SCORPIUS

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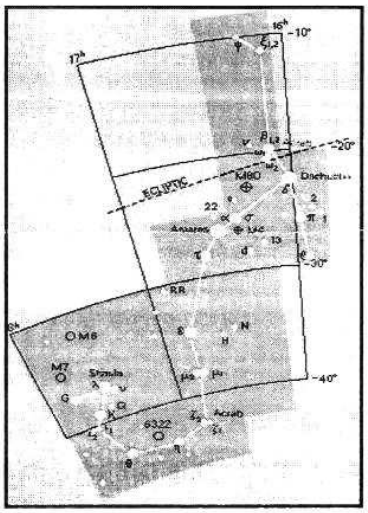
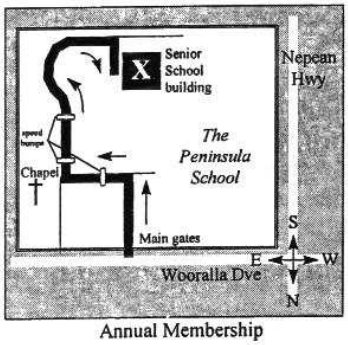


The Astronomical Society of Frankston was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights,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

Meeting Venue: *Peninsula School*, Wooralla Drive, Mt. Eliza (Melways map 105/F5) in the Senior School at 8pm on the 3rd Wednesday of each month except December.
Phone: 0419 253 252 Mail: P.O. Box 596, Frankston 3199, Victoria, Australia
Internet: http://www.asfnet.20m.com
E-mail: aggro@peninsula.starway.net.au

Visitors are always welcome!



Annual Membership

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

DUE 1ST JAN EACH YEAR

Editor
Richard Pollard (0419) 100 802

Committee of Management:
John Cleverdon, Jane McConnell, Russell Thompson, Ian Sullivan.

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

FUTURE EVENTS

General Meetings:

WED 15 May 2002

Session 1: Marty Rudd, Adam Marsh and Roger Vodicka from the ASF and ASV will speak on the Leonids from Alice Springs.
Session 2: Video on *Werner Von Braun: From Nazis to NASA.*
Session 3: Informal interaction and viewing if clear.

WED 19 June 2002
Session 1: Speaker yet to be determined (!)
Session 2: Video *"They Never Set Foot on the Moon"*, about the Russian program to the moon.
Session 3: Informal interaction and viewing if clear.

Viewing Nights:

Members Only:

NOTE: Members nights are also now held on Fridays!

May 10th/11th and 17th/18th, all at The Briars, Nepean Hwy, Mt. Martha.
June 7th/8th and 14th/15th, all at The Briars, Nepean Hwy, Mt. Martha.

New attendees must always confirm with **David Girling** on 5975-6506 or 0421 452 428 before attending. Remember for security reasons you can only attend on planned Members' Nights, unless by prior arrangement with David who will liaise with *The Briars* accordingly. Last person out must switch on the shed security light. All attendees must sign the visitors' book in the observatory for insurance reasons.

Public, School & Community Groups Viewing/slide nights:

If you can assist, please contact the Secretary. All events commence at 8pm unless otherwise stated.

MON May 6th - St. Francis of Assisi Primary School at CAMP MANYUNG. Expecting about 90 Year 10 pupils. Melways 105/A6.

THUR May 9th - Same as above: same venue, same number expected.

FRI June 7th - Public Night at the Briars. See details below.

TUES June 11th - Parkdale Secondary College at the BRIARS VISITORS CENTRE. About 30 - 40 secondary students and parents expected. Melways 145/F12.

TUES June 18th - Southern Peninsula Car Club, **VENUE AND DATE TO BE CONFIRMED.**

The once-a-month basic public viewing nights at *The Briars* will continue on the first Friday of each month. The next nights are 3rd May and 7th June, all at 8pm. Assistants are required. New members are welcome to watch and participate if desired.

YOUR SOCIETY

Welcome to the following new Society member(s):

Darren Moore
Hal Shuster
Vronda and Ray Young
Dorothy and John Grierson
David Wiley
Kathleen McInnes

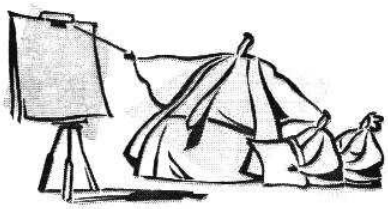
Unfortunately, Kathleen didn't leave any contact details - if anyone knows these, please forward to the Secretary ASAP
-Ed

Thanks, Ken.

A big thank-you to Ken Bryant, who unfortunately, due to ill health, has relinquished the positions of Newsletter copier and Loan Scope Co-ordinator. This means we will now need the services of a Loan Scope Co-ordinator, who will be required to keep track of the two loan telescopes and binoculars. It would be helpful if they attended every meeting, as this is when the scopes usually change hands.
The position of Newsletter Copier has been taken over by Jane McConnell.

MORE HELP NEEDED

Do we have a plumber in our ranks who might be able to connect up the sink in the Briars Observatory?
Also, the Society's TV that is used in connection with the CCD camera is malfunctioning. Does anyone know a TV technician or similarly qualified person who could help out?



Conferences

VASTROC
The Ballaarat Astronomical Society at Ballarat is hosting the next biennial VASTROC (Victorian Astronomy Convention) from Friday evening May 2nd, 2003 to Sunday afternoon May 4th, 2003. VASTROC is the premier gathering for Victorian amateur astronomers.

NACAA
The Astronomical Society of Frankston has been successfully selected to host the **2006 NACAA** on the Mornington Peninsula in Easter of that year. **The National Australian Convention of Amateur Astronomers** is a biennial conference and is the premier Australian national event for amateur astronomers from all societies.

RECENT MEETINGS

The March meeting was attended by 44 on a warm pre-Equinox evening and was chaired by the President. Several new faces had appeared, as well as some who hadn't been seen in a long while and were warmly welcomed back as the raffle circulated. There was a possibility of a Japanese exchange student coming on the night also. Reports were given of the small asteroid 2002 EM7 that had recently skimmed past Earth at about the same distance from us as the Moon, and that hadn't been detected until it had already passed us. This lump of rock was about twice the diameter of the one believed responsible for the devastating Tunguska impact in Siberia in 1908. David Girling announced that there would be a Telescope and Binocular Teaching Day on April 20th for new comers or those who wished to brush up on their skills. Ian Sullivan also canvassed for expressions of interest for weekend basic astronomy classes this year, on a cost recovery basis for interested members. David Girling opened the information segments with details of members' viewing nights at The Briars since the last meeting, including successful observation of the (believe it or not) great dark Doodad and the Running Chicken nebula. This was followed by Roger Giller reporting in his usual multimedia fashion on the auroral activity that had occurred during the month, with more forecast locally as the Sun had apparently entered a surprising second peak of sunspot activity in its normal 11 year cycle. Ian Sullivan then exposed his plans for travelling to Antarctica for the November solar eclipse in 2003 (is there nowhere on Earth this man won't go for a syzygy?), and compared his flight plans with more luxurious options below cloud level on a Russian icebreaker instead (albeit 10 times more expensive). Bob Heale then showed the Sky for the Month and passed around his handout sheets, noting how simple a computer controlled telescope is for finding objects without star-hopping so that you can see a good number of objects in one evening's viewing. The group then adjourned for tea, then reconvened into 3 sessions. One group talked informally on amateur telescope making, another section of attendees watched the video on rocketry at Woomera in outback South Australia (famous more these days for its detained refugees), while others listened to Peter Skilton speak about the Cranbourne Meteorites in the main theatrette. These had fallen in a line as at least 12 fragments from Pakenham to Pearcedale, and the history and background to these visitors from space was elucidated. The scatter ellipse was then analysed to hypothesise where we should next look to try to find more undiscovered fragments, because the fall pattern was strongly suggestive of this, and suggestions put forward. The Society is intending to mount a concerted, possibly long-term, project to try to find further meteorites from this fall, incorporating the public and local schools, other astronomical

societies if they have the ability, metal detectors and other options. Ideas raised even included searching for existing aeromagnetic survey data taken from aircraft. If you are interested in being part of this at some stage, please let Peter know as the hunt for Number 13 will occur. Following questions, the meeting closed at 10:35pm.

The April meeting was chaired by the Vice-President, David Girling, due to the President being unavailable. David welcomed everyone, advised of the meeting structure and introduced the raffle, which also included some donated prises… thanks to whoever contributed in this way. In the first segment, a good crowd of 55 was treated to an excellent presentation by Russell Thompson on basic astronomy, concentrating on the Solar System and beyond. It indicated the time and effort that goes into putting such presentations together and despite taking almost an hour, it was well worth it. Prior to the usual break for refreshments, the raffle was drawn. Once everyone had taken their seats, Bob Heale presented his Sky for the Month segment. Ian Porter also presented his regular run-down of launches, launch attempts and status reports on various satellites and spacecraft in 'What Goes Up', Ian Sullivan spoke on the current Solar Eclipse situation and keeping with the solar theme, John Goodall talked about sunspot movement. Other contributors included Peter Lowe who gave his report on NACAA, or the National Australian Convention of Amateur Astronomers which was held in late March. As previously reported in this edition, the ASF will be hosting this event in 2006 (See *Conferences*). Meeting closed 10:20pm.

A GRAZING WEEKEND OF EQUIPMENT MISHAPS

The long Labour Day weekend in March saw the Society participate in two grazing occultation field trip expeditions after the witching hour to measure the mountains and valleys of the Moon. The first expedition on our side of Port Phillip bay was undertaken on Saturday morning, March 9th, about 4:30am to Balnarring, along Merricks Beach road, where three telescopes were set up by members from the ASF and ASV. Conditions were excellent for observation. On the other side of the bay, members from the Astronomical Society of Geelong also participated successfully in the team observation. In Balnarring, Peter Skilton observed the magnitude 7.8 star on the southern limb of the Moon through his 15cm Newtonian without a tripod! While packing the gear into his car at 3am, he was interrupted by a large new possum at his home snarling at him, which distracted his efforts and, as a consequence, he left his equatorial mount at home by mistake. Not deterred, he sat on a bathroom stool on a dark roadside verge in Balnarring with the front of his telescope tube resting on a card table, and back mirror end perched on his right knee. This, needless to say, was not too well guided, particularly at the x100 magnification that was used. Despite the effect being the same as moderate wind buffetting, the star was nevertheless readily acquired and followed throughout the graze, and he recorded 4 stellar disappearances, 4 reappearances and a flash at his location. The group then reconvened and had coffee at 5am at a local reserve, before returning to their homes. This goes to show that you don't require wonderful telescope equipment to participate successfully in this type of observation – so don't be humble if you wish to come along to a future field trip! The other stations also recorded well over a dozen events, making the field trip very valuable.

Two mornings later, in the twilight hours of Labour Day Monday, March 11th, four observers from the ASF and ASV were set up in Bayswater North to observe another grazing occultation of a different magnitude 7.7 star on the southern limb about 6:30am. Again, on the other side of the bay, colleagues in the Geelong society also participated and observing conditions were very favourable. Again, over 20 events were reported, however, one station that was set up in an industrial estate (guess which one) suffered catastrophic cassette tape failure while recording, however, didn't hear the recording tape jam and become stretched into spaghetti over the hum of the factories around the court. Consequently, upon listening back to the cassette tape (or rather a thin black plastic string) the next morning to time it with a stopwatch, nothing was heard other than static, and the observation times of 4 disappearances and reappearances were unfortunately lost. After the observations, the assembly had coffee, chocolate and biscuits to wake themselves up before driving home just at sunrise. Despite the equipment problems, the camaraderie and cross-society goodwill was great, as is usual for these grazing occultation observations.

If you would like to participate in future expeditions, which can occur at all hours of the evening, night or morning at times during the year, all you need is a telescope of any size – don't feel humble – and you too can contribute a small worthwhile scientific observation.

TELESCOPE LEARNING DAY

On 20th April, The ASF held the first in what is expected to be a series of Telescope Learning Days. The idea came from David Girling, who had noted that many of the attendees of the Briars public nights and members nights had problems in the setting up and operation of telescopes they had purchased or been given as gifts. Often when this occurs, people tend to give the hobby away, somewhat disappointed. To help overcome this, a date was set at the Briars Observatory to enable these members to bring along their telescopes so they could be instructed how to assemble and use them correctly.

Despite the weather on the day being less than perfect (it was hoped some observation could be done after dark), a good sized group brought their

equipment along and were expertly guided in such things as use, setting up, accessories and basic improvements.

Behind the scenes, Jeremy Scott, Greg Walton and Mark Hillen re-installed the mirror cell in the Peter Norman scope
(a design flaw had caused the cell to become loose and easily mis-aligned: it is now collimated so well we observed a gentleman reading a newspaper several kilometres over the valley!) The team also made some improvement to a younger member's telescope, earning them the name "The Collimators".

Thanks also to Don and Jane who prepared the now almost traditional sausage sizzle.

The weather seemed to improve slightly as the day progressed, but with many having other engagements and about 85% cloud cover, we wrapped up proceedings around 6pm. Bob Heale arrived at about 7:20pm to much better skies and had a fulfilling night of deep sky observing. Perseverance pays!

Note: I also used a digital camera with a few different telescopes on display, the results can be seen on the E-Scorpius website.

Richard Pollard

Viewing Night Wrap

The public viewing night at The Briars on March 1st saw 25 overall in attendance on an overcast evening, with glimpses of the majestic Jupiter. The slide show was given by Peter Skilton, and supper organised by David Girling. Thanks in the field to Bob Heale, David Huby, Val and Greg Walton, John Cleverdon, Ken Bryant, Darren Baker, Roger Chandler and Jane McConnell.

The members' night on March 23rd at The Briars occurred during the closing stages of a music festival nearby and saw a visiting 16 year old Japanese exchange student, Misa, and her host family in Frankston, get her first look at the stars of the southern skies, especially the Southern Cross, only two days before she had to return to Japan. From where she lives in Japan, Crux is not visible and the light levels are such that few stars are visible in the night sky, at any time of the night. Thanks to Sally Zetter, Russell Thompson, Peter Skilton and Ken Bryant for running the tour of planets, the Moon, nebulae, galaxies and other little fuzzies, which was accompanied by an anticipation of a possible aurora that evening (that didn't eventuate). A keen reader of astronomy before the visit to Australia, she will no doubt take back lovely memories of a night with the ASF under the southern stars, and has one of the society badges to remember the Southern Cross by.

On March 7th, about 100 Monash University Science Teacher trainees were on a bootcamp at Lord Somers Camp in Somers when visited by the Society. The talk was given by seasoned astronomy speaker Ian Sullivan, who has many years of experience teaching under the auspices of the CAE (Council of Adult Education). Unfortunately, the sky was almost totally overcast, allowing only the briefest of planetary glimpses. Thanks in the field to Don Leggett, Jakub Bukovsky, David Huby, Greg Walton, Ken Bryant.

Ninety-five Woodleigh Senior School Year 8 students, parents and teachers were visited by the Society after recently being engaged in school astronomy research projects, and the school demonstrated great hospitality to our visiting members and was well prepared. The founder of the school is reportedly the brother of our past President, Peter Norman. The talk was given by Peter Skilton on March 13th and saw him receive many high calibre questions covering all manner of topics, and many focusing on fairly macabre astronomical topics like spaghettification at black holes and the death of the Earth when our Sun swells up, and the blow by blow description of what happens as we all turn into a planetary nebula in the distant future. Unfortunately the skies were totally overcast, precluding telescope observations afterwards near the gymnasium. Thanks in the field, with waiting instruments of all types and sizes, to Ian Sullivan, Don Leggett, David Huby and Greg Walton.

On March 14th, the society visited Camp Manyung to speak with 48 Camberwell Grammar school grade 6 boys plus teachers. The talk was given by Richard Pollard who enjoyed the challenge of explaining all about astrology, before the group migrated up to the oval for viewing of the night sky through the telescopes. Thanks for attending with their instruments go to Greg Walton, Don Leggett and David Girling.

On March 25th, Peter and Ros Skilton visited Erinwood pre-school in Frankston to speak to the 4 and 5 year olds on space, and found them to be quite knowledgeable indeed, and certainly very curious in the artefacts, such as meteorites and fossilised dinosaur poo that they could touch, feel and smell. All 40 children got to see through a telescope and had a quick slide show on space and astronauts, however, the moon was in the wrong part of its orbit for daytime observation afterwards and so the instrument was pointed to a distant power pole.

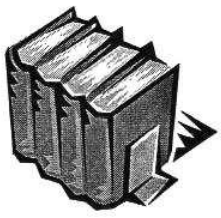
An Erinwood pre-schooler ponders the wonders of the Universe.

The public viewing night at The Briars on April 5th saw 50 present on a mostly overcast evening. The slide show was given by Peter Skilton, and supper and entry were managed by Sally Zetter and Jane McConnell. Thanks in the field to Bob Heale, David Huby, Val and Greg Walton, John Cleverdon, Ken Bryant, Roger Chandler and any others who kindly helped who I might have accidentally overlooked.

The Phillip Island U3A group (University of the Third Age) had an evening organised for April 25th by Alastair Anderson, who originally joined the ASF in 1970 before he moved further afield. The interactive talk to an audience of 38 very jovial retirees, brimming with probing questions and a smidgeon of red wine, was given by Peter Skilton. The group then moved out to the much cooler observing slab on our Briars site to see the night sky through the Peter Norman telescope, guided by Don Leggett, before returning inside to further sample the local viticulture.

The working bee at The Briars was held on March 3rd, with the only activity planned being the watering of the plants by John Cleverdon from the rainwater tank, and Greg and Val Walton and Jeremy Scott worked on collimating the optics of the Society's Peter Norman telescope. Afterwards, David Girling fired up the barbeque and Jane McConnell cooked the complimentary snags and onions, which were enjoyed by all. Ian Sullivan, under 99% clouded skies, optimistically prepared for the Solar Day activities by erecting a shadow stick, however, sundial noon came and went without a shadow being registered. There was serious talk of designing a purpose-built unique analemmic sundial on the site, able to read not only the time, but also the Sun's declination, and Ian was going to investigate further the feasibility of this. Also present on the day were Ken Bryant, Bruce Tregaskis, Peter Skilton and the Girling and Scott children, who spent the time bug catching and playing hopscotch on the upper concrete slab.

Library News



The Library has a new addition, kindly donated by Ian Sullivan. *The Cambridge Guide to Astronomical Discovery*, by William Liller, a world-renowned observer and discoverer of Variable Stars, Novae and Comets. The book shows the methods and tricks of the trade for how, from your backyard, you too can discover comets (and have them named after you), find a new asteroid, or unearth a nova or supernova. It also provides details on how to announce your discovery. Bill Liller's humble home observatory is in Chile, South America, and this book details visual, photographic and even electronic search techniques. The basic ingredient is to have a passion for discovery and persistence, not a super-sophisticated telescope.

Other new arrivals in the library for more advanced amateur astronomers include:

Video Astronomy by Steve Massey, Thomas Dobbins and Eric Douglass. This exciting book is a complete, self-contained guide to capturing images of the night sky on video, written by experienced backyard astronomical imagers. The authors explain how to use ordinary camcorders, webcams and digital video cameras alone or coupled to telescopes to record images of the Moon, planets, deep sky objects and fleeting celestial events such as meteor showers, occultations and eclipses. All the necessary peripherals are explained, such as which types of VCR are best for capturing astronomical video images, and further references are provided in specialist areas.

Star Testing Astronomical Telescopes: A Manual for Optical Evaluation and Adjustment, by Harold Suiter. This hardback book provides methods for star testing telescopes to ensure the accuracy of the figuring of their optics. It goes in detail into the physics involved and, of course, how the amateur astronomer can go about their own remarkably accurate measurements to ensure that their telescope is unambiguously accurately aligned and collimated. For the mirror builder, it shows in a very visual way the optical patterns that you will observe with a plethora of different optical problems, enabling accurate diagnosis and cure of figuring and alignment difficulties.

Astronomical Algorithms, by Jean Meeus. This hardback classic book on celestial mechanics explains the mathematics of the solar system; everything from coordinate transformations, time, the positions and appearance of solar system bodies such as the planets, their moons, our Moon and comets, eclipse predictions, calendar calculations, rise/set calculations and much, much more. The discussions on each topic are complete enough for the novice to understand, and each algorithm includes a fully worked numerical example. Approximate methods, and accurate methods only developed in the last few decades are given. This book will be of special interest to those with a mathematical bent who seek to understand the beauty of "why is it so", and also those interested in computer software development who might wish the challenge of reproducing astronomical reality on their own computer.

Observations

SIGNIFICANT AURORAL ACTIVITY IN VICTORIA

The last month has seen the telephone Southern Australian Aurora Network, which Roger Giller co-ordinates, in full swing a few times as Coronal Mass Ejections from the Sun impacted with the Earth's magnetosphere.

On Wednesday April 17th, John Cleverdon triggered the network when an aurora was reported to him by John Goodall at Dromana. At 11:45pm, he saw a faint aurora towards the southwest for a few minutes. From the Cleverdon's house, it consisted of vertical rays, some of which went up towards Canopus. John continued observing until just after midnight, but didn't see anything else. In Frankston at the same time, George and Thurley Fowler and Gary and Trish Fowler all reported a faint, yet distinct aurora to the south west that showed moving rays of light, and had a very faint pinkish colour to it.

On Thursday April 18th, Roger Giller reported observing an aurora at Clyde, near Cranbourne/Pakenham. After some unavoidable delays, Roger Giller was able to start observing from a reasonably dark site at Clyde, south of Berwick, around 9:30pm. There was a general diffuse red glow mainly from SSE to SSW with occasional brighter patches that promised much but always faded within a minute or so. There was one set of faintish white vertical rays from the due south horizon up to about 20 degrees right at 10 p.m. No more activity was seen after 10:30pm, and Roger kept observing until 11pm. Mark Hillen reported that on that same

Thursday he checked the sky southwards from Rosebud at 9.00pm, and could detect a general pinkish hue to the nightsky. Nothing as spectacular as on the slides at the general meeting, but definitely auroral activity. Phillip Holt saw a few very faint vertical rays between 10:30pm and 11pm that widened and dimmed over 1-2 minutes, no colour was evident to his eyes, and he took some photos.

Another mass ejection and solar flare on the west limb of the Sun was detected on April 21st with the thrown out materials travelling at about 2,500 kilometres per second. The impact time with the Earth was predicted for a couple of days later, with Australia and New Zealand being the best placed in the world for seeing Aurorae as the particles impacted Earth's magnetosphere. Significant auroral activity was anticipated. However, poor local weather conditions prevented auroral observations being made across southern Victoria.

ASTRONEWS

What's a Shuttle Worth?

CAPE CANAVERAL, Fla. -- South Africa's Mark Shuttleworth is doing well aboard the International Space Station and showing a keen interest in the crew's science-related activities, the Expedition Four flight team reported Tuesday 30 April.
Speaking from orbit to the opening panel session of the 39th Space Congress in Cape Canaveral, space station Alpha crewmembers Dan Bursh, Carl Walz and Yuri Onufrienko said Shuttleworth and his two Soyuz taxi mission colleagues were staying busy on the Russian end of the frontier outpost. But with each crew following their own jam-packed time-lines, the station and Soyuz crews haven't had a lot of time to just float around and chat, Bursch said.

"Just in passing at times we've been asking each other questions about the different experiments," Bursch said about his interactions so far with Shuttleworth. "Certainly he has shown a lot of interest in the different experiments we're doing on board, both medical and the other experiments such as protein crystal growth."

The South African Internet whiz kid, who is 28, was launched into orbit on Anzac Day from the Baikonur Cosmodrome, along with Russian cosmonaut Yuri Gidzenko and Italian astronaut Roberto Vittori. Their mission is to ferry up a new Soyuz lifeboat for the station and then return to Earth in the Soyuz spacecraft that has spent the past six months docked to the complex.
Because that mission requires only two people, the Russians have been selling the third seat to qualified space tourists. American businessman Dennis Tito was the first to fly last April. Shuttleworth is the second. Scorning the "tourist" label, Shuttleworth is taking advantage of his flight to conduct five experiments that deal with studies ranging from stem cells to AIDS. At the same time, Shuttleworth hopes his flight will be an inspiration to students.

The first of several educational events planned for the flight took place Monday night. Using Amateur Radio equipment aboard the station, Shuttleworth spoke to some 250 students gathered at Bishops College in Cape Town, a school he attended in his senior year.

"It is very busy up here on the space station," the hometown hero reported. "There is an enormous amount of equipment and work under way. There are only a few people on the space station to do it, so we have to do everything -- from changing the plumbing to the toilet, to the specific and specialised scientific experiments." Shuttleworth said his experiments are "proving more difficult than we anticipated," but did not elaborate.

Critics of Shuttleworth, and Tito before him, say the idea of flying tourists to the space station is dangerous and only professional astronauts and cosmonauts that are properly trained should be allowed in space for the foreseeable future. That criticism certainly was not on the mind of the students, who nevertheless gave Shuttleworth a chance to defend his flight and explain how his experience might help South Africa and its people.

"I'm living my own dream here and if I do, I hope, get people to live their dreams and to work towards their dreams, (that) is a very good thing," he said. "We need to think about our future, we need to dream about a better future and I hope that this project's the realisation of a dream, even if it's by some other people."

Meanwhile, questions about space tourism also were on the minds of those attending the Space Congress at the Raddison Resort at Port Canaveral, a hotel that features a locally well-known waterslide at its tropical-themed pool, and at which all three Expedition Four crewmembers have stayed while visiting or training at Kennedy Space Center.
That prompted one Lockheed Martin employee to ask "How you guys feel about welcoming tourists to the space station and do you think that's the beginning of maybe seeing the Raddison attach a module up there?"

"I don't know if we'll be able to fit the big water slide onboard here," Walz joked, adding: "What we're seeing here is a different form of commercialisation with the opportunity for visitors who are not professional astronauts to come up." "We'll see people like Mark Shuttleworth, who is self financed, but who has gone out of his way to bring science and other very important activities for South Africa here to the space station," Walz said. "I think that this is a good trend as a whole. I think it's going to be a great thing for space." **(Space.com)**

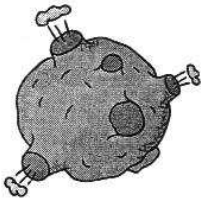
It's Official – We're All Beige

The "colour of the universe," widely reported in January to be turquoise-green, is actually a pale cream-yellow very close to pure white. "We found a bug in our code!" say Karl Glazebrook and Ivan Baldry, who averaged the light of 200,000 galaxies. Their original announcement was roundly criticised by colour scientists and astronomers for arriving at the hue too arbitrarily and then greatly exaggerating its saturation (intensity).

Spanish Amateur Finds Earth-Crossing Asteroid

Late on the evening of March 2nd, Rafael Ferrando, an accomplished amateur astronomer in Castellon, Spain, discovered an Earth-crossing asteroid using a 10-inch telescope equipped with a CCD camera. At the time the 18th-magnitude blip (roughly 130 metres across) was sailing across eastern Leo. A preliminary orbit suggests that the asteroid, designated 2002 EA, will come within 8.5 million kilometres of Earth on March 15th. According to Mark Kidger (Instituto de Astrofisica de Canarias), this is the first near-Earth object ever discovered by a Spanish observer.

Asteroid buzzes Earth from "blind spot"



One of the largest asteroids known to have approached the Earth zipped past about 450,000 km away on March 8 - but nobody recorded it until 4 days later.
The object, now called 2002 EM7, was hard to spot because it was moving outward from the innermost point of its orbit, 87 million km from the Sun. When it passed closest to the Earth - just 1.5 times the distance to the Moon - it was too close to the Sun to be visible. Asteroids approaching from this blind spot cannot be seen by astronomers. If a previously unknown object passed through this zone on a collision course with Earth, it would not be identified until it was too late for any intervention. Astronomers have made numerous calls in recent years for more funds to catalogue near-Earth objects and refine their orbits. This would reduce the number of unknown objects that could catch us unaware, and give early warning of potential future collisions.

An asteroid-hunting telescope operated by MIT first recorded the new asteroid on March 12, as it moved away from the Earth and more of its bright side came into view. Further observations found that it has a 323-day orbit. It is probably 50-100 metres across, making it larger than the object that exploded in 1908 over the Tunguska region of Siberia, flattening trees over 2000 sq km. The approach puts it among the 10 closest known approaches by minor planets, says Brian Marsden of Harvard-Smithsonian. More ominously, only one of the 10 closest objects was larger. This was 1996 JA1, which passed only slightly closer to the Earth on 19 May 1996. Calculations indicate 2002 EM7 has several chances to hit the Earth in the next century, with odds of about 1 in 6 million.

Australia Prepares for Asteroid Scavenger's Otherworldly Cargo

With a Japanese space mission planned to bring asteroid samples back to Earth and drop them on Australia, the government down under is studying what's up in regards to possible contamination and quarantine procedures that might be needed. Biosecurity Australia, a group within the country's Department of Agriculture, Fisheries and Forestry, is developing quarantine protocols for an exotic import from space.
Meanwhile, now being readied for launch is the Mu Space Engineering Spacecraft-C, or MUSES-C for short. The project is under the wing of Japan's Institute of Space and Astronautical Science (ISAS).

MUSES-C will ride atop an M-V booster roaring out of the Kogoshima Space Centre, likely in November or December. The multi-year mission is dedicated to collecting asteroid surface samples, then returning those specimens to Earth in June 2007.
The proposed landing site for the precious asteroid pickings is Woomera, in South Australia.

Asteroids are considered time capsules, retaining clues and insight into the early formative stages of our solar system. By hauling back the goods from such bodies, scientists can intensively study the celestial stuff using an array of laboratory gear. Biosecurity Australia will take part in a government review of landing asteroid samples on its soil, an assessment involving Environment Australia and the Department of Defence.

"Although the risk of the asteroid sample containing any living entity is likely to be negligible, quarantine procedures may still be necessary," said Peter Hewitt, Biosecurity Australia's principal veterinary officer. "This is to safeguard against the unknown, yet remote, possibility of life forms such as micro-organisms that could be a threat to human, animal and plant health, and the natural environment," he explained in a Biosecurity Australia newsletter.

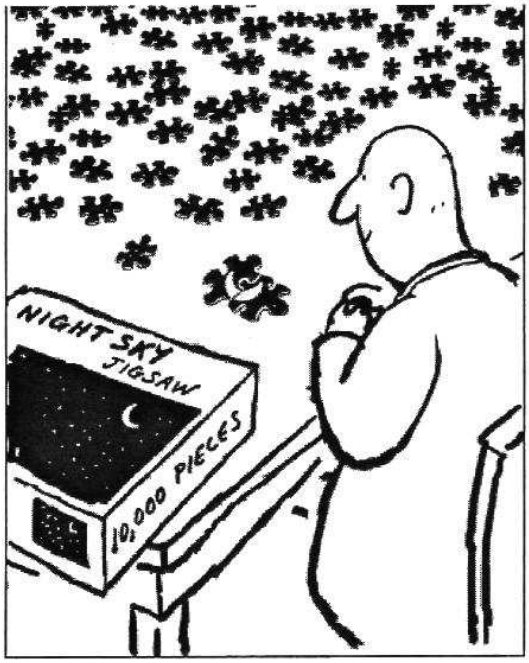
Once launched, Japan's MUSES-C is targeted to rendezvous in mid-2005 with asteroid 1998 SF36. The orbit of that mini-world crosses that of Earth, making it relatively easy for the space probe to reach the asteroid, snag some samples, then high-tail it back to Earth.

After many tests and designs, ISAS engineers have come up with a MUSES-C sampling device. The spacecraft will carry a horn that will be brought up to the surface of 1998 SF36 as MUSES-C makes a close approach to the asteroid. A small pyrotechnic charge will then fire a bullet into the surface and fragments of the impact will be captured by the horn and funnelled into a sample container.

Nobody knows for sure the physical make-up of the targeted asteroid. Perhaps a gram or more of sample surface material will be collected.

MUSES-C will use a solar electric propulsion system on its four-year round-trip flight. Other challenging aspects of the sample collecting mission include autonomous navigation and guidance for approach, rendezvous and landing on the asteroid; snagging and storing the samples in a capsule and sealing it; and having the return capsule survive a blistering reentry through the Earth's atmosphere, then parachute to a touchdown. Biosecurity Australia's Hewitt said that any quarantine procedures established would draw heavily from earlier work done in America. The U.S. National Research Council's Space Studies Board has completed a detailed risk analysis of sample returns from planetary satellites and small bodies within the Solar System, he said.

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



Cartoon by Chris Madden - http://www.goma.demon.co.uk/ - Used with permission.

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Right - Working Bee 5th May 2002

Below - Telescope Learning Day 20th April 2002

Photos by John Cleverdon

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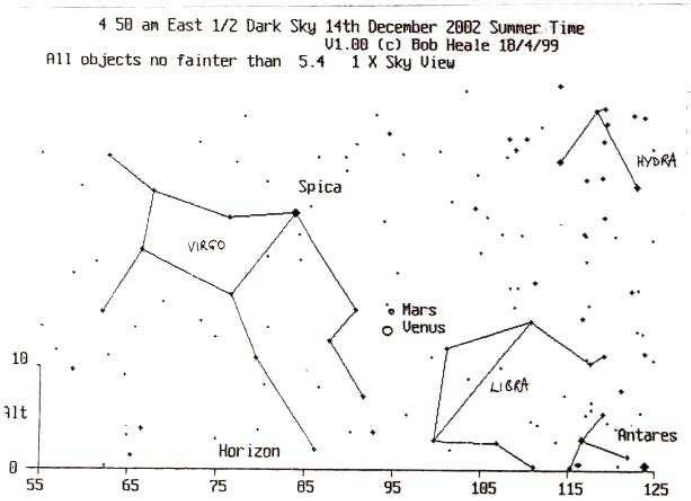
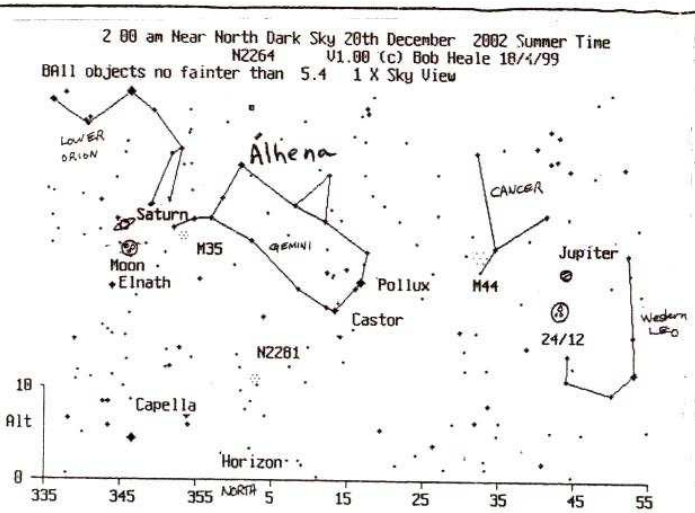
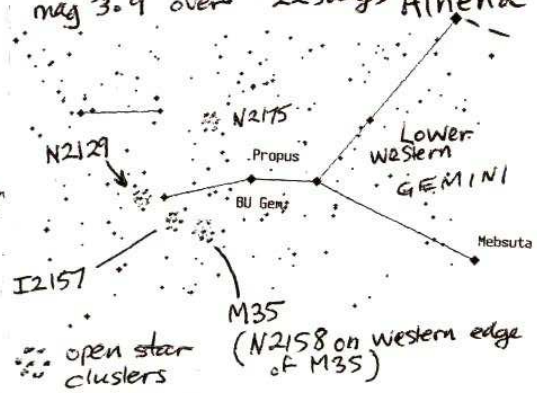
SKY FOR TWO MONTHS, MORNINGTON PENINSULA 20 NOVEMBER TO 15 JANUARY 2002–2003

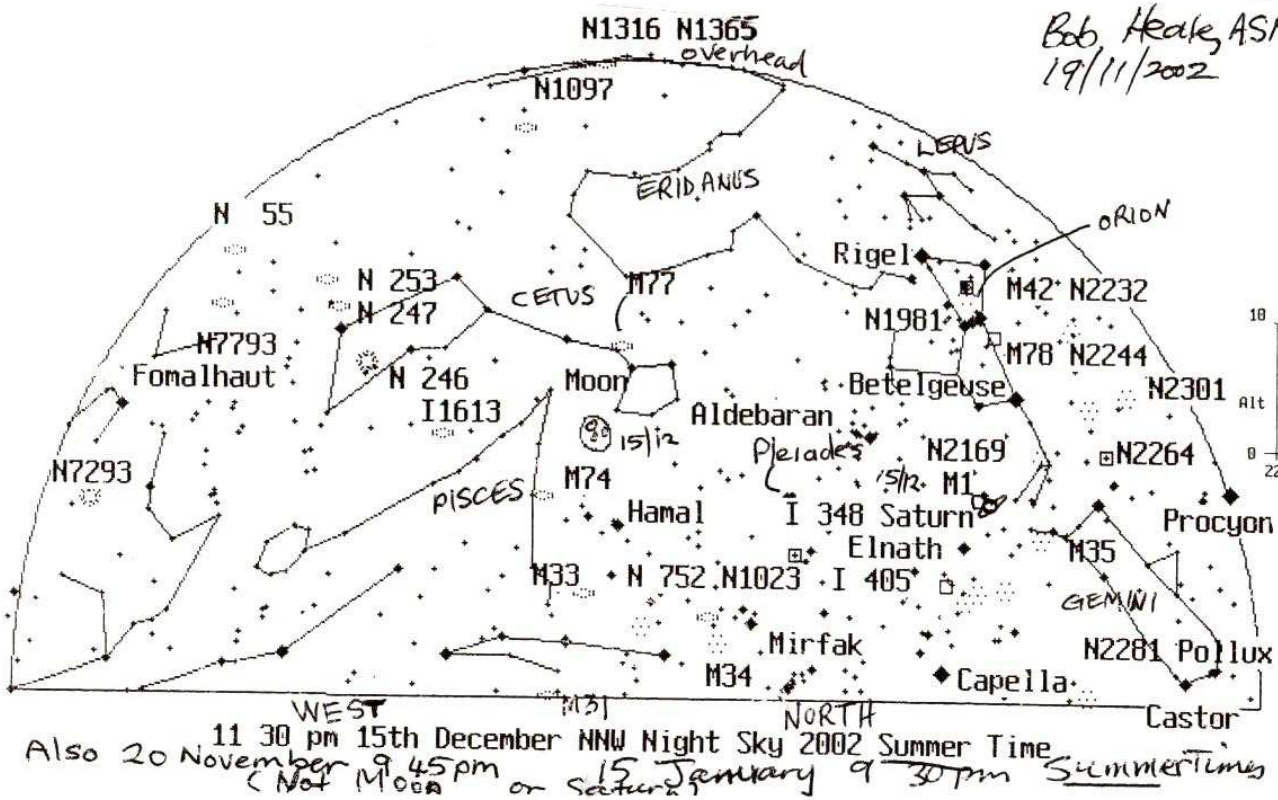




Propus or Eta Geminorum is a very red semi regular variable star: it 'fades' from mag 3.2 to mag 3.9 over 223 days



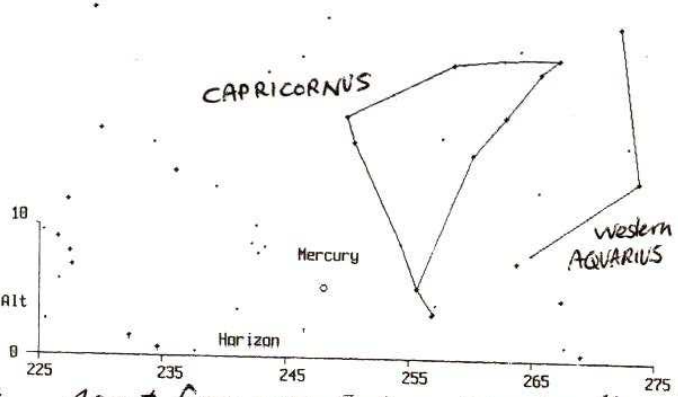
Bob Heale, ASF
19/11/2002



11 30 pm 15th December NNW Night Sky 2002 Summer Time

Also 20 November 9.45pm (Not Moon) or 15 January 9 30pm Summertimes

9 15 pm West 1/3 Dark Sky 1st January 2003 Summer Time
V1.00 (c) Bob Heale 18/4/99
All objects no fainter than 5 1 X Sky View



Apart from easy Saturn, Jupiter, Moon and labelled bright stars, easy picking objects are M42, M35, Christmas tree open star cluster N2264 (and nebula if you're lucky) Silver coin galaxy N253 face on spiral galaxy M77 inverted L shaped cluster N1981 (below M42) M74 M78 (car headlights), the rest by star hopping or a well prepared computer telescope

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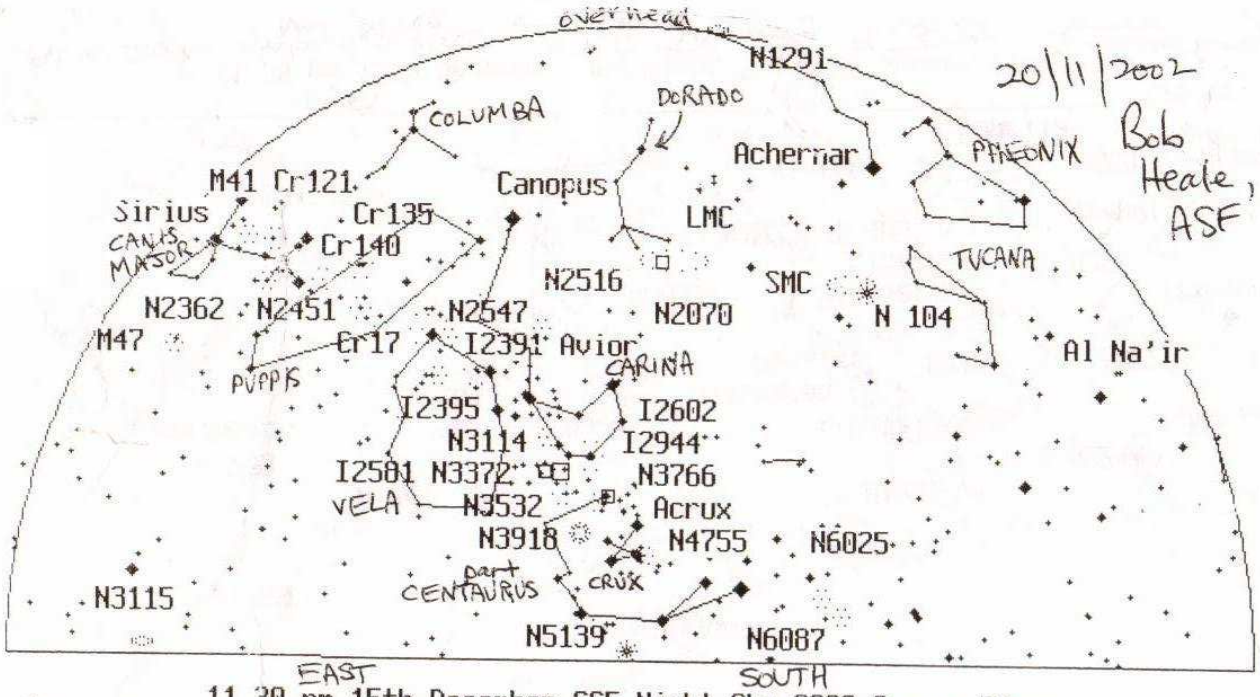
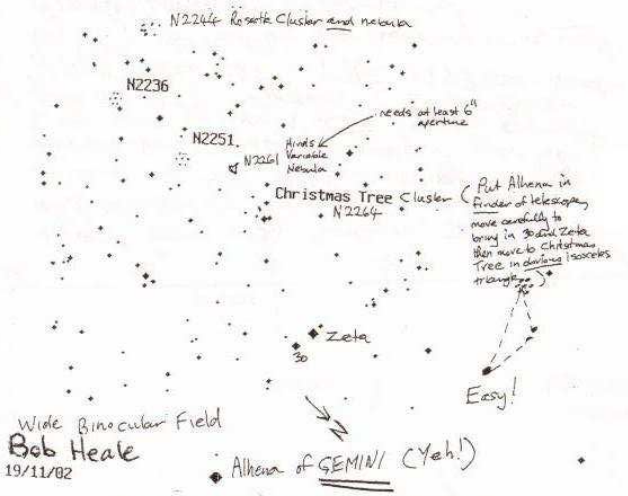


20/11/2002 Bob Heale, ASF

11 30 pm 15th December SSE Night Sky 2002 Summer Time

Also 20 November 9 45pm, 15 January 9 30 pm Summer Times



The Jewel Box is one of the finest telescopic clusters. It has an obvious A-shape of bright stars. The central bar members are red, blue and white 'jewels'. Masses of fainter stars gather around these supergiants. It is bright enough to be seen with the smallest of optical aids as a hazy spot on the eastern side of the second brightest star in the Southern Cross, Beta Crucis.

N4755, Not resolvable in binoculars!

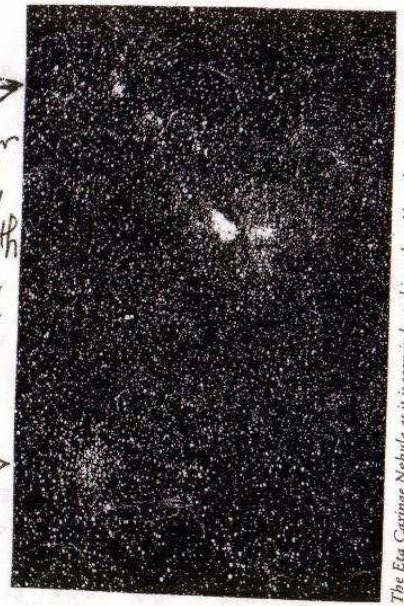
This photo orientation. - who knows!

Exquisite 'Diamonds and Rubies cluster' N3293 or 'Heale' cluster

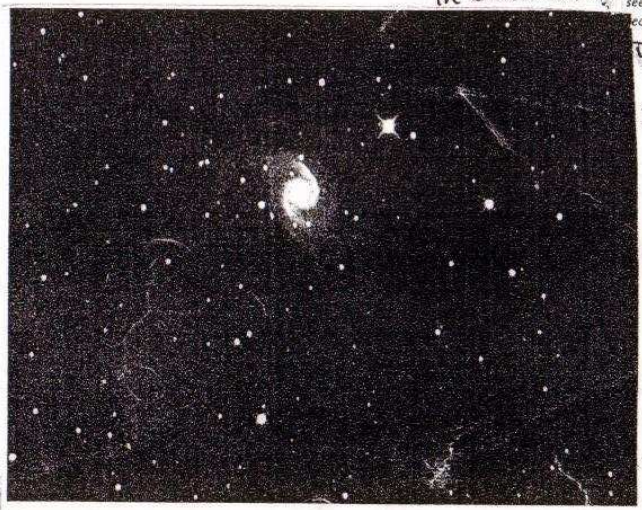
Eta Carinae Complex N3372 → South

To get to N3293 get on centre of Eta Carinae and move telescope along dark lane till this gem comes into view:

open star cluster N3532 →



The Eta Carinae Nebula as it is seen in large binoculars. Note the relatively small, elongated and very dark nebula on its southern (bottom) edge. The star cluster NGC 3532 in the top left corner is probably the richest telescopic cluster in the sky for small telescopes. The bright spot to the top right of the nebula is the bright compact cluster NGC 3293.



The Spanish Dancer galaxy is a delicate, classic two-armed spiral. Photo: S Quirk

N1566 in DORADO

Spanish Dancer galaxy N1566 is mag 9.5 and smallish so should be easy — get that computer telescope out, forward thinkers and movers!

Coordinates for the very wide open clusters

Cr121 06 54.2 −24 38 mag 2.6 diam 50'

Cr135 07 17.0 −36 50 mag 2.1 diam 50'

Cr140 07 23.9 −32 12 mag 3.5 diam 42'

Cr17 should be Cr173 I hope and is 08 04 −46 06 (given once only) 370'

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