



SCORPIUS

The Journal of the
Astronomical Society of Frankston Inc.
P.O. Box 596, Frankston, Victoria 3199

Reg. No. A268 ABN: 34569548751

Volume X, No. 2 2001

(Mar - Apr)

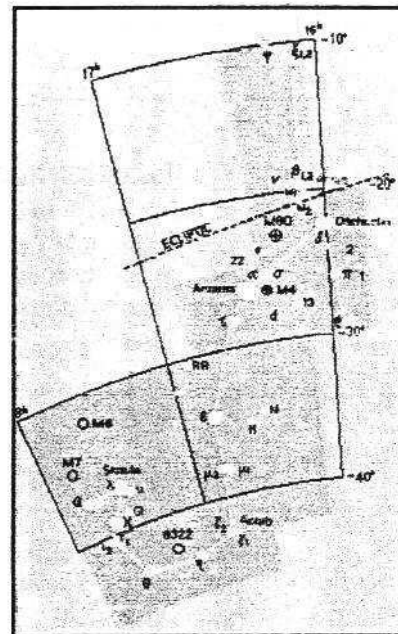
The Astronomical Society of Frankston was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights,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

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

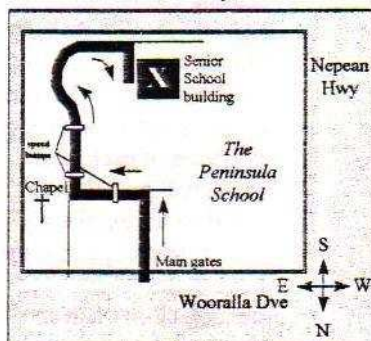
Phone: 0419 253252

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

Email: aggro@peninsula.starway.net.au



Visitors are always welcome!



Annual Membership

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

DUE 1st OF JANUARY EACH YEAR

President
Peter Skilton (03) 97765898

Vice President
Richard Pollard (0419) 100 802

Treasurer
Bob Heaie (03) 9787 1748

Secretary
Sally Zetter

Committee of Management

John Cleverdon, Peter Lowe,
Russell Thompson, Ian Sullivan, Martin Rudd

Acting Editor
Ian Porter

All phone calls before 8:30pm please.

FUTURE EVENTS

General Meetings:

Wed 21st March 2001 At the Peninsula School
Speaker: "To see what you can see" Beginners session – Ian Porter

Wed 18th April 2001 at the Peninsula school

Speaker: Barry Adcock from the ASV on "Mars"

Wed 16th May 2001 at the Peninsula school

Speaker: Peter Lowe "Cosmology in the 20th Century"

Viewing Nights:

Members Only:

Sat March 24/31 April 21/28 May 19/26 all at *The Briars*, Nepean Hwy, Mt. Martha (Melways 151/E1)

If weather forecast for the Saturday looks bad, the Friday before may be used instead. New attendees must always confirm with Don Leggett on 5985 4927 before attending. Remember for security reasons you can only attend on planned Members' Nights, unless by prior arrangement with Ian who will liaise with *The Briars* accordingly. Last person out must switch on the shed security light.

Public, School & Community Groups Viewing/slide nights:

If you can assist, please contact the Secretary.

- The once-a-month basic public viewing nights at *The Briars* will continue on the first Friday of each month. The next nights are on Fri 6th April and Fri 4th May, all at 8pm. Assistants are required.

Upcoming School Nights

THU March 29th 8pm – Rosebud Secondary College (Melways 170 A3). Around 100 students expected.

TUE May 1st 8pm - Camp
Manyung (Melways 105 A6) for St
Kilda Primary School. Around 50
students expected.

TUE May 8th 7.30pm -
Langwarrin Park Primary School
(Melways 136 A4). Around 100
students expected.

Society Events

- **Working bee** at the Briars site – March 18, commencing at 10 pm and finishing strictly at 1pm. Bring meat and drink for a BBQ if you wish.
- **Special Beginners night** at the Briars on 24th of March. Let David Girling and team explain and answer some of your questions. Bring that scope you can never quite get set up right for some expert advice. Starts at 4 pm and ends at 7-8 pm. Bring BBQ food and stay for the observing night if you wish.
- **Equinox Dinner** at Kirkpatrick's Hotel, March 23rd from 6:30. Meet in the atrium room, and celebrate the equinox.

YOUR SOCIETY

NEW MEMBERS

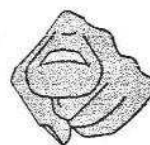
Welcome to the following new Society members:

Tony Kaucic
Julie Midgley
Amanda Pearson
Joanne Begbie

The ASF is one of the largest astronomy groups in Australasia. Membership is currently at 158. Please feel free to say hello at general meetings. Specialised badges, windcheaters, T-shirts, books & posters are available at meetings. Society name tags are free to new members who attend meetings. Members are able to borrow library books and are entitled to attend special viewing nights at *The Briars* where you can discover the secrets and glories of the night sky.

HELP NEEDED

Articles, features, book reviews, member observations and points of general interest for this journal are always welcome. New contributors are encouraged. For example do a bit of reading and pass on some information, but remember not to plagiarise. Hand written material is fine; computer text files are perfect. Email contributions to jedi@alphalink.com.au or hand them to the editor at a general meeting. Next Deadline is May 5th.



RECENT MEETINGS

- The first meeting of the new millennium in January was chaired by the President and saw 52 in attendance, including a few new faces, and was packed with new activity. After introductions, regular information and educational segments were presented in true multimedia and technicolour, utilising nearly all facilities present. Bob Heale presented *Sky for the Month*, Ian Porter related about recent launches and spaceflight gossip in *What Goes Up* (so the Chinese are going to land a man on the Moon). Bruce Tregaskis gave an overview of phenomena on the Sun in his new "Great Balls of Fire" segment. The assembly broke for a tea break before some watched
- February's meeting was chaired by the President and was attended by 46 on a very hot night. Andrew Thornton continued on as assistant Librarian since Kathy Stabb was still recovering. A time adjudicator was set in the audience with yellow card, red card and bell, then the information segments were given a timeboxed 5 minutes each. Bob Heale gave *Sky for the Month*, Ian Porter gave *What Goes Up*, Ian Sullivan talked in *Learn About Astronomy* about the origins of the

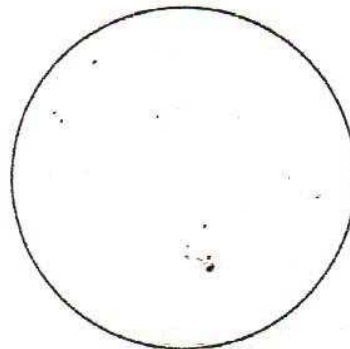
the first half of 2001: A Space Odyssey in the library room, while others preferred to chat amongst themselves outside, and yet others reconvened in the theatre to hear the remaining segments. Roger Giller opened with *Sky Lights*, explaining a bit about aurorae and the phone contact network he runs. Ian Sullivan then followed up on the subject of the analemma and invited all interested parties to the Solar Day he had organised at *The Briars* prior to the February working bee. David Girling then humbly dived into his *Occultation Madness* segment, by introducing the field of lunar occultations and playing a little VNG radio time signals. Occultations of stars are when some other object, such as the Moon or an asteroid, passes in front of it, causing the star to blink off and on. Finally, Russell Thompson spoke on his web researches into active adaptive optics, showing examples of each, and which will probably be added to his excellently figured telescope at some stage in the future. The meeting closed late at 10:50pm.

Julian date system, Roger Giller gave a colourful rendition of aurorae in *Sky Lights*, David Girling talked on *Occultation Madness* and Russell Thompson presented part one on the search for Pluto in his *Did You Know* segment. The time span was very tight for each and may need to be expanded in future meetings. The Chair requested any contributions from the audience to go into a time capsule that the Society will entomb at *The Briars* into a stone cairn. Any would-be cementers or brick layers out there please step forward. A challenge was also put out to any keen member to design a Messier Marathon for the ASF and the best date at which to run it. A Messier Marathon occurs when a group of telescopes get together in a field and their users attempt to observe as many Messier fuzz balls in the sky in the one night that are physically possible given the location's latitude. This would be a first for the Society to the best of our knowledge. After the tea break, the second half of 2001: A Space Odyssey was shown in one room, and in the main theatre, Peter Skilton talked on *The Scale of Things* from the biggest things theorised to be beyond our universe, to the smallest things that make the universe what it is at a fundamental level, including some of the most recent scanning tunnelling microscopic images of single atoms and incredible direct imaging of electron orbitals. Meeting closed at 10:30pm.

SOLAR DAY

- February 11 saw a grand turnout of 25 members and families at *The Briars* Solar Observing day and working bee. On a pleasantly warm

afternoon with a cooling breeze and not a cloud in the sky, Ian Sullivan expertly led an intrepid group of participants assembled around arcane looking instrumentation and wielding clipboards to determine solar noon, true north/south, and the sun's declination and altitude. Congratulations to the finely honed talents of Russell Thompson and Jeremy Scott for finding the altitude of the Sun to within 5 degrees! After discussions about various styles of sundial present onsite, and the theory behind them, sunspot observing and counting occurred on the four solar telescopes. Ken Bryant had his hydrogen alpha filter on the upper observing slab, while mylar full aperture filters were set on the Peter Norman telescope and Ian Sullivan's Questar, and John Cleverdon used simple eyepiece projection on the lower slab. Thanks especially to the workers Jane McConnell, Heinze and Ilse Rummell and Russell Thompson on the watering, Don Leggett for the weed poisoning, Ros and Rene Skilton on the weeding, Richard Pollard on native fauna removals, Roger Cleverdon on the bush saw, David Girling on whipper snipper, Trevor, Phil and Richard on mower, and the Girling and Skilton kids on digging duty. Greg Walton, Jacov from the ASV and a couple of others also were onsite helping out during the working bee.



Sunspot drawing at Briars Solar Day by Ros Skilton, 2001
February 11, 0338 UT through a 15cm Newtonian equipped with Mylar filter. Estimated Wolf Sunspot number was 62.

Occult Meeting in Mt Waverly !



Recent meeting of southern hemisphere occultation observers in Mount Waverley. From left to right: Marj Walker (ASV), Pat Larkin (ASV), Graham Blow (RASNZ), Peter Skilton (ASF), Roger Giller (ASF), Bruce Tregaskis (ASF), Ken Bryant (ASF), Peter Nelson (LVAS), David Girling (ASF) (and holding the camera Alfred Kruijshoop of the ASV).

SCHOOL AND PUBLIC NIGHTS

- The public night on Jan 15 saw 16 in attendance, with cloud and more smoke from the fires on King Island threatening to disrupt matters. Throughout the evening there were innumerable satellites spotted, with at least one visibly tumbling. There were excellent views had of Saturn in moments over very good seeing. Sally and Jason Zetter organised supper and

treasury duties, Peter Skilton gave the talk, and Russell Thompson, Bruce Tregaskis, Neil Hewson, David Girling, David Huby, Don Leggett, Peter Lowe and John & Marg Cleverdon on telescope demonstration duties.

- *The Briars* public night on 22nd January saw 10 visitors in attendance who received glimpses of the planets, Pleiades, a couple of satellites and other stars through nearly total cloud cover. A bright passage of the International Space Station and the doomed Mir space station, was hidden by cloud. Thanks to Peter Skilton for the talk, Sally and Jason Zetter for the supper and table duties, and on the telescope field were David Huby, David Girling, Ken Bryant, John and Roger Cleverdon, Rene Skilton, Don Leggett and Peter Lowe.
- The public night on 29th January was attended by 34 on a mild evening, and included a couple of very enthusiastic families, a few meteors and dim satellites, and a cornucopia of telescopes of all different types and makes. Thanks to Peter Skilton for the talk, Bob Heale for supper and table duties, and in the field were David Huby, David Girling, Ken Bryant, John and Roger Cleverdon, Don Leggett, Neil Hewson, Rene Skilton, Bruce Tregaskis, Jeremy Scott, Mark Hillen, Jarod Anderson and Ian Porter.
- On 2nd February, it was a hot public night at *The Briars*, attended by 25. With a first quarter Moon and three planets on show, and several satellites, the many children present enjoyed the show. Thanks to Richard Pollard for the talk, Sally Zetter for supper and table duties, and in the

field were the Skilton family, David Girling, Ken Bryant, David Huby, the Cleverdon family, Neil Hewson, Jeremy Scott, Mark Hillen and Jason Zetter.

LIBRARY MATTERS

The following new acquisitions have been made for the library from the sale of almanacs for this year.

Earth Story by Simon Lamb and David Sington. This excellent book describes when and how the Earth was formed, and the remarkable forces that have shaped our ever-changing world since.

One Giant Leap: The Extraordinary Story of the Moon Landings by Tim Furniss. This book looks at the motivations for the ambitious goal and recounts the intensive Apollo programme that led up to the moon walks and missions that followed. It highlights the tragedies and successes of all those involved and how they and the world have been affected by this moment in history, as well as what they are all doing now.

Tides: A Scientific History by David Edgar Cartwright. This title provides a history of the study of the tides over two millennia, from the primitive ideas of the ancient Greeks to present sophisticated space-age techniques. It is illustrated with diagram from historical scientific papers from some of the great names of all time, photographs of artefacts, and photos of some of the leading protagonists, and well as some tidal mathematics for the braver at heart.

Planet Earth: The View from Space by D. James Baker. In straightforward terms, the author explains remote sensing of the Earth from space by orbiting satellites. It is a well-illustrated introduction to the topic for non-specialists.

Edmond Halley by Angus Armitage. This historical work covers the life of one of the greatest astronomers of all time, from boy to Astronomer Royal, describing the discoveries

along the way and challenges encountered. Note the spelling of Halley's name (he, himself, used a number of spelling variations over the years).

The Physics of Star Trek by Lawrence Krauss. Today's science fiction is often tomorrow's science fact. This book looks at the actual physics that underlies the technologies depicted in the television programme *Star Trek*, such as warp speed, holodecks, beaming up, wormholes, antimatter space drives and time loops and many more.

The Neptune File: Planet Detectives and the Discovery of Worlds Unseen by Tom Standage. In 1845 a young Cornish mathematician discovered the eighth planet in our solar system without even looking through a telescope. The book covers the intriguing story behind the discovery of Neptune, and then goes on to tell about the modern hunt for planets around other stars via indirect methods.

Time Lord by Clark Blaise. Chronicles the extraordinary story of Sir Sandford Fleming, the Victorian engineer, inventor and designer who persuaded the world to abandon local times and accept the system of standard time zones we use today. He designed Canada's first postage stamp, was surveyor of the first maps of Toronto, and helped build transnational railways and the trans-Pacific telegraph from London to Australia via Canada and Fiji, yet arguably his greatest achievement was to achieve consistency of time keeping across the world, something we take for granted today.

Time: From Microseconds to Millennia – a Search for the Right Time by Alexander Waugh. In an unusual narrative that spans the whole of time, this book explains the mysteries of time and the human struggle to measure it, use it and understand it. It explains how the clock and calendar were originally conceived and why years, days, hours and seconds are divided up the way they are.

The Calendar by David Ewing Duncan. Charting developments in

science, religion, superstition and politics across the ages from ancient Egypt to the flowering of Indian and Islamic civilisations and beyond, this is the first complete history of the attempts to reconcile the heavens with the clock, and of the universal establishment of the calendar.

Ian Sullivan has donated some VHS video copies to the library:

- *The Great Pyramid* (outlining the theory that the alignment of the pyramids near Cairo is derived from the stars of Orion).
- *Mars Alive* (documenting the possibility of space missions to terraform the atmosphere of Mars to make it habitable).
- *Universe - The Infinite Frontier* (covering Australia and the Stars, Watch on the Southern Sky, Cycles of the Sky, Origin of Modern Astronomy, Newton, Einstein and Gravity, and The Tools of Astronomy).

Reports by Peter Skilton

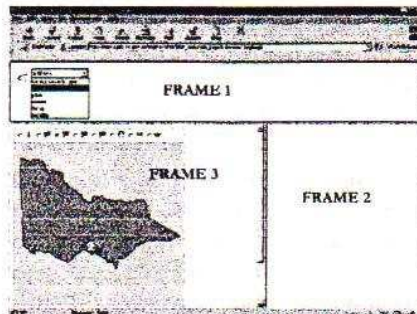
Features

FINDING YOUR LOCATION IN VICTORIA

Have you ever wanted to get an accurate location for your house or observing site, but had been unsure how to do it?

For those of you with access to the Internet, there is now a relatively quick and easy way to get your location for your site. This is because the Victorian digital map data (*Vicmap Digital*) is now online. To begin with, browse to <http://www.giconnections.vic.gov.au/menupage/mapview.htm> and click on **Property Map Viewer (whole of Victoria - non-Java)**.

This page is in 3 frames, as follows:



The most convenient way to search will be with your address. To begin this, select "address" from the menu in Frame 1. Three boxes will appear - *Road name*, *Road type*, and *Locality or suburb*. Type in the following details (all need to be correctly spelt):

- Road name: Your road/street name (house numbers are not needed)
- Road type: street/road/crescent/etc (this should be in full)
- Locality or suburb: The suburb/town that you live in.

Once all this is done, click on the *Go to Street* button.

If a match is made, a note will appear in Frame 2 stating this, and the map in Frame 3 will be updated, and will zoom in on the area of your street.

For those who have a good knowledge of geography, an alternative method of searching is simply to keep on zooming in on the map in Frame 3 until you get to your area.

A Melways could be useful as a reference here, as the maps on this site are based on cadastral (property) information.

Roads are shown by wide dark green lines, property boundaries by dark brown lines. Light green lines area easements; they can be ignored. Zoom in on the map until you can read the numbers - both house and lot numbers are shown.

When you want to check what property is yours, select the **i** button (top-left of map), and click on the property of interest. A list of information will then appear in Frame 2, including the address of the property.

When you have found the right property, click on the **W** button (top-right of map), and click on the property. Again, information will appear in Frame 2; this being the

location information. The Latitude/Longitude figures given are in *decimal degrees*, and will need to be converted to degrees/minutes/seconds; this should not be too difficult (multiply by 3600 to get the number of seconds to begin with).

A guide for distances:

Latitude (anywhere on Earth): 1 minute = 1.84 km; 1 second = 31 m.
Longitude (around Melbourne's latitude): 1 minute = 1.46 km; 1 second = 24 m.

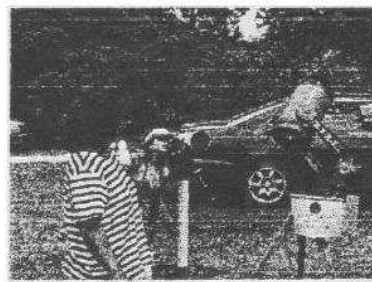
So what is the accuracy like? I made an enquiry, and was provided with the following information:

- Metropolitan Melbourne (built-up areas): 0.5-1 metres
- Outer metropolitan (minimal development): 2.5-5 metres
- Rural towns: 2.5-5 metres
- Remainder of Victoria: 25-50 metres

John Cleverdon

ASF Nova Attraction at Mayors Picnic.

The ASF was a major attraction at the inaugural Frankston Mayor's Picnic held at the George Pentland Gardens on 4th March. The cloudy weather prevented a display of sunspot activity however the display of telescopes and astronomical photographs were highly popular.



PERMIAN CATASTROPHE COMET?

A trace of indium in geological records around the world corresponding to the time just between the Cretaceous and Tertiary eras 60 million years ago has generally been interpreted as evidence of a catastrophic meteor strike leading to the extinction of many species, including the dinosaurs. Could such an event have led to the even greater extinctions that occurred during the Permian era 250 million years ago? New forensic evidence seems to point in that direction. Geologic samples in Japan and China, this time from the Permian era, reveal C60 molecules bearing an anomalous ratio of helium-3 to helium-4 atoms, suggesting an extra-terrestrial origin. (Science, February 23, 2001.)

- **THE NEAR-SHOEMAKER SPACECRAFT** has made a semi-soft landing on the asteroid Eros, the first time an asteroid has been visited by an object sent from Earth. NEAR-Shoemaker, which had been in orbit around the Manhattan-sized rock for the past year, settled down on the surface and radio signals from the craft showed that it still had life.
- (<http://near.jhuapl.edu/>)

ACCRETION DISK AROUND A MASSIVE STAR.

- We live in a relatively mature star system. Going backwards in time what one would expect to see is a gaseous accretion disk furnishing raw material for the growing protostar and for planets too at a later stage. The disk might also power jetlike outflows of material blasting away from the youthful star. Examples of such disk-star- jet systems have been seen before, but only for lightweight protostars. Now a heavyweight specimen at 8-10 solar masses has been found. At the recent American Astronomical Society meeting in San Diego Debra Shepard and Mark Claussen reported observations made with the Very Large Array (VLA) radio telescope of G192.16-3.82, an object about 6000 light years from Earth. To reach the extra spatial resolution needed to make out the inner disk (whose diameter, about 100 AU, is comparable to that of our solar system), the suite of 27 VLA

radio dishes (each 25 m across) was joined by another dish about 32 miles away in Pie Town, New Mexico. The data from Pie Town was sent down an optical fiber as if it were a cable-TV signal, which in a way it is, and the composite antenna is (according to Claussen) the best radio telescope yet achieved for combined resolution (sharpness) and sensitivity (light-gathering ability). The resulting view of G192's immediate vicinity suggest that not only is the protostar heavy but that the accretion disk itself is hefty (20 solar masses). Furthermore, the jets (containing an estimated 100 solar masses of material) flare outwards with a much wider opening angle (40 degrees) than for small protostars, and extend out to a distance of 15 light years in each direction.

Peter Lowe

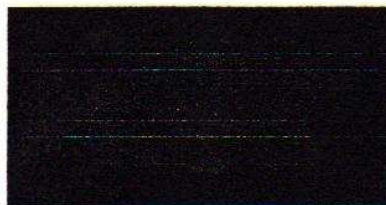
LOAN TELESCOPES

Remember that the Society has a 20cm Dobsonian, 80mm refractor, and 7x50 binoculars, available for loan to members. These can be borrowed for a one-month period, between meetings, and are at reasonable rates.

For the member who doesn't already have a telescope, borrowing one of these instruments would be a good way to learn how to use a telescope, and find their way around the night sky.

To book one of these instruments, please see me at a meeting, or ring me on 5987 1535 after hours.

John Cleverdon



Display of Aurora Australis on 2000 November 29 at 1123 UT (10:23pm AESuT). 30 seconds exposure at f/2.8, 45 mm lens, Kodak Gold 100 film, taken by Bruce Tregaskis at Mt.Eliza, facing due south. Alpha Crucis is just left of centre, just above tree tops.

NEW SHOW AT PLANETARIUM

The Melbourne Planetarium at ScienceWorks in Spotswood has just launched a new show called "Escape from Andraxus". Rojil, an alien creature on his spaceship, NavCom, takes you through an emotional journey in search of a new Sun after the death of his own. Everyone else manages to escape, but Rojil is left alone on his adventure to find a new home. The pressure builds as Rojil does not have much time due to life support running out. In his hunt for a new home and solar system, Rojil encounters the amazing assortment and diversity of our stars and the complex stages of stellar life.

ARISE SIR PATRICK

It has recently been announced that the somewhat eccentric English character, Patrick Moore, will receive a knighthood for services to the popularisation of science and to broadcasting.

Since 1952 Dr. Patrick Moore has arguably become the world's leading popular astronomical author, having written over 60 books on astronomical and other topics. Many of today's astronomers, both amateur and professional, did in fact have their first interest in the subject stirred by reading one of his books, several of which reside in the Society's library.

Peter Skilton

In the Sky

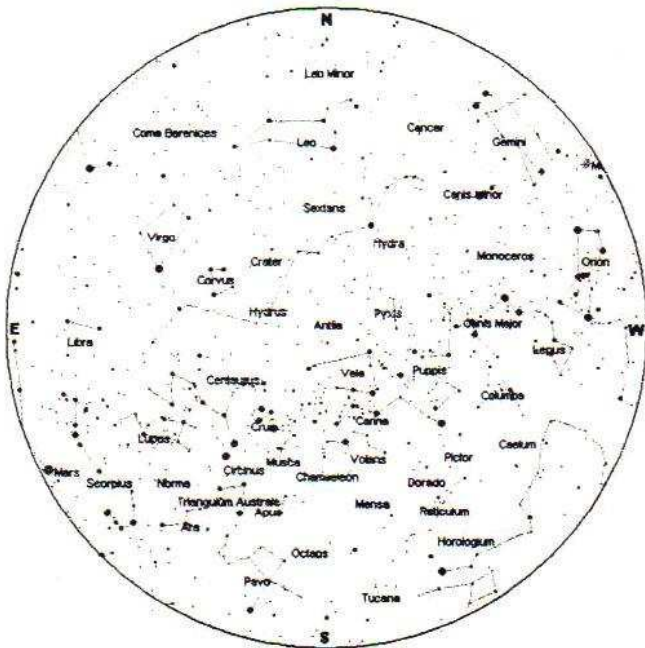


Chart Above shows the evening sky on March 31 at 10pm.

Evening Sky

The Fabulous planetary display of the past few months is fading fast, with Venus lost in the evening twilight, and Jupiter and Saturn setting fast. This month will be the last we see of them before they return to the morning sky in June-July.

The Red Planet compensates a little as it rises earlier each night and peeks into the evening chart.

Orion begins to sink into the west and a chill in the air heralds Scorpius as it leads on the winter sky.

The galaxy minefields of Virgo and Leo are well placed for the faint fuzzy crowd, and these clear autumn skies make for good viewing.

Follow the Hydra down to the rich regions of Centaurus, rising now to a respectable height. Try for NGC 3918, the "Blue Planetary". The first time I saw this object I was struck by the clear bluish tinge, and apart from the Orion Nebula, is the only extended object I have ever seen colour in. However, subsequent observations have never conveyed the same impression. What do you see?

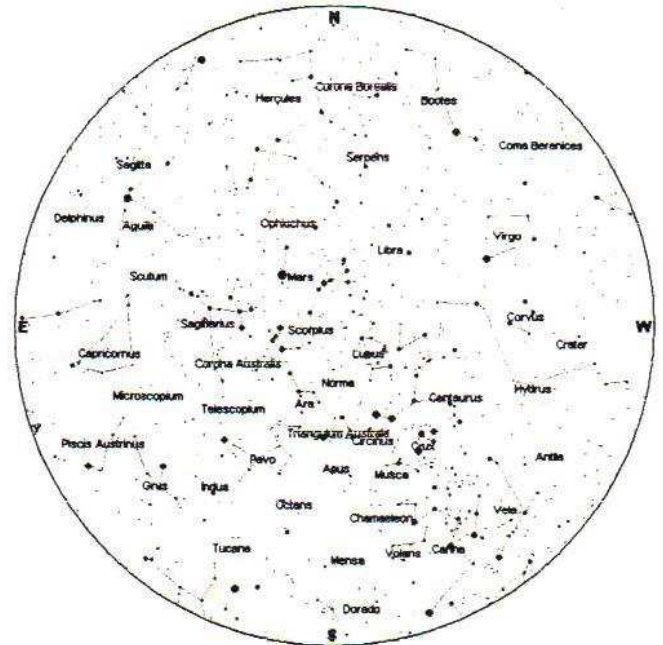


Chart above shows the morning sky around 4 am on April 1st

Morning Sky

Mars Reaches it's best in the late morning sky and is now well placed for the commencement of serious observation. Reaching 12" diameter on 15 April, it should start to reward the observer.

Mercury will be well placed for morning observation from the 11th of March but rapidly moves back toward the sun later in the month.

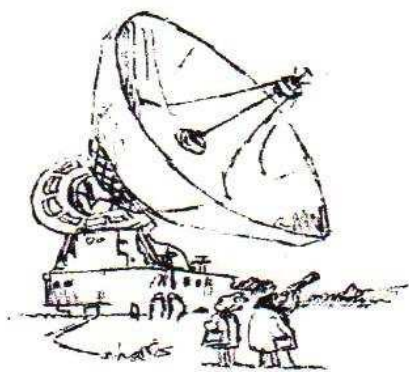
Moving Targets

The International Space station is making passes over Melbourne in the following time windows...

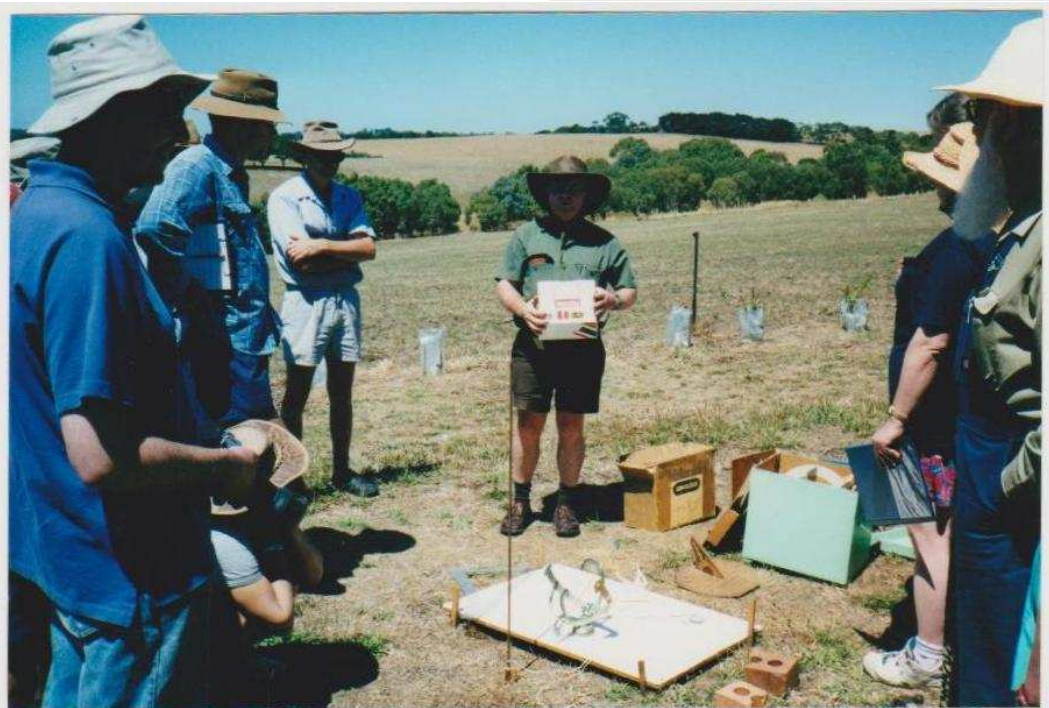
- Late March – Evening
- Mid April – Morning
- Late April – Morning
- Early May - Evening
- MIR's re-entry is planned for mid-late march. There is a chance to see it perhaps if the re-entry is delayed from 19th of March.....

Go to www.heavens-above.com for pass details

Ian Porter



"Just checking."



Solar Day
At the Briars site
11 February 2001

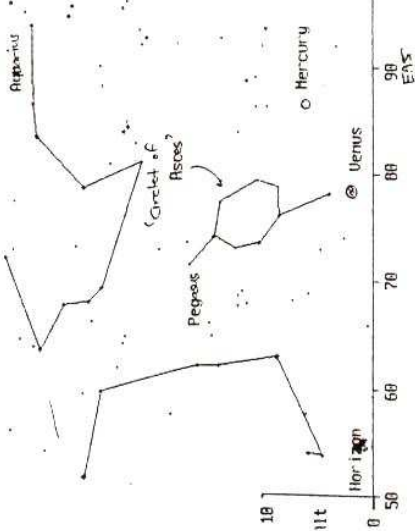
All Photos
By John Cleverdon



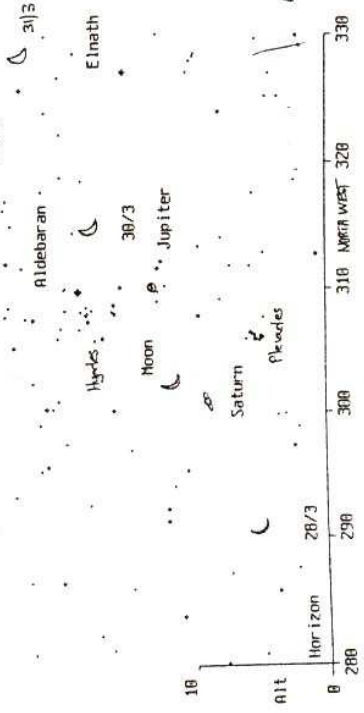
Kindly reproduced by the efforts of Ken Bryant, and collated/posted by Sally Zetter.

SKY FOR THE MONTH 21 MARCH TO 17 APRIL INCLUSIVE 2001

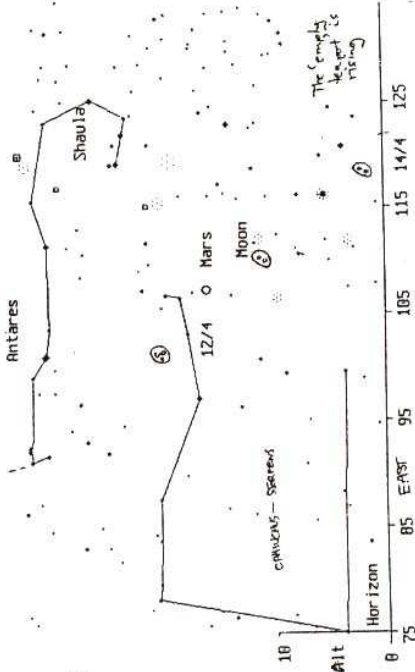
5:53 am Eastern Dark Sky 8th April 2001 Standard Time
 UL 08 (C) Bob Heale 18/4/99
 All objects no fainter than 5 1 X Sky View



7:45 pm North Western Dark Sky 29th March 2001 Standard Time
 UL 08 (C) Bob Heale 18/4/99
 All objects no fainter than 5 1 X Sky View



10:30 pm Eastern Sky 13th April 2001 Standard Time
 UL 08 (C) Bob Heale 18/4/99
 All objects no fainter than 5 1 X Sky View



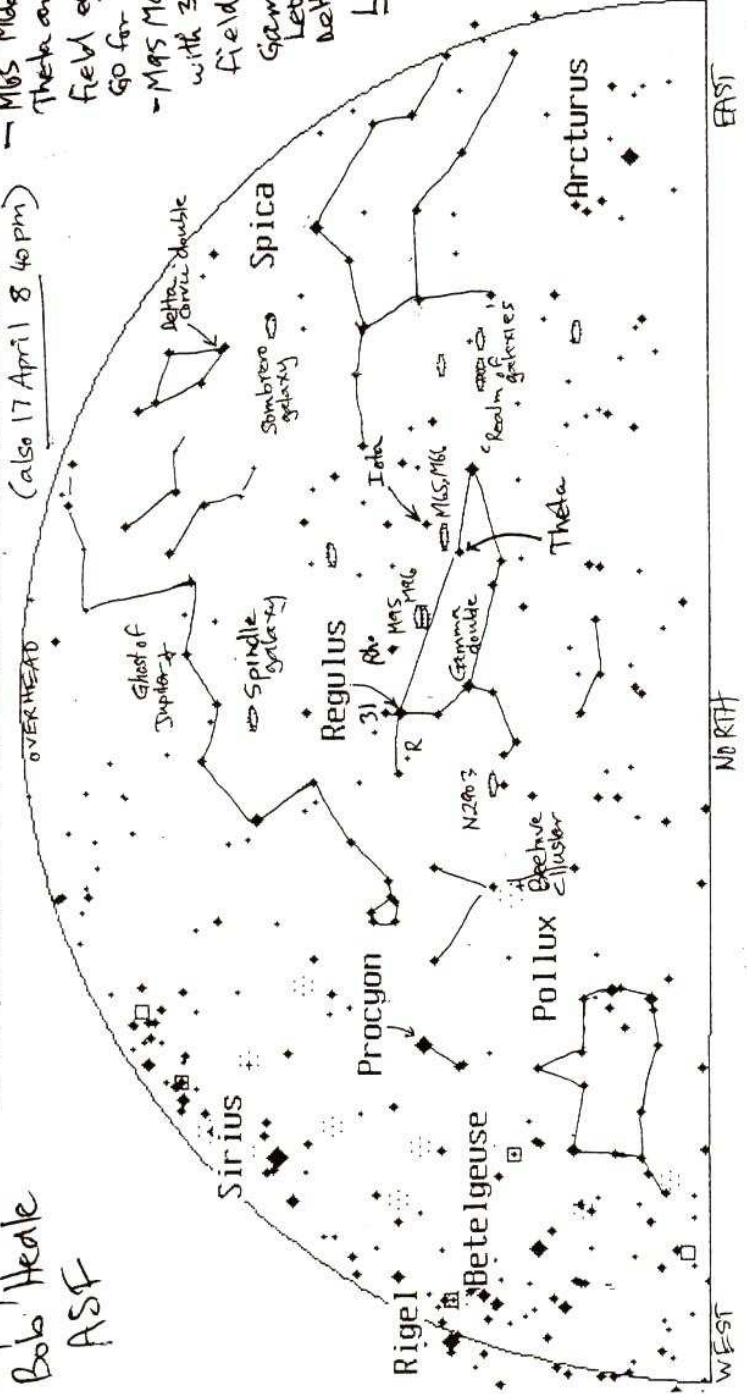
20/3/2001
 Bob Heale
 ASF

10:20 pm Standard Time Night Sky 21st March 2001

(also 17 April 8:40 pm)

Looking North - R Leonis long period variable 14.7 and red over 350 days
 - M65 M66 (M3628) exactly half way between Theta and Iota Leonis, use large binocs or wide field eye piece in scope + you cannot miss, then go for higher power to darken sky
 - M95 M96 and others in 3rd point of isosceles triangle with 31 and Rho Leonis (52, 53 Leonis in galaxy field)
 Gamma is lovely double any scope
 Delta Corvi is too but companion mag 9

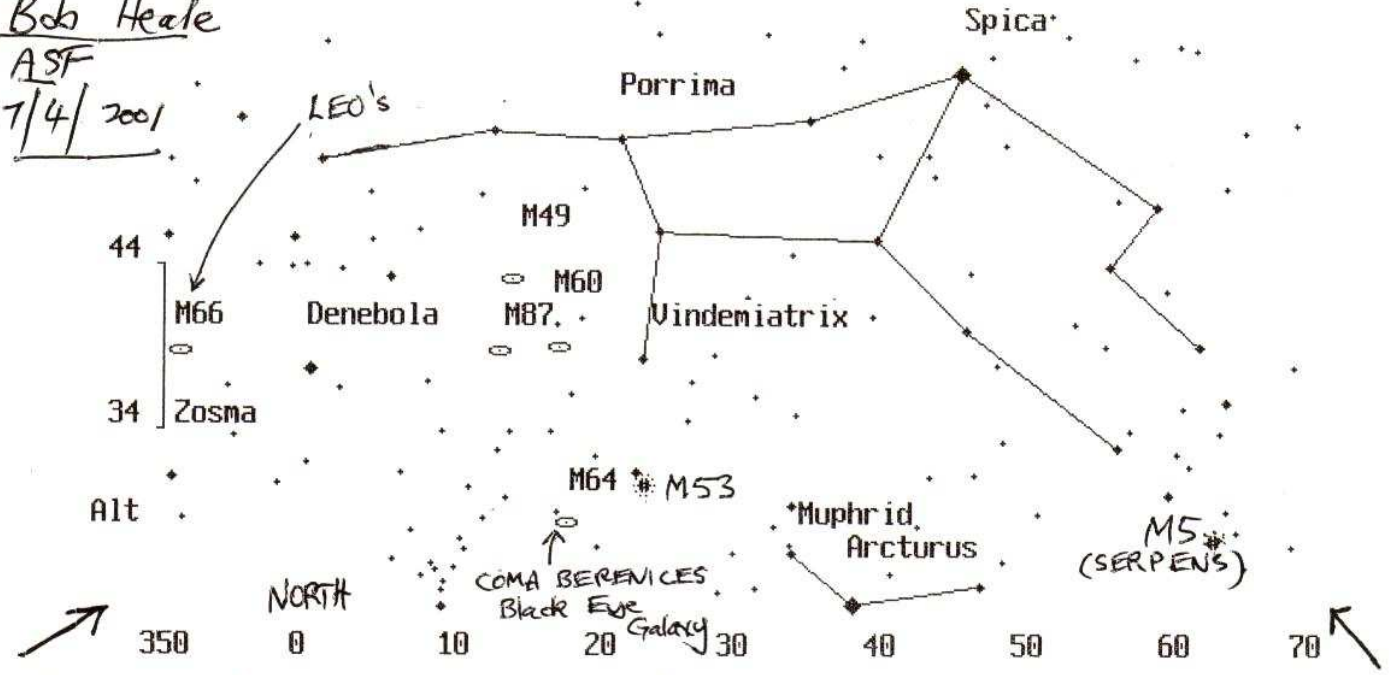
Looking South
 pale blue planetary M3918
 Southern Cross
 4x length of Cross to South Celestial Pole (SCP)
 and extends 1/4 below 15 and south



Easy Objects of VIRGO

VI-0 © Bob Heale 18/4/99
 All objects no fainter than 8
 1 X Sky View
 ✦ Algorab
 ✦ M104

Bob Heale
 ASF
 17/4/2001

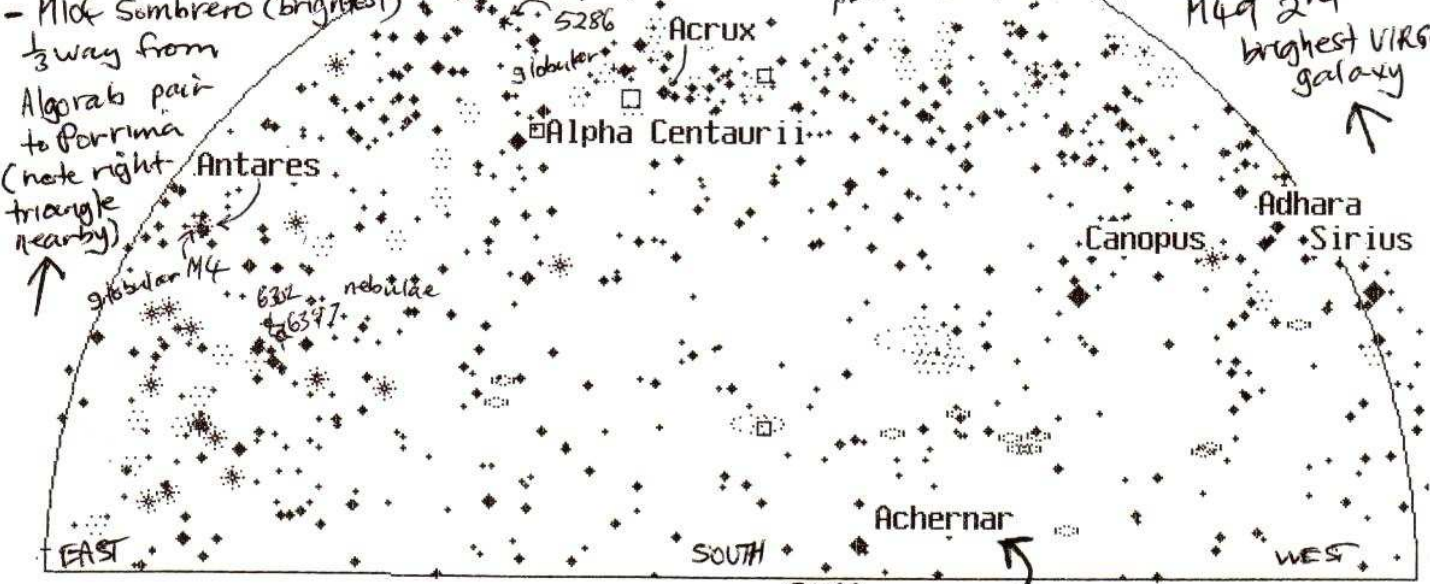


- Spica is almost exactly magnitude 1, slight variation, 220 light years away, 2000 times Sun's luminosity. Porrima (Gamma) 3 arc sec telescope double both mag 3-7, but closing. Realm of the Galaxies pretty much near centre scope, detail with

- M104 Sombrero (brightest) 1/3 way from Algorab pair to Porrima (note right triangle nearby)

4945 galaxy
 5286
 globular
 planet 93/32
 M49 2nd brightest VIRGO galaxy

Sweep with good wide field 8" or more



May 2nd 9 30 pm South Night Sky, medium difficulty objects

Challenges

Interacting galaxies - VIRGO's NGC 4435/4438 elliptical, spiral small scope? 9h 39.9m 11° 58.9' (2000.0)

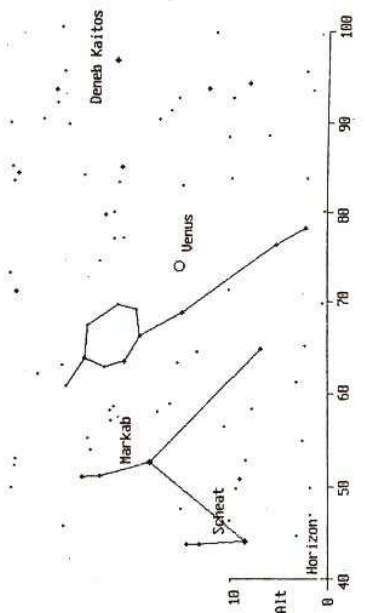
Leo Minor's NGC 3395/3396 both mag 12 spiral peculiar one of best as in direct visual contact. 8"?

Leo's NGC 3226/3227 both mag 11 elliptical spiral 6"-8"

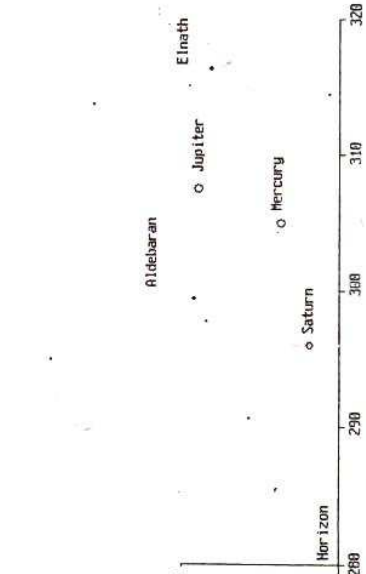
Frosty Leo Nebula 2° North + slightly west of mag 3-5 Omicron Leonis (o); mag 11 parent star

SKY FOR THE MONTH WED 18 APRIL TO TUES 15 MAY 2001; ALL OBJECTS VISIBLE TO UNAIDED EYE

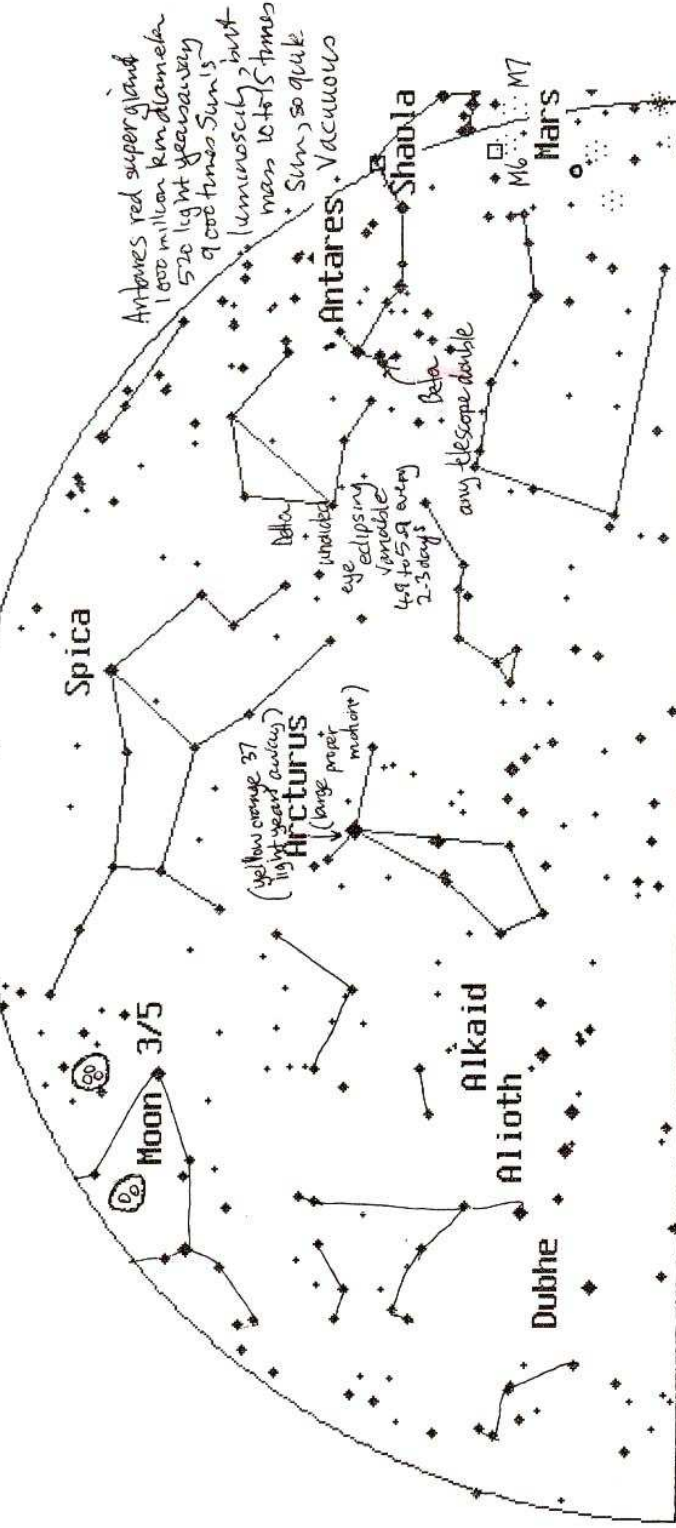
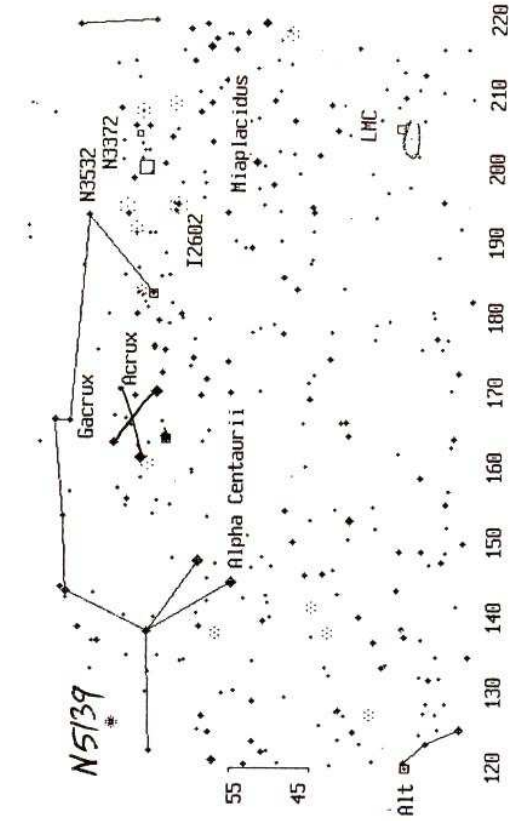
5 17 am East North East Dark Sky 24th May 2001 Standard Time
 U1.00 (c) Bob Heale 18/4/99
 All objects no fainter than 5.5 1 X Sky View



5 49 pm West North West 1/3 Dark Sky 12th May 2001 Standard Time
 U1.00 (c) Bob Heale 18/4/99
 All objects no fainter than 3.5 1 X Sky View



9 25 pm Part South Night Sky 2nd May 2001 Standard Time
 U1.00 (c) Bob Heale 18/4/99
 All objects no fainter than 5.5 1 X Sky View



↑
 N5139 Omega Centauri
 Globular cluster, better
 view any optical aid
 N3372 Eta Carinae
 Nebulae complex
 I2602 Five of Diamonds
 or Southern Pleiades
 N3532 Large open
 star cluster

Bob Heale
 ASF
 17/4/01

2nd May 9 25 pm Night Sky 2001 Standard Time Constellation Learner