY FOR THE MONTH 21ST FEBRUARY TO 20TH MARCH 2007 MORNINGTON PEINSULA

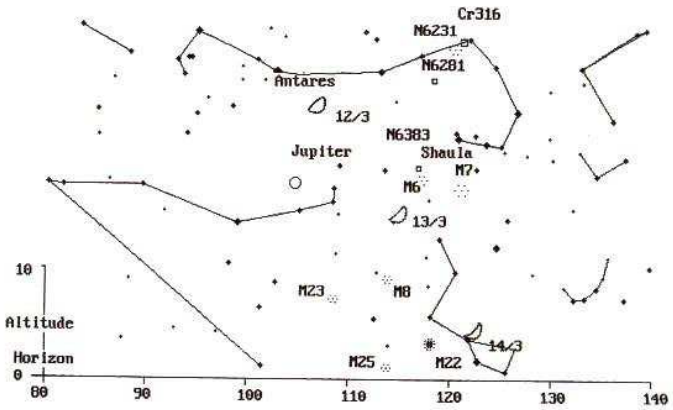
8 43pm 1/2 Bright! Sky 27th February 2007 Summer Time
Faintest object is mag 2.5 V1.00 (c) Bob Heale 13/1/03



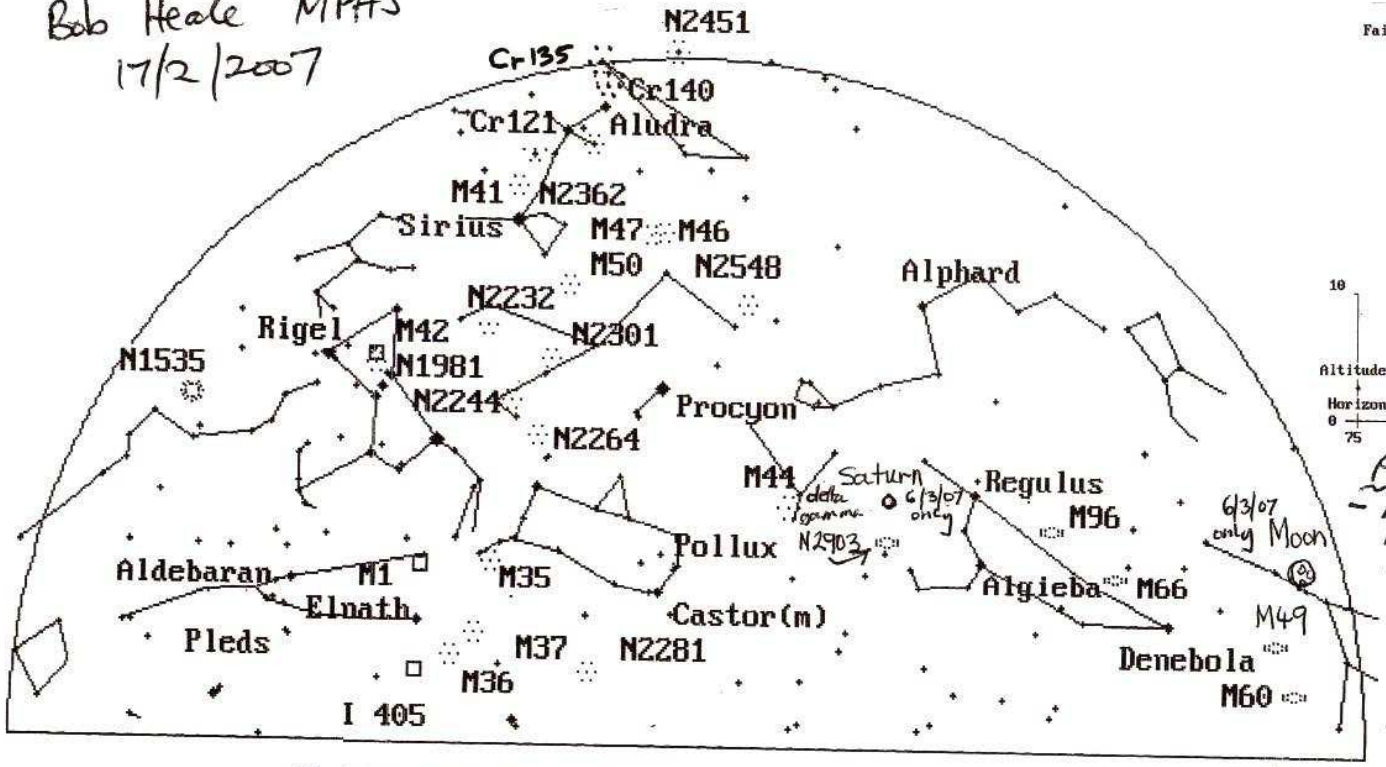
SATURN 9 45pm Dark Sky 2nd March 2007 Summer Time
Faintest object is mag 5.5 V1.00 (c) Bob Heale 13/1/03



1 36am Dark Sky 12th March 2007 Summer Time
Faintest object is mag 5.5 V1.00 (c) Bob Heale 13/1/03

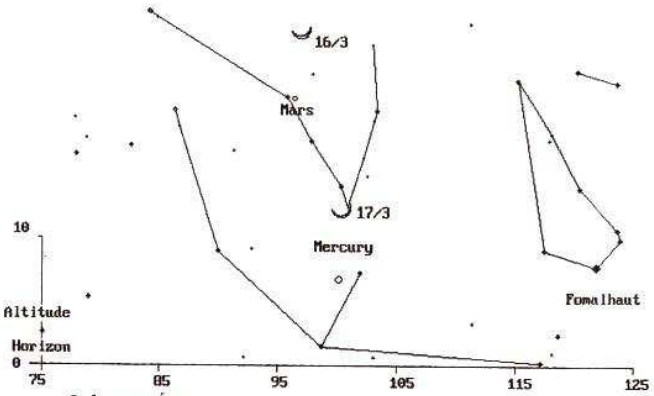


Bob Heale MPAS
17/2/2007



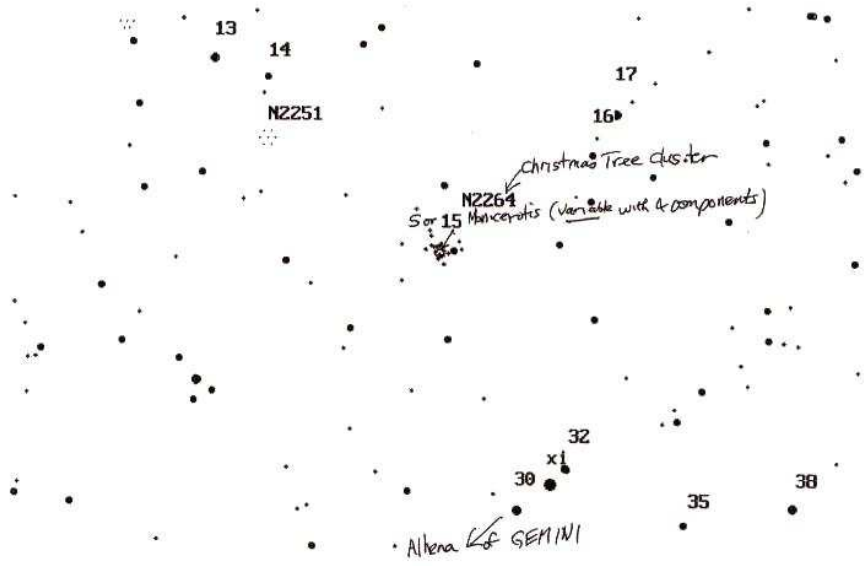
10 15pm 6th March North Dark Sky 2007 Summer Time also 21st February 11 15pm, 20th March 9 15pm

5 41 am Dark Sky 17th March 2007 Summer Time
Faintest object is mag 5.5 V1.00 (c) Bob Heale 13/1/03



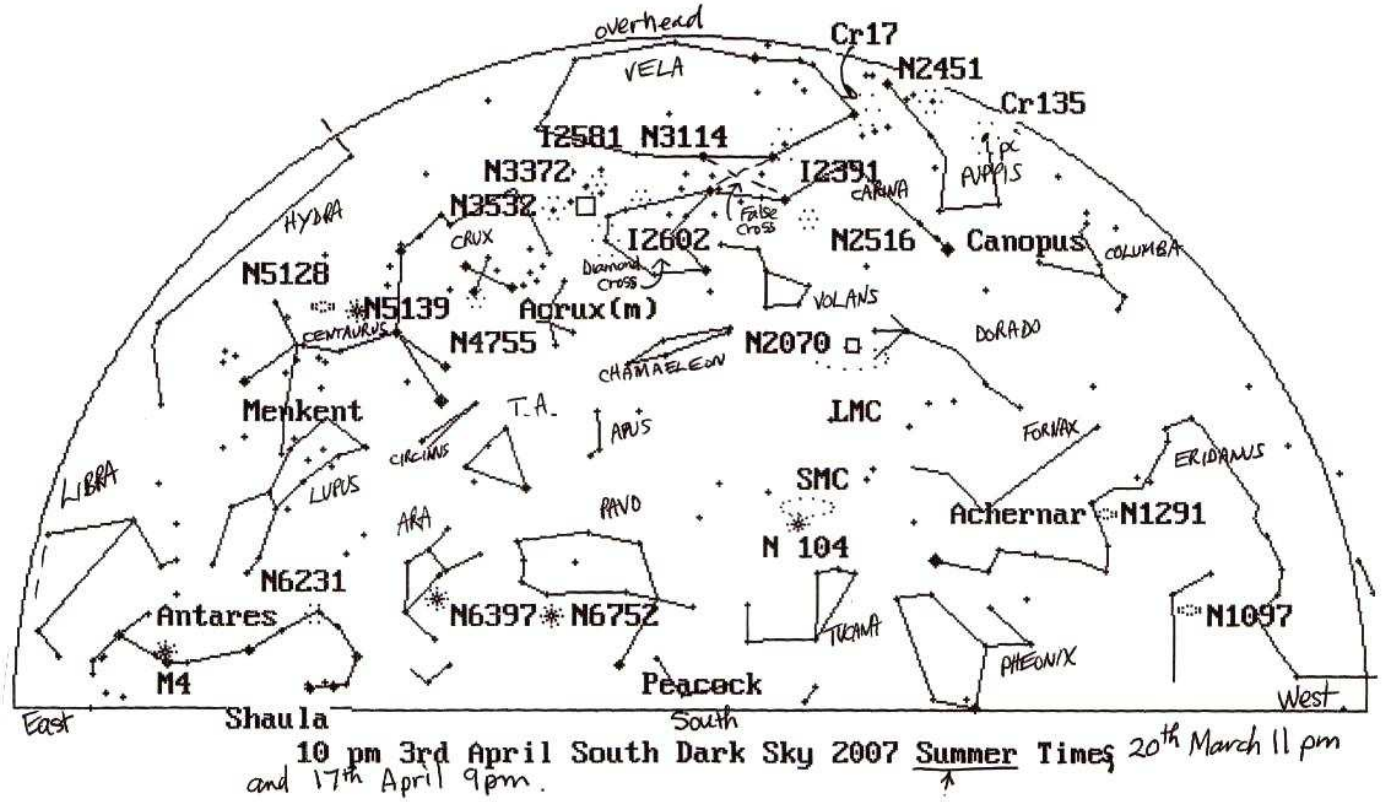
Planets
- Around 5 30am, Mars moves east in increasing RA (Dec steady) through CAPRICORN whilst Mercury below it, does a decreasin RA to increasing RA loop in middle AQUARI The Moon nearby 15 - 18/3, Mercury pass very close South of 38 Aquarii on 19/3 - a in a dark east morning sky
- 1 20am sees Jupiter moving east in increasing RA / slightly decreasing Dec, through OPHIUCHUS, a distant Moon or

Mornington Peninsula Astronomical Society

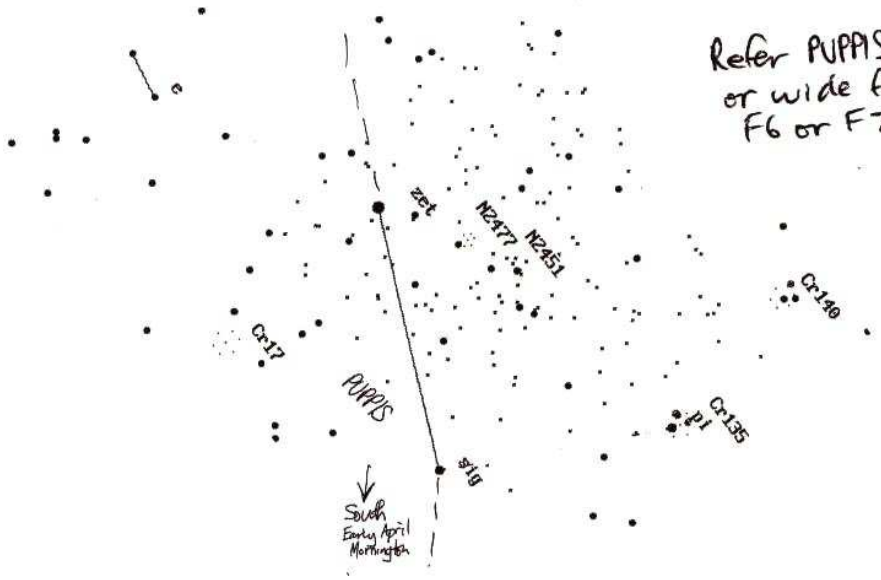


S or 15 Monocerotis within open cluster NGC2264 refer chart between GEMINI and MONOCEROS – good in large binocs or small telescop

Don't forget – Gamma Virginis or Porrima, closest in 2005, is beginning to open now, continuing for this century both white, both 3.5 (I think) Rush! Rush! It's cycle is 169 years, so should stay open for most of the century in 2007



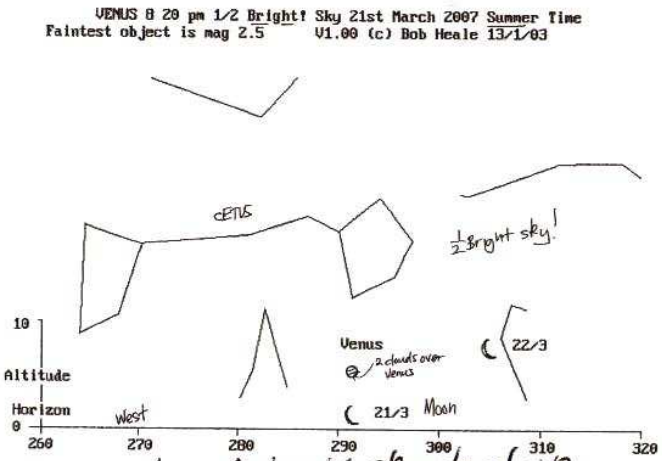
10 pm 3rd April South Dark Sky 2007 Summer Times 20th March 11 pm and 17th April 9pm.



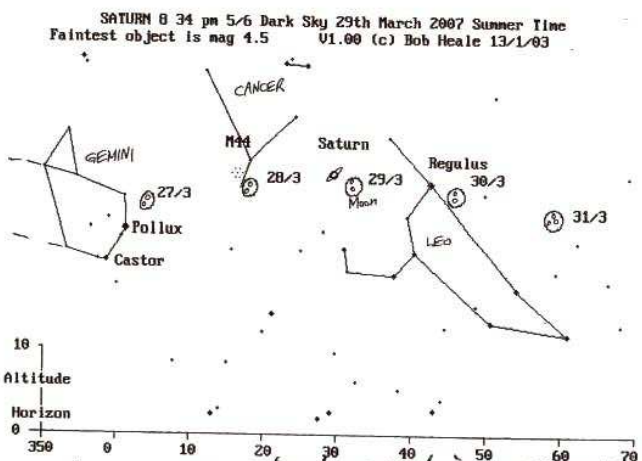
Refer PUPPIS above – easy large binocs or wide field small telescope at F5, F6 or F7 (F10, F14 not helpful)

Bob Heale
MPAS
19/3/2007

SKY FOR THE MONTH 21ST MARCH – 17TH APRIL 2007 MORNINGTON PENINSULA

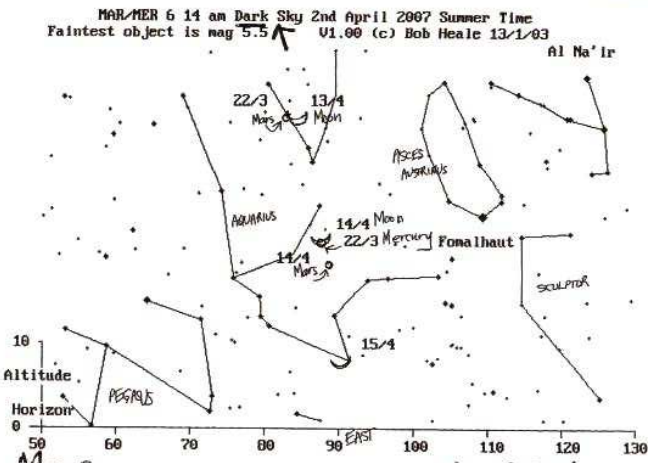


In a similar ½ bright sky to above, Venus's path is moving above bright Hamal of ARIES, then north easterly below Alkebarran of TAURUS



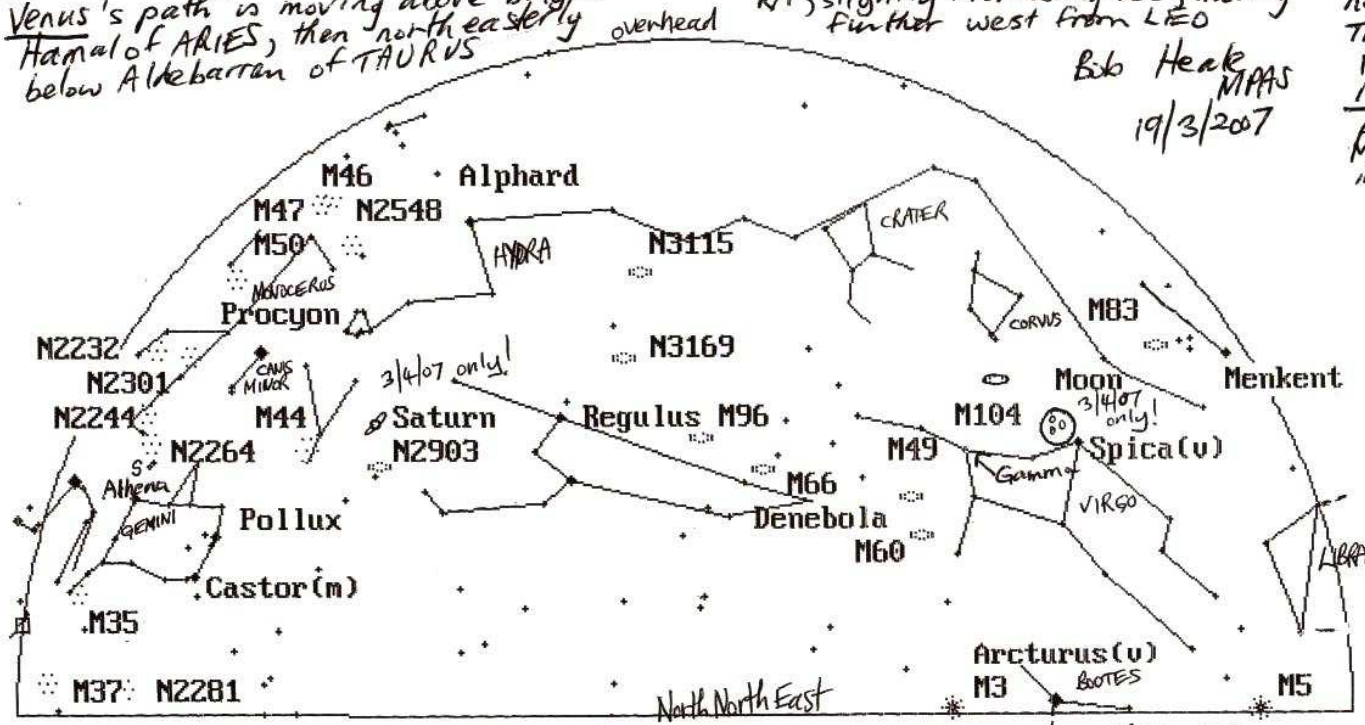
Saturn moves slowly west in increasing RA, slightly increasing Dec, moving further west from LEO

Bob Heale MPAS 19/3/2007

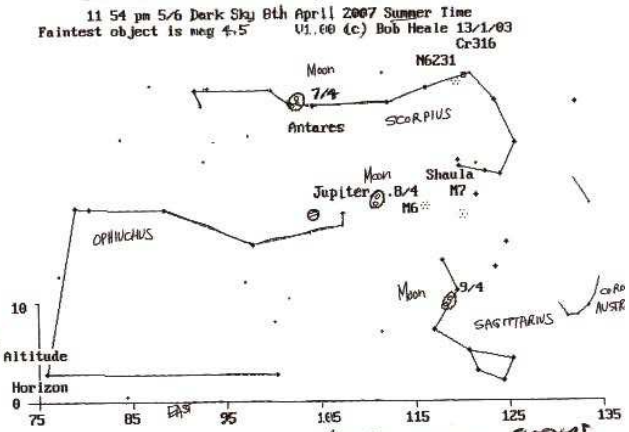


Mars passes close slightly north of Iota Capricorni early on 22/3 and, more close northerly of Kappa Aquarii early on 14/4. The Moon crosses Mars path 13–15/4 and 17–19/3

Mercury, in dark sky, and high, has a clear path through easterly AQUARIUS mid-late March and south easterly of Cirlet of PISCES in early April



10 pm 3rd April NNE Dark Sky 2007 Summer Times, 20th March 11 pm and 17th April 9pm



Jupiter almost stationary, seems almost motionless over 1–4/4 in eastern OPHIUCHUS

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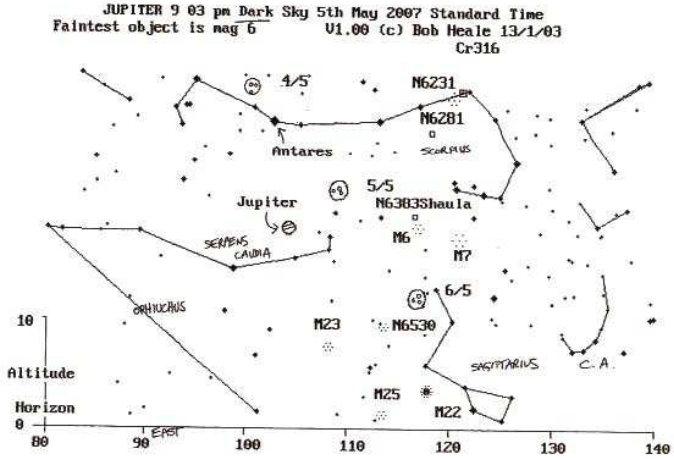
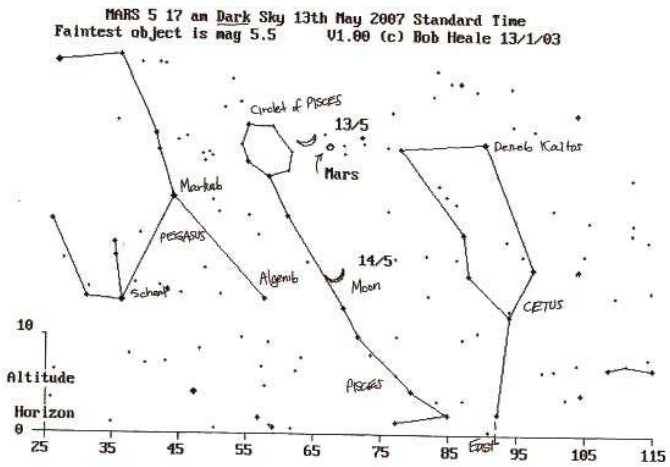
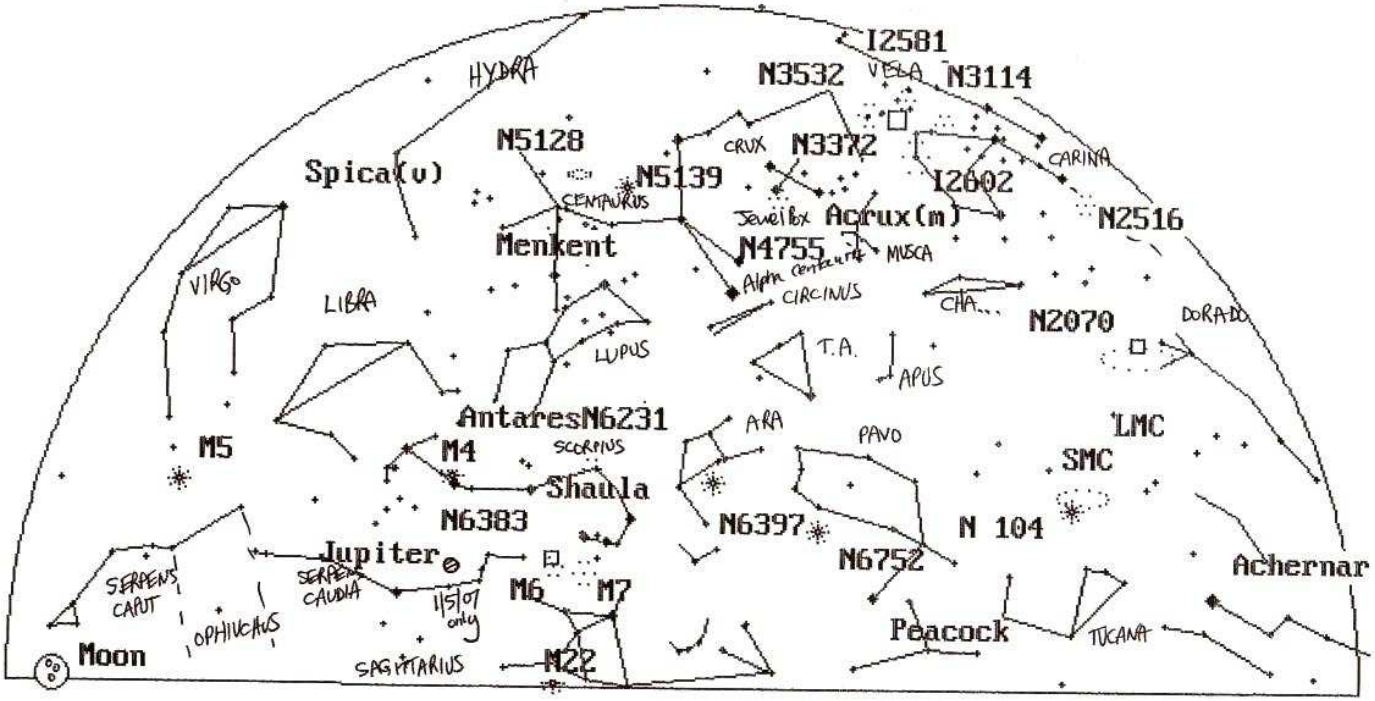
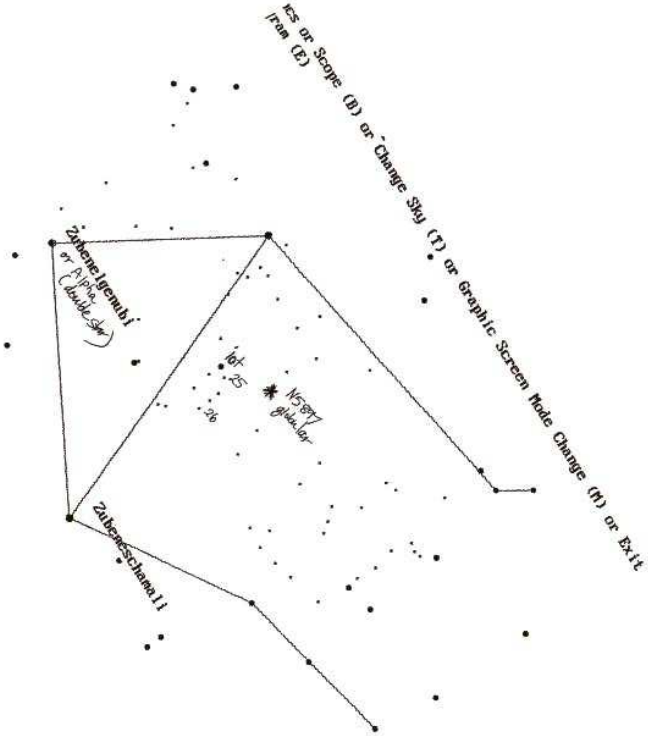






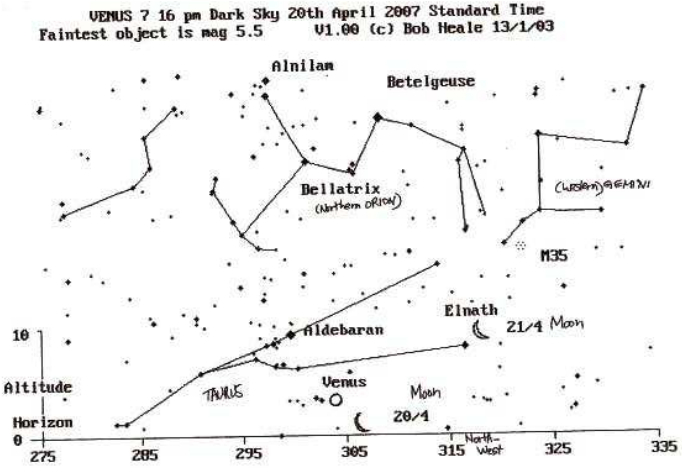
9 00 pm 1st May South-East Dark Sky 2007 Standard Time

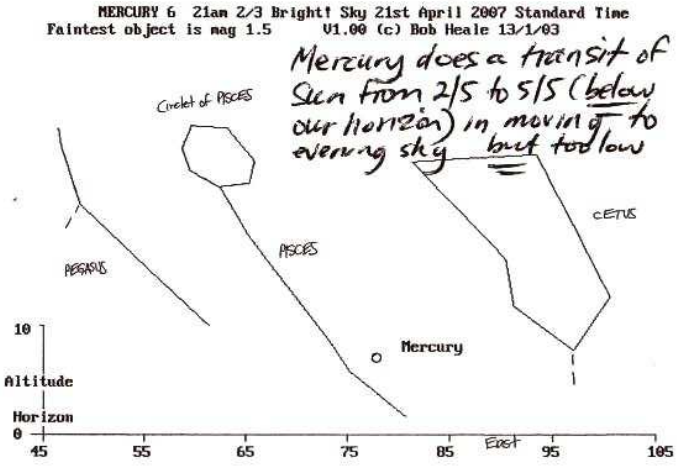


Bob Heale MPAS
16/4/2007

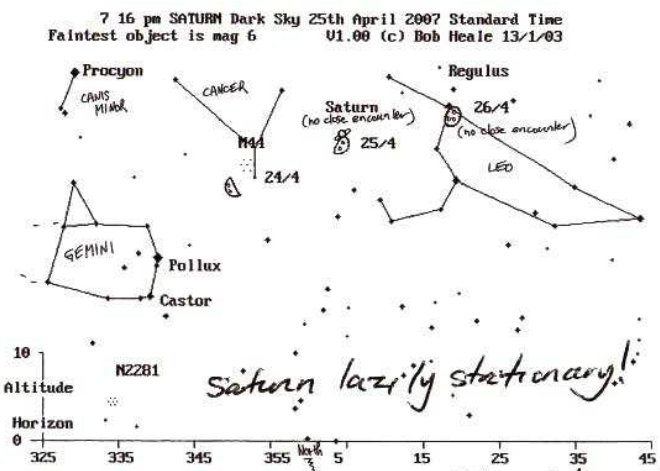
Mornington Peninsula Astronomical Society

SKY FOR THE MONTH 18TH APRIL TO 15TH MAY 2007 MORNINGTON PENINSULA





Mercury does a transit of Sun from 2/5 to 5/5 (below our horizon) in morning to evening sky but too low



Saturn lazily stationary!

Mars, Mercury and Venus are all moving with increasing RA and decreasing Dec; Saturn can't decide so is remaining very stationary near (16/4/07) until 24/4/07, then increasing RA but increasing Dec also Jupiter is bucking this with slightly decreasing RA/increasing Dec

Mercury does an under the horizon transit of Sun from 2/5 to 5/5, going from mid morning east sky to a very twilight evening sky very much in Sun's glare

Mars comes close to 55 Pegasi over 10-11/5

Apart from the above, we have good skies behind the cloud, north and south.

— Gamma Crateris is an easy small colourful telescope double (see at left)

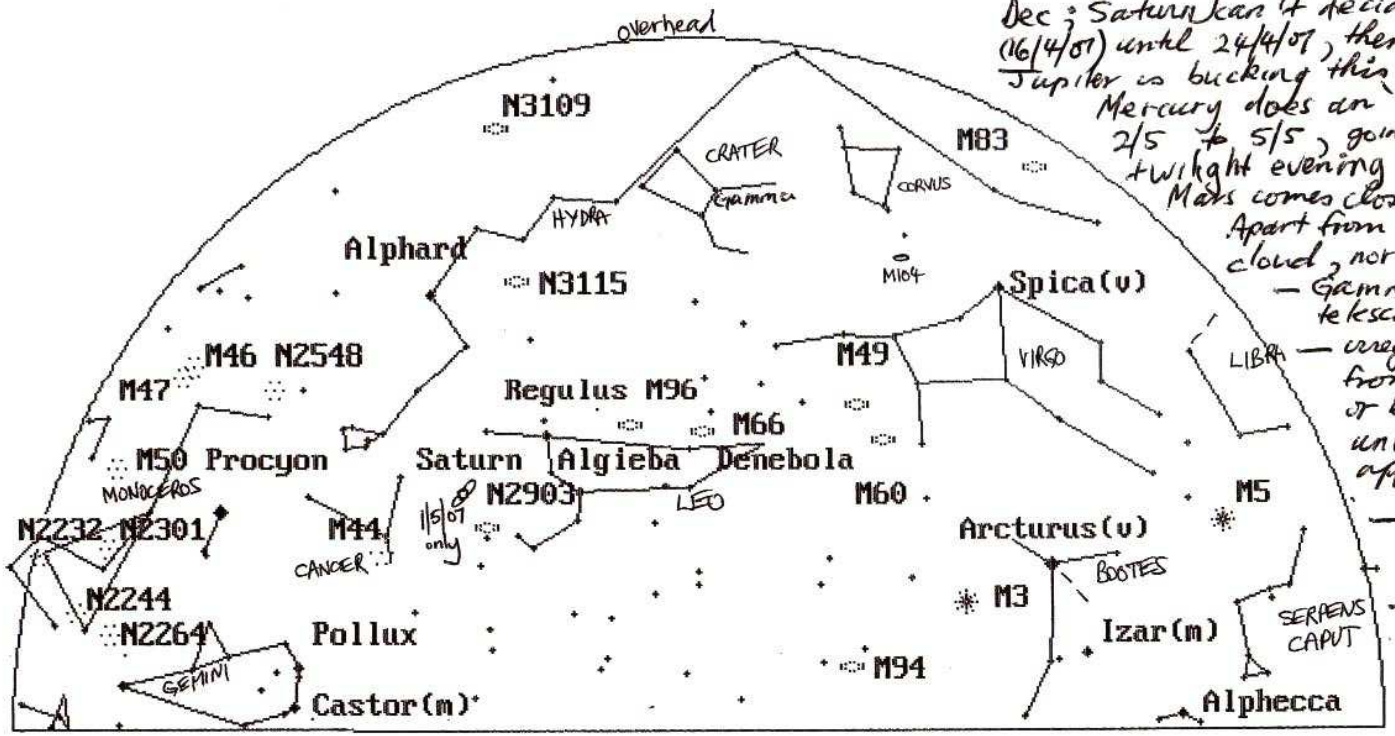
— irregular galaxy NGC 3109 (better accessed from southern sky actually) with 6" scope or better, another spindle galaxy with uniform brightness, slightly thicker nucleus appearing slightly rectangular (see at left)

— reasonable open cluster NGC 6025 above TRIANGULUM AUSTRALE (south chart)

— globular NGC 5897 in LIBRA easy to find and not dull.

and ... Sirius's magnitude 8 companion is moving out! Go for it

Bob Heale MAAS 11/III/2007



18th April 2007 and 15 May 8 pm 2007 Standard Times

9 00 pm 1st May North Dark Sky 2007 Standard Time, also 10pm

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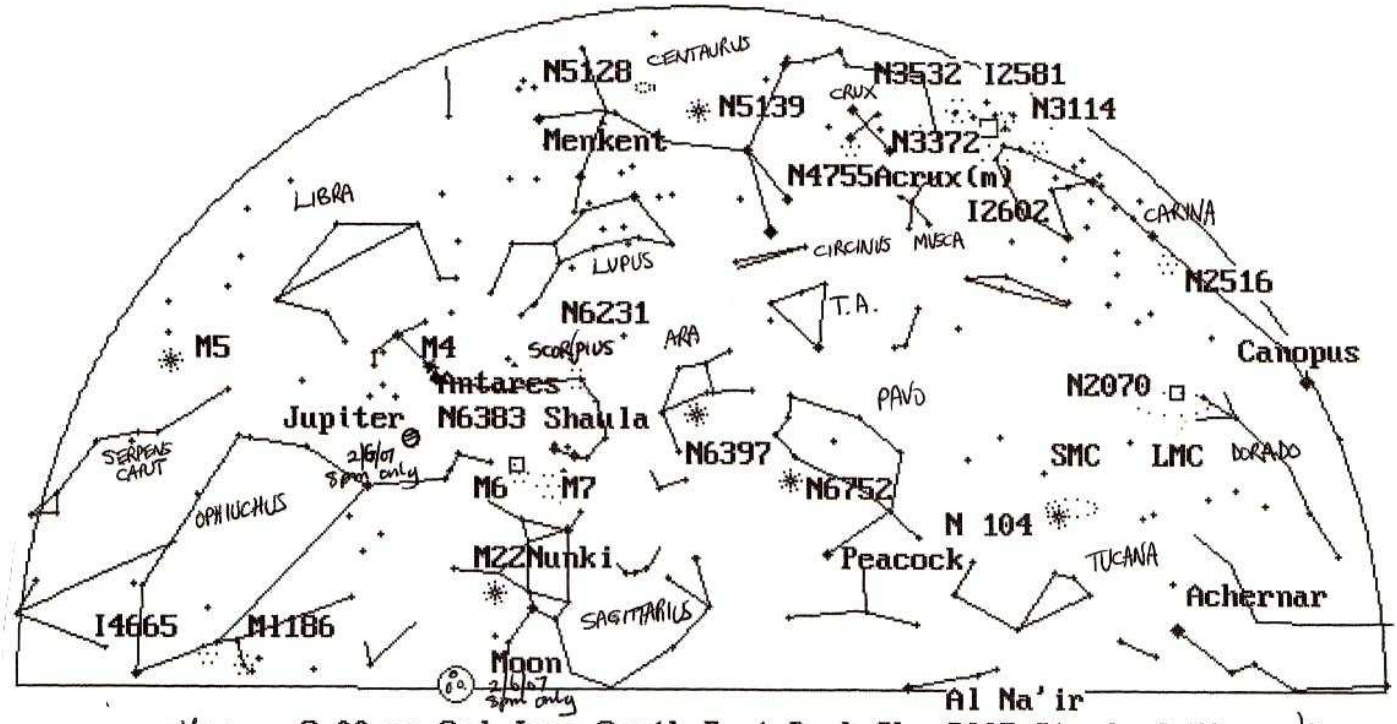
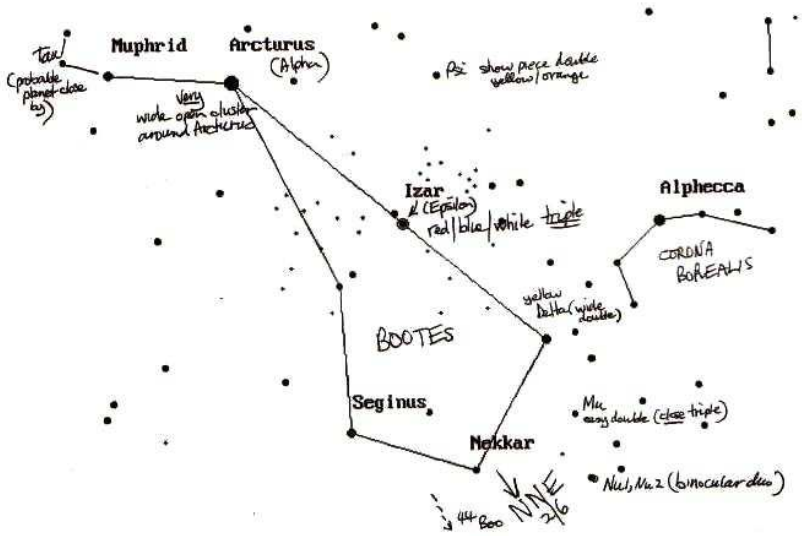
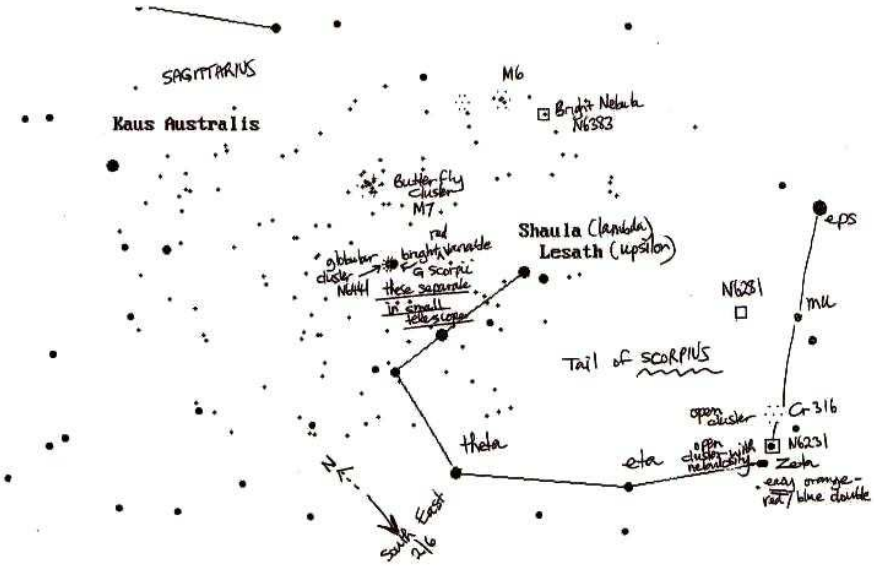


9 15pm 16th May 8 00 pm 2nd June South-East Dark Sky 2007 Standard Time, also and 14th June 6 50pm Standard Times



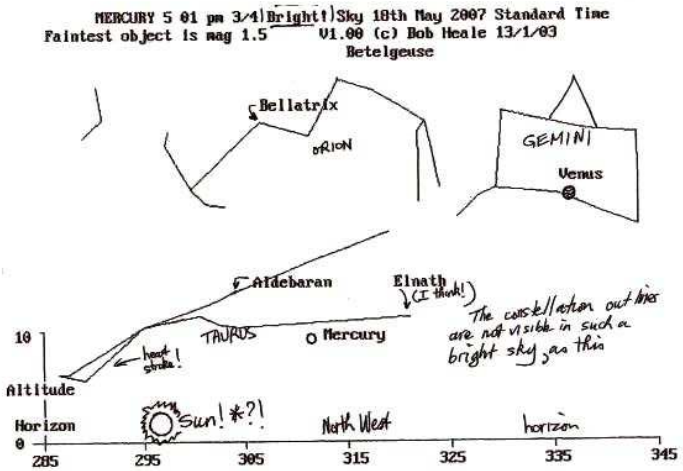
At left, refer North chart over self explanatory

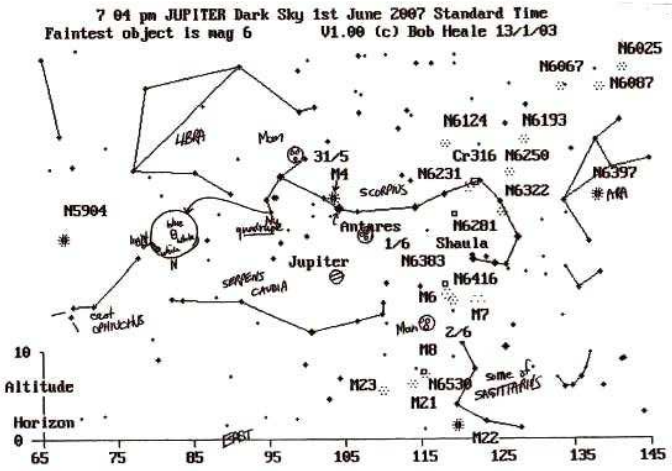
At right, refer above ⌓, then self explanatory

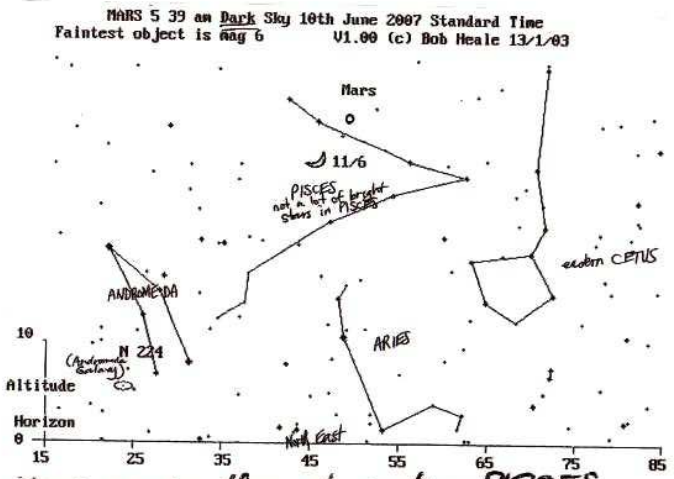


Bob Heale MAAS
14/5/2007

SKY FOR THE MONTH 16th MAY to 19th JUNE MORNINGTON PENINSULA 2007







Planets – In a dark late morning sky, Mars passes through eastern PISCES without hindrance, the Moon near over 9–11/6

– A very bright evening sky Mercury passes northerly TAURUS towards GEMINI, 12/6–19/6 slow down and reversal, the Moon close mid May and June

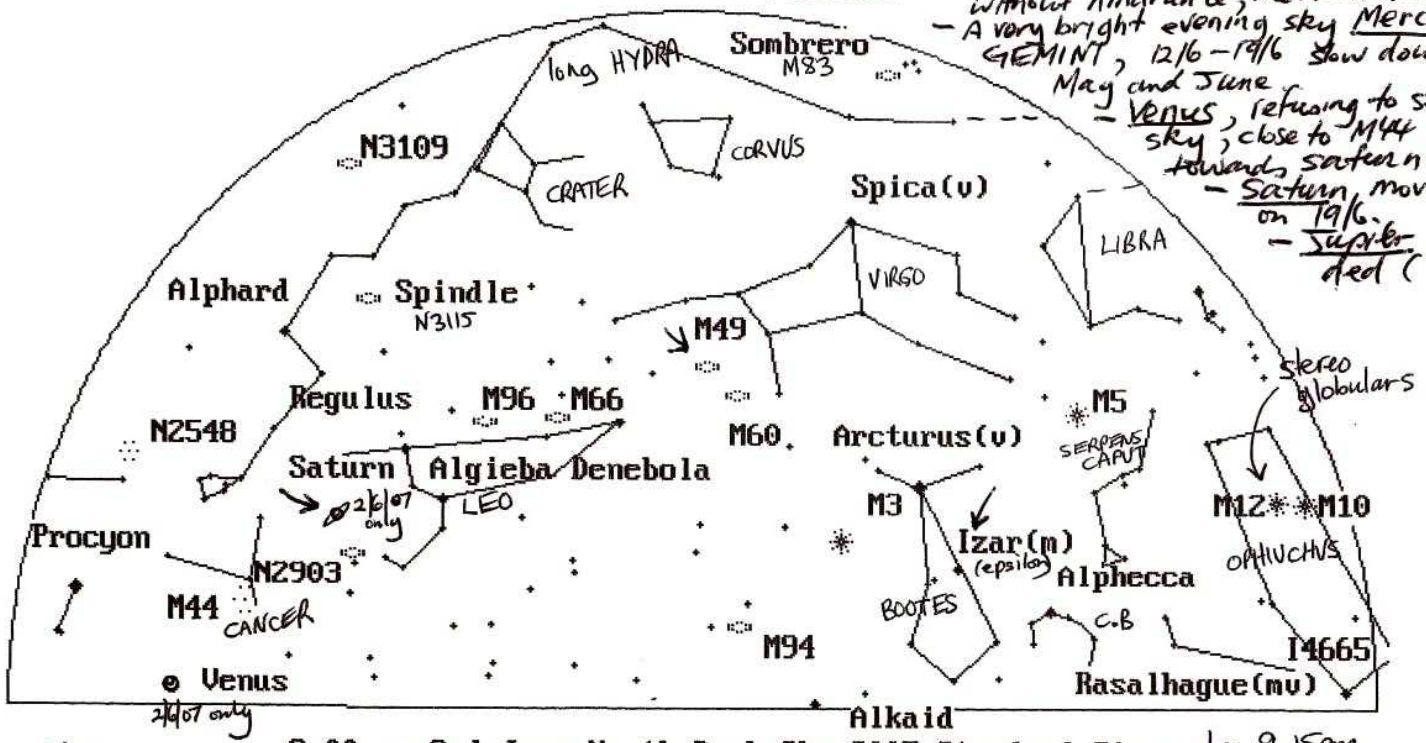
– Venus, refusing to set, now rising back into a darker evening sky, close to M44 13/6, close to Moon 18/6 ... as it moves towards eastern

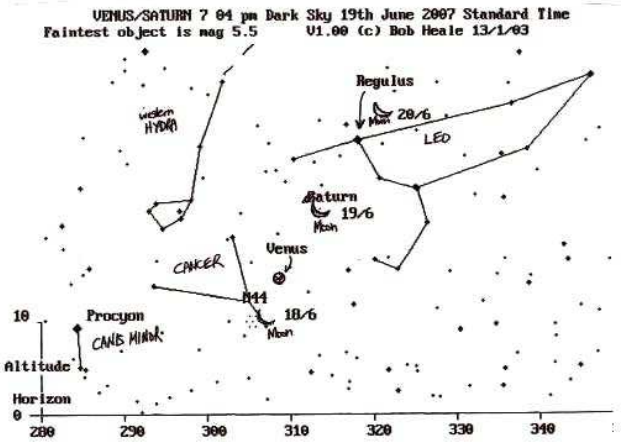
– Saturn moving to a reverse!? Moon close (no more!) on 19/6.

– Jupiter moving towards head of SCORPIUS unhin

ded (Sigh.)

Bob Heale MMAS 14/5/2007





16th May and 19 June 8 00 pm 2nd June North Dark Sky 2007 Standard Time, also 9 15pm 6 50 pm Standard Times

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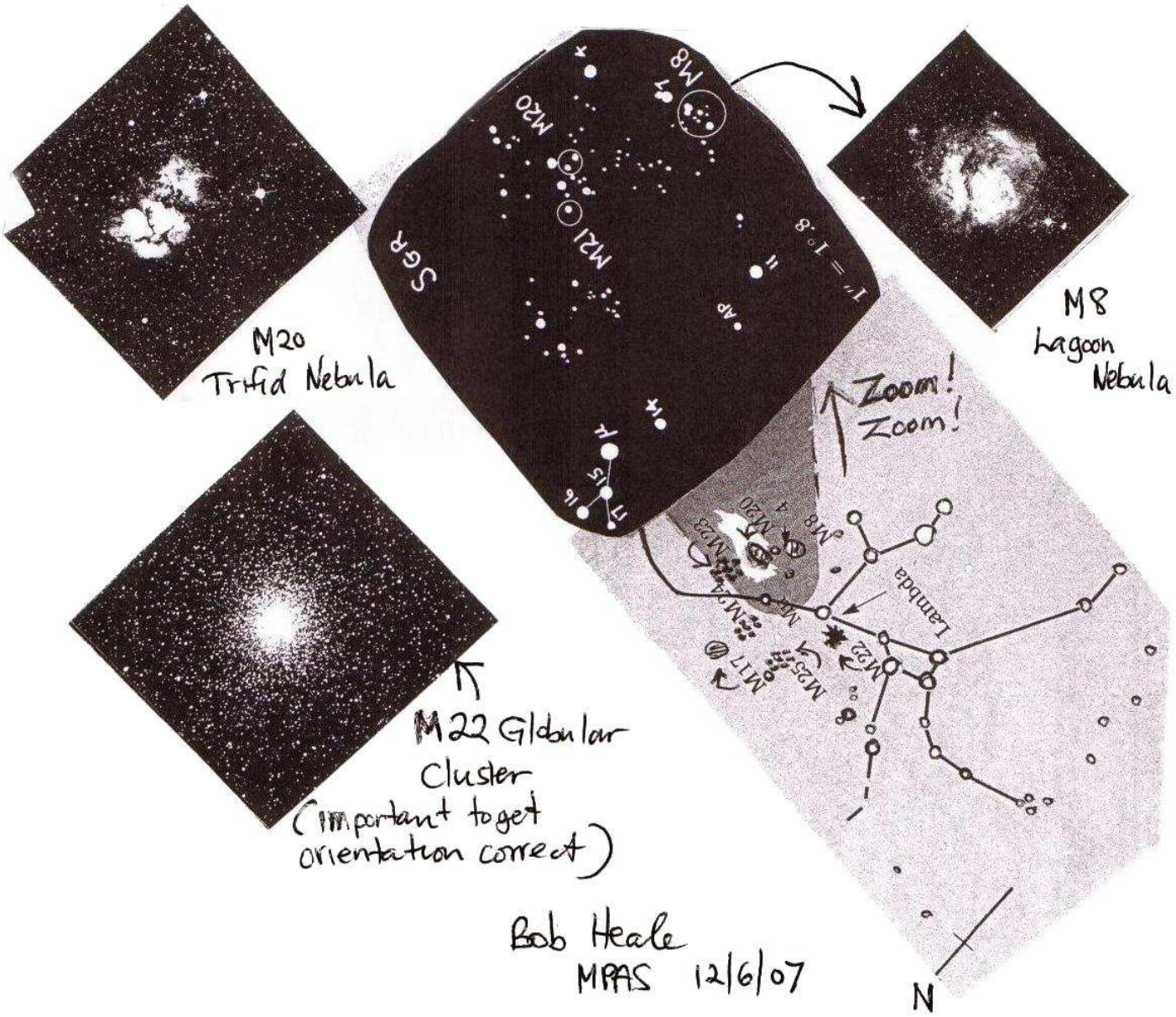
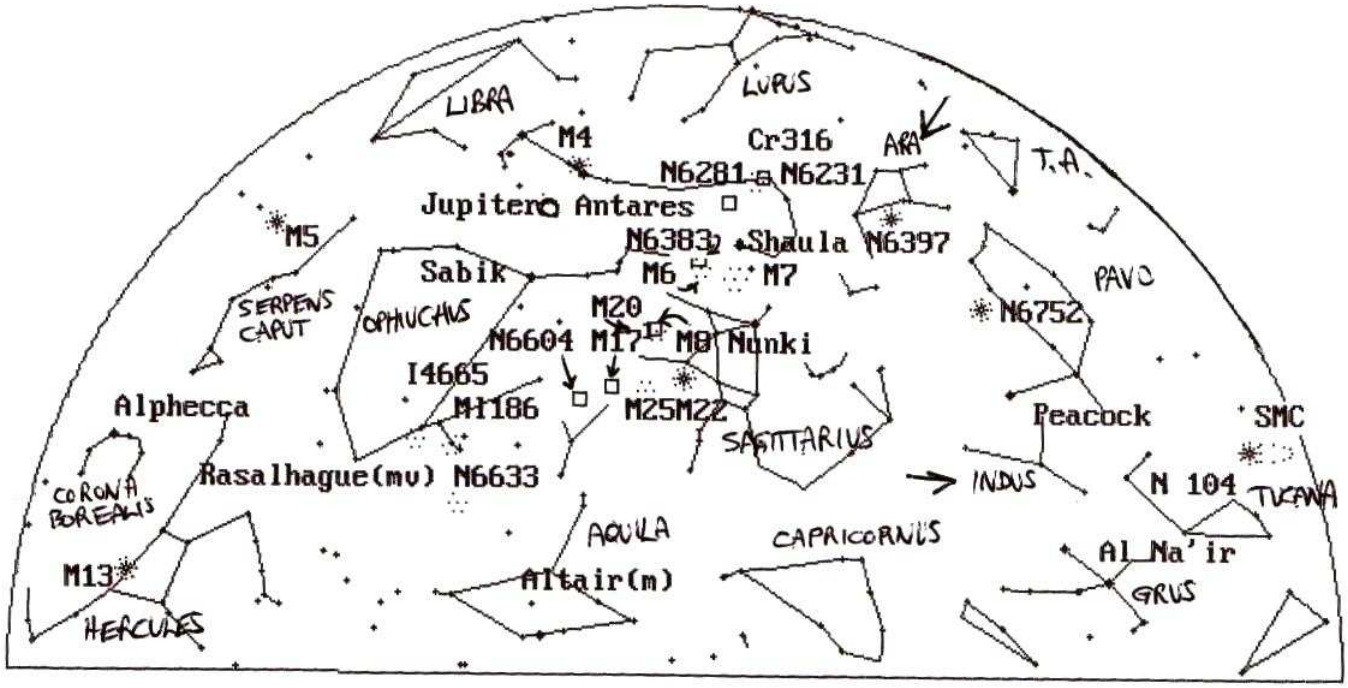
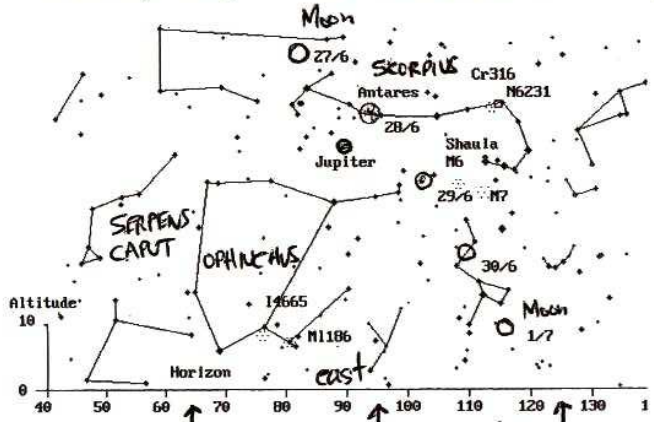




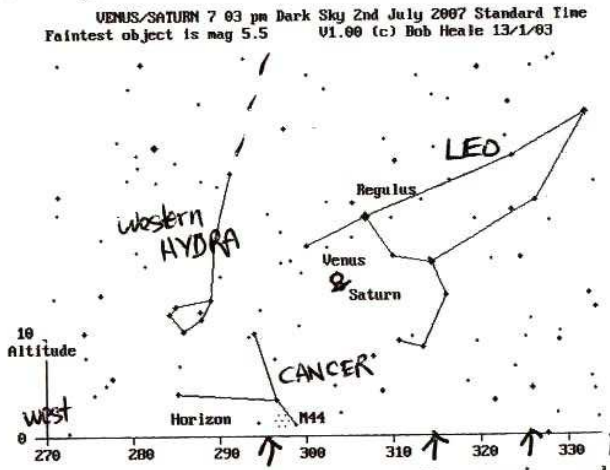
8 15pm 4th July East Dark Sky 2007 Standard Time, also 9 15pm 20th June and 7 15pm 18th July, Standard Times

SKY FOR THE MONTH 20TH JUNE TO 17TH JULY 2007 MORNINGTON PENINSULA

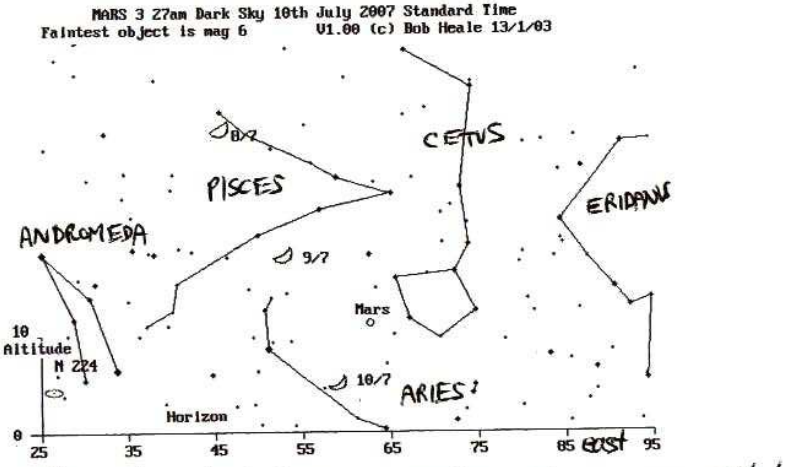
In NW evening sky, Venus continues move east (and up) towards Saturn, becoming close by South edge of Saturn over 1/7 – 3/7



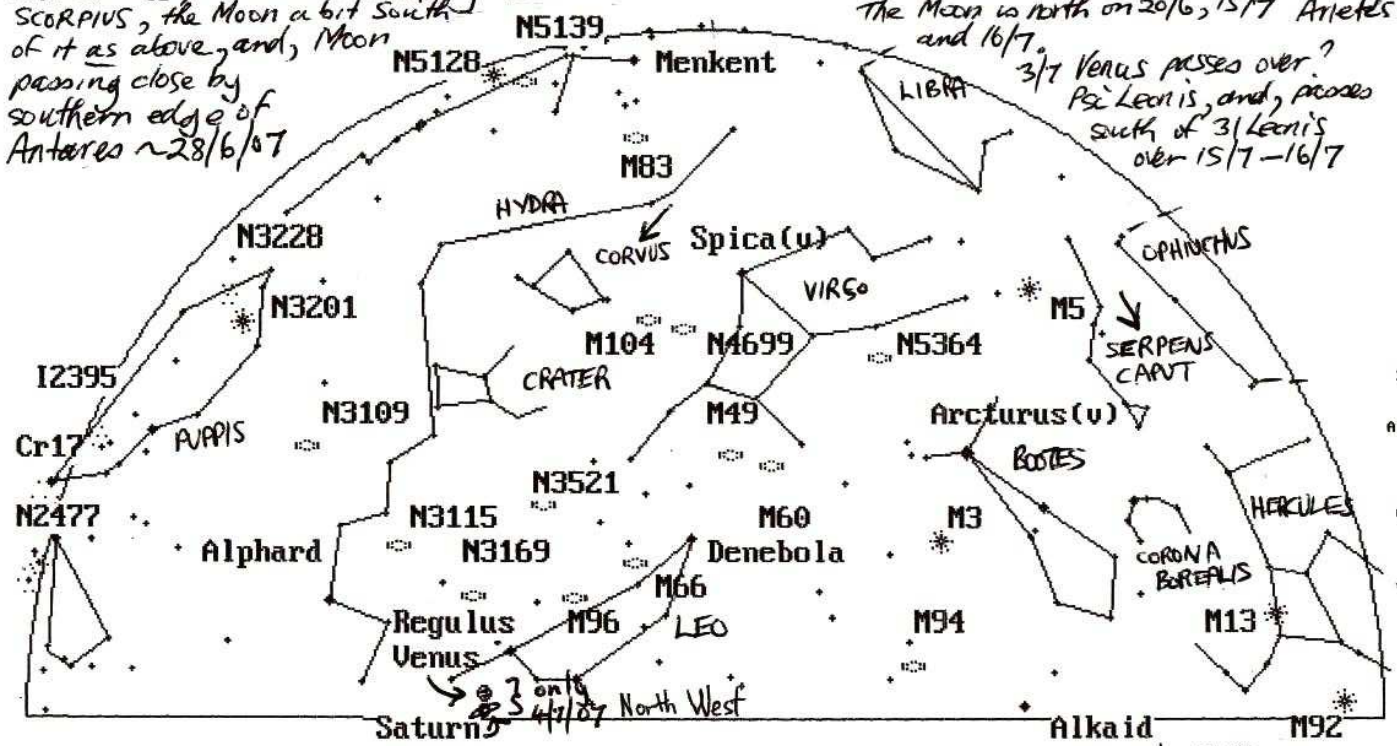
Jupiter moving west (decreasing RA, very constant Dec) towards northerly head of SCORPIUS, the Moon a bit South of it as above, and, Moon passing close by southern edge of Antares ~28/6/07



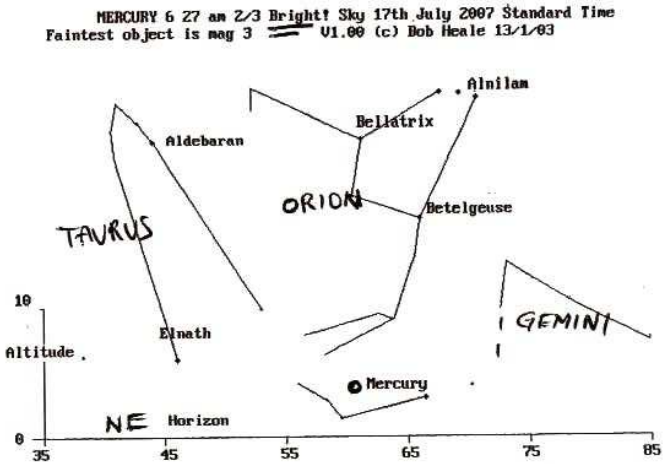
The Moon is north on 20/6, 15/7 and 16/7.
3/7 Venus passes over? Psi Leonis, and, passes south of 31 Leonis over 15/7 – 16/7



Mars – hmm! what can one write; it is moving westerly (increasing RA) and down (increasing Dec). On 22/6 passes close by North edge of Ascum, eddy 16/7 passes over? π Arietes. Moon slightly north 9/7 and 10/7



8 15pm 4th July NW Dark Sky 2007 Standard Time, also 9 15pm 20th June and 7 15pm 18th July, Stand and Time



In returning to morning sky ENE, Mercury in rising, does a loop between North east ORION and north west GEMINI ... in a very bright sky.

Bob Heale
MPAS 12/6/07

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