JANUARY 2004

VollieNews

Newsletter of the POVG-The Perth Observatory Volunteers' Group Inc.

GOODBYE FROM THE VOLLIEGROUP CHAIR

To Jamie and all the Observatory staff, and to all our Vollie Group members, may I wish each and every one of you a belated 'Happy New Year'.

I'm sorry to have been out of communication over recent times - both about my personal situation and about the bone marrow donation I've recently been involved in - and I hope this will serve to bring you up to speed with each.

Firstly, the more inspirational issue. Some of you will know that I was recently tissue matched with a young child with a terminal bone marrow disorder, and asked to donate some of my own.

The procedure happened in late November and the news to date is that signs of rejection in the child have not so far appeared. They are cautiously optimistic that my marrow may have begun the process of becoming engrafted already, and they have sent the little bloke home to be nursed to avoid him picking up any infection from remaining in hospital.

He's not out of the woods yet, but it's looking reasonably hopeful and positive for him at the moment. It will be February before they can determine whether he's fully cured, so please keep some positive vibes happening for him until then. For those of you who were aware of this event - thanks for your interest and concern.

May I even be so bold as to suggest that some of you might like to call in at the Red Cross Blood Bank in Wellington Street next time you're in town and get yourself on the bone marrow register...? I had been on it for maybe 15 years before I 'got the call', and it's now made a significant difference to one little bloke's prospects of having a life.

And secondly, my resignation as Chairman of our Vollie Group. Due to personal circumstances I am about to return to the UK to live for the foreseeable future, and accordingly the January 19 meeting will be my last as a member.

Thank you Jamie, for your kind comments in your email advising the group of this; and thank you to all of you for your generous support and participation in the activities that we've jointly undertaken over the years since we got started in late 1996.

I've thoroughly enjoyed being a part of such an illustrious, knowledgeable and good-humoured group, and not being up there with you at the telescopes on a cool, clear night will be a big gap in my life. I wish you all the very best for your involvement in the Vollie Group's future adventures, and my thanks to all of you for your friendship and for being such good company on so many occasions.

Kind regards to you all and goodbye.

SUMMER LECTURE IN FEBRUARY PROMISES TO BE A GOOD ONE

SUMMER LECTURE.
PROF RAY NORRIS
OF ATNF, SYDNEY,

Although the topic is yet to be announced, Jamie has seem him 'in action' and says he delivers a great lecture.

Date: Sun 15 Feb, 8pm.
Perth Observatory.

Tickets to the public are just $5.00.

Please invite or promote other to attend.

IN THIS ISSUE:

NASA CANCELS FINAL HUBBLE TELESCOPE SERVICING MISSION
A final planned shuttle mission to service and upgrade the Hubble Space Telescope, one of the most scientifically productive spacecraft ever launched, has been cancelled, primarily because of post-Columbia safety concerns and a new directive to retire the shuttle by 2010, NASA officials said today.
http://spaceflightnow.com/news/n0401/16hubblesm4/

COMET ORBITER AND LANDER SET FOR RESCHEDULED VOYAGE
Europe's long-awaited Rosetta space probe is being readied for a second time to begin its ambitious mission that will see it embark on a decade-long journey through the solar system before reaching its mysterious icy objective.
http://spaceflightnow.com/news/n0401/15rosetta/

SCIENTISTS FIND 'SPITTING STAR' IMITATES BLACK HOLE
A neutron star has been seen spitting out a jet of matter at very close to the speed of light. The discovery challenges the idea that only black holes can create the conditions needed to accelerate jets of particles to extreme speeds.
http://spaceflightnow.com/news/n0401/15spitting/

A FAILED STAR IS BORN
In cosmic circles, brown dwarfs are something of a flop. Too big to be considered true planets, yet not massive enough to be stars, these free-floating celestial bodies are, in fact, sometimes referred to as failed stars. But do they really form as stars do — from collapsing clouds of gas — or are their origins completely different?
http://spaceflightnow.com/news/n0401/15failed stars/

SIX-WHEELING ON MARS: SPIRIT ROVER DRIVES OFF LANDER
The Mars Spirit rover successfully drove onto the surface of the Red Planet. The rover is ready to embark on its three-month expedition to explore the Gusev Crater for evidence of past water.
http://spaceflightnow.com/mars/mera/status.html

HOT AND COLD GAS RAGE IN BETELGEUSE'S ATMOSPHERE
A team of astronomers have announced that Hubble Space Telescope observations of a nearby supergiant star directly show hot gas escaping its boiling atmosphere at a larger distance than from any other star. The expelled hot gas somehow survives the cold and harsh conditions in the star's bloated upper atmosphere.
http://spaceflightnow.com/news/n0401/15atmosphere/

STORMY CLOUD OF STAR BIRTH GLOWS IN NEW SPITZER IMAGE
A dusty stellar nursery shines brightly in a new image from NASA's Spitzer Space Telescope, formerly known as the Space Infrared Telescope Facility. Spitzer's heat-sensing "infrared eyes" have pierced the veiled core of the Tarantula Nebula to provide an unprecedented peek at massive newborn stars.
http://spaceflightnow.com/news/n0401/15sstimage/

ROCK FRAGMENTATION AT ROVER SITE POSSIBLY RESULT OF WATER
The first 360-degree panorama taken by the Spirit rover's main camera system provides a spectacular view of Gusev Crater's cracked and churned-up floor, including an abundance of small, cracked rocks and fragments that could be the result of water-driven erosion in the distant past, researchers said Monday.
http://spaceflightnow.com/mars/mera/040112science.html

ASTRONOMERS SAY STAR MAY BE BIGGEST, BRIGHTEST YET OBSERVED
A University of Florida-led team of astronomers may have discovered the brightest star yet observed in the universe, a fiery behemoth that could be as much as much as seven times brighter than the current record holder.
http://spaceflightnow.com/news/n0401/12brightest-star/

JETS SPOUT FAR CLOSER TO BLACK HOLE THAN THOUGHT
Scientists at the Massachusetts Institute of Technology, taking advantage of multiple unique views of black hole particle jet over the course of a year with NASA's Chandra X-ray Observatory, have assembled a "picture" of the region that has revealed several key discoveries.
http://spaceflightnow.com/news/n0401/12blackhole-jet/

CHIAO REPLACES MCARTHUR AS NEXT STATION COMMANDER
Veteran NASA astronaut Leroy Chiao will replace Bill McArthur as the commander of Expedition 9, the next mission aboard the International Space Station. The change in crew assignment is a result of a temporary medical issue related to McArthur's qualification for this long duration flight.
http://spaceflightnow.com/news/n0401/12exp9crew/

CHANDRA LOCATES PLANETARY ORE IN COLLIDING GALAXIES
NASA's Chandra X-ray Observatory has discovered rich deposits of neon, magnesium and silicon in a pair of colliding galaxies known as The Antennae. When the clouds containing these elements cool, an exceptionally high number of stars with planets should form. These results may foreshadow the fate of our Milky Way and its future collision with the Andromeda Galaxy.
http://spaceflightnow.com/news/n0401/07collision/

TOO FAST, TOO FURIOUS: A GALAXY'S FATAL PLUNGE
Trailing 200,000-light-year-long streamers of seething gas, a galaxy that was once like our Milky Way is being shredded as it plunges at 4.5 million miles per hour through the heart of a distant cluster of galaxies. In this unusually violent collision with ambient cluster gas, the galaxy is stripped down to its skeletal spiral arms as it is eviscerated of fresh hydrogen for making new stars.
http://spaceflightnow.com/news/n0401/07plunge/

BORAX MINERALS MAY HAVE BEEN KEY TO START EARTH LIFE
Astrobiologists, supported by NASA, have announced a major advance in understanding how life may have originated on Earth billions of years ago.
http://spaceflightnow.com/news/n0401/08borax/

PROBE INTERCEPTS COMET TO GATHER SAMPLES
NASA's Stardust spacecraft successfully survived its risky close approach to the icy heart of Comet Wild 2 today on a first-of-its-kind quest to collect samples for return to Earth.
http://spaceflightnow.com/stardust/status.html

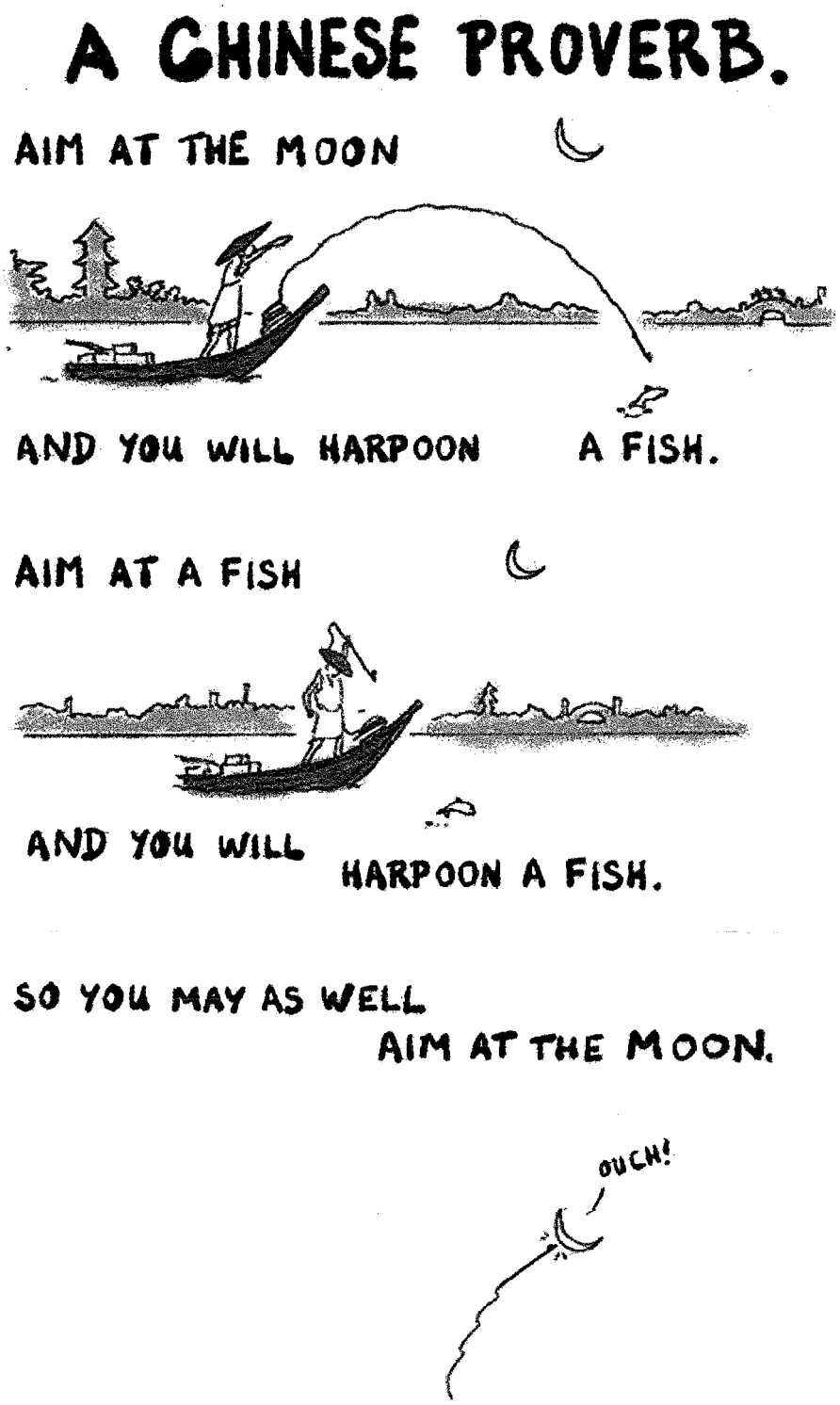
2003: A YEAR SCARRED BY COLUMBIA TRAGEDY
The past 12 months have seen many historic and tragic moments in space exploration. From the obvious impact of the loss of space shuttle ColumbiaFebruary 1 to the resounding success of the maiden Chinese manned spaceflight in October, space enthusiasts and industry insiders alike will have a lot to remember from 2003.
http://spaceflightnow.com/news/n0401/01yearinreview/

BOEING GETS $1 BILLION SPACE STATION CONTRACT EXTENSION
NASA has extended a primary contract for the International Space Station for On-Orbit Acceptance and Vehicle Sustaining services to The Boeing Company. The basic period of the cost-plus-award-fee contract extension is two years and nine months with an estimated value as much as $1 billion.
http://spaceflightnow.com/news/n0401/01boeingiss/

ION ENGINE PASSES TEST
A new ion propulsion engine design, one of several candidate propulsion technologies under study by NASA's Project Prometheus for possible use on the proposed Jupiter Icy Moons Orbiter mission, has been successfully tested by a team of engineers at NASA's Jet Propulsion Laboratory.
http://spaceflightnow.com/news/n0312/23jimoengine/

SHARP IMAGES OF SOLAR STORMS
As last October's solar flares blossomed into a coronal mass ejections, scientists at the National Solar Observatory used a new set of instruments to record the sharpest-ever images of the heart of the storms.
http://spaceflightnow.com/news/n0312/23solarstorm/

BUSH UNVEILS NEW SPACE INITIATIVE
President Bush ordered a sharp change of course for NASA Wednesday, directing the agency to complete the space station and retire the shuttle by 2010 and to begin development of a new spacecraft to carry astronauts back to the moon by the middle of the next decade.
http://spaceflightnow.com/news/n0401/14spacepolicy/



Cartoon by Chris Madden
web site.
http://www.goma.demon.co.uk/

LARGE IMPACTS AND FAUNA EXTINCTION

The processes following the impacts of a large extraterrestrial object in relation to extinction have become a little better understood through computer modelling and simulation completed in the past year.

A question has existed for a number of years in that if the Chixulub impact was as severe as we think, how did any terrestrial life survive. If the 10-km diameter body that produced the 180 km crater while ejecting 10000 cubic kilometres of rock generated catastrophic and near-simultaneous firestorms around the world, how did any life survive.

The background to this is that charcoal and ash remains have been found at many places around Earth on the K/T boundary (the boundary between Cretaceous and Tertiary-aged rocks respectively below and just before or above and after the impact), along with the tell-tale iridium geochemical anomaly suggestive of a meteoritic or asteroidal source.

Researchers at Chicago and Boulder have now developed impact computer simulation programs initially based on researching the images from 60-km asteroid Ida. Ida is covered with craters, but also shows a blanketing of "powdery" dust and particles, interpreted to have been derived from pulverising of colliding objects at the time of the impacts-that caused the craters.
Scaling-up the situation and feeding in known information in relation to the Chixulub impact, the modelling has produced a very curious effect.

On impact, large bodies eject molten rock at high velocity and at trajectories ranging from low to very high. Large molten rock particles settle near to the impact, but smaller ones, and those with high-angle trajectories can go out to huge distances before being decelerated and brought back by Earth's gravity (some are modelled to go half-way to the Moon).

Being molten particles, those that settle into the upper atmosphere within hours and possibly within days, are still emitting infrared heat. They can have densities to produce enough heat at the Earth's surface to ignite vegetation. However, it had previously been assumed that they fall fairly evenly spread around the Earth.

The new modelling, however, shows a different pattern. Largest quantities fall near to the impact site to form a node of firestorms within several to a few thousand kilometres of the impact site.

However, because of the nature of the trajectories, many of the higher-rising particles actually fall on the opposite side of the Earth, producing a second node of firestorms. At the time of Chixulub, that was on the then-island of India in the middle of the Indian Ocean.

Two main fall-concentrations form, a near one around the impact site and a second on the far side of Earth. The time taken for the higher-rising particles to fall can be hours to days, especially for those at the second node. The second node of fire-storms will be created by the fastest-falling particles possibly after an hour or two of the actual impact.

For several hours after that initial fall though, the Earth is rotating under the fall-centre. Thence the primary firestorm node passes across the precursor to the Pacific Ocean and then eastern and southern Asia, and the secondary node into Africa and then into South America.

The consequence is to leave far northern North America and northern Europe with somewhat lesser effects from the impact.

Following this modelling researchers have now found that populations of plant spores taken from many sites around the World actually correlate with the computer modelling, adding plausibility to the theory. The mere fact that sufficient higher forms of-life survived to allow mammals to evolve and dominate, and leading to humans has now, of course, led to the generation of another phase of activity that some people will argue could rival the impact of f Chixulub!

The papers were published in the Canadian Journal of Earth Sciences, Nature and Science, and a popular science article in New Scientist.

Mike Freeman

NASA SPACECRAFT MAKES GREAT CATCH

Comet Wild 2 is shown in this image taken by the Stardust navigation camera during the spacecraft's closest approach to the comet on January 2. The image was taken within a distance of 500 kilometres (about 311 miles) of the comet's nucleus with a 10-millisecond exposure. A total of 72 images were taken of the comet during the flyby.

NASA's first dedicated sample return mission to a comet, passed a huge milestone by successfully navigating through the particle and gas-laden coma around comet Wild 2 (pronounced "Vilt-2").

During the hazardous traverse, the spacecraft flew within 240 kilometres (149 miles) of the comet, catching samples of comet particles and scoring detailed pictures of Wild 2's pockmarked surface.

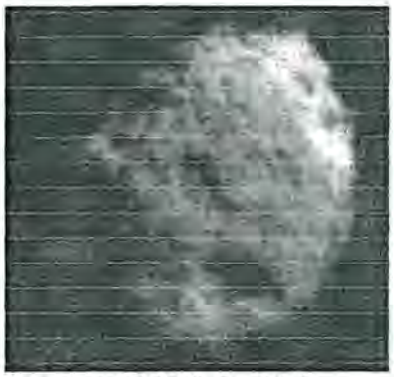


Photo Credits: NASA/JPL. Team Stardust.

SKY EVENTS FOR JANUARY 2004

Saturday, January 3
NASA Mars rover Spirit lands on that planet tonight.

Sunday, January 4
Quadrantid meteor shower peaks. Jupiter is stationary, 10 a.m. EST.

Tuesday, January 6
The Moon passes 5° north of Saturn, 7 p.m. EST.

Friday, January 9
Asteroid Ceres is at opposition, 9 a.m. EST.

Monday, January 12
The Moon passes 3° north of Jupiter, 6 a.m. EST.
Asteroid Hebe is at opposition, 6 p.m. EST.

Saturday, January 24–25
NASA Mars rover Opportunity lands on that planet just after Midnight (12:05 a.m. Jan. 25).

SKY EVENTS FOR FEBRUARY 2004

Monday, February 2
Neptune is in conjunction with the Sun, 4 a.m. EST.
The Moon passes 4° north of Saturn, 11 p.m. EST.

UPCOMING EVENTS FOR 2004

January 2004 will be ideal for viewing Saturn during its closest approach for 35 years.

May 2004 is a very busy month, not only is the Moon, Venus, Mars, Jupiter and Saturn together in the night sky, but: There will be a total eclipse of the Moon on 5 May, 2004.

Comet 2001 Q4 NEAT should become a naked eye comet (but not spectacular) in the Southern Hemisphere in May 2004.

Comet 2002 T7 should also become a naked eye comet, possibly spectacular, in the Southern Hemisphere at around the same time as Comet 2001 Q4 NEAT.

Venus will transit the Sun on June 8 2004.

There will be a Blue Moon on August 30th, 2004.

The Moon will pass in front of Venus on November 10, 2004.

PLANETS:

Mercury Returns to the morning sky in January. By the 9th, it is two handspans above the south eastern horizon, half an hour before sunrise. By the 17th, it is three handspans above the south eastern horizon, half an hour before sunrise. On the morning of the 20th the crescent Moon will be four fingerwidths above Mercury. By the end of the Month, Mercury is two handspans above the south-eastern horizon, and half an hour before sunrise

Venus is prominent in the evening sky. On the 1st Venus is three handspans above the western horizon, half an hour after sunset. On the evenings of the 24th and 25th the crescent Moon will be a handspan above, and below Venus respectively. By the end of the month Venus will remain three handspans above the horizon half an hour after sunset.

Earth was at the perihelion, it's closest approach to the Sun, on the 5th.

Mars is fading rapidly, and almost featureless in most small telescopes, despite being distinctly gibbous. Mars is visible in the western evening sky, and is the brightest object in the western sky apart from Venus. On the evening of the 28th the Moon will be two fingerwidths from from Mars.

Jupiter rises around midnight at the beginning of this month, and by the end of the month it rises around 10.00pm AEDST. On the 1st Jupiter is the brightest object eight handspans above the northern horizon half an hour before sunrise. On the morning of the 13th the waning Moon will be three fingerwidths below Jupiter. On the 31st Jupiter is the brightest object three handspans above the north-eastern horizon at around midnight.

Saturn is visible high in the evening sky. On the 1st Saturn is the brightest object three handspans above the north-eastern horizon around 10.00 pm AEDST. It is also about two handspans above and to the left of the pair of bright stars Castor and Pollux.

On the 6th and the 7th the Full Moon will be just over a handspan from Saturn. By the end of the month Saturn is high in the northern sky by 10.00 pm AEDST. Saturn is at opposition on the 1st, and Saturns rings are the widest they have been for some time.

This is an excellent time to look at Saturn.
http://home.mira.net/%7Ereynella/skywatch/ssky.htm

All descriptions here are based on the view from Melbourne at 10.00 pm AEDST (Australian Eastern Daylight Saving Time) on 1 January and assumes a fairly level horizon.

Starset occurs progressively earlier each day, so these descriptions are valid for 9.00 pm on the 15th and 8.00pm on the 30th.

Readers for Central and Western time zones should see roughly the same views at 10.00 pm ACDST and AWDST.

***Readers in Sydney, Fremantle and Perth should add 3 finger widths to the northern descriptions, and subtract 3 finger widths to the south.**

Facing west, the battered triangle of Capricorn, the Goat, is 3 handspans left of west, almost directly on the horizon. To the right by 3 hand spans and up by two handspans is Aquarius.

6 handspans up from the western horizon and three hand spans to the left is bright Fomalhaut, the main star of Piscis Austrinus, the southern fish.

Further off to the left is the battered cross of Grus the crane.

The faint constellation of Cetus, the whale is just below the zenith stretching from the west to south-west.

The Zenith is dominated by the rambling constellation Erandius, the river, and bright Achenar, alpha Erandius.

Achenar is the 9th brightest star in the sky, and is a blue supergiant. Epsilon erandi is notable for being the 10th closest star to our solar system. A sun-like star, epsilon erandi has recently been discovered to have a dust disk which may indicate the presence of planets.

On the eastern horizon are the constellations of hydra, directly east, and rectangle of Gemini, 6 handspans to the left. The bright stars of Gemini, Castor and Pollux, will not cleat the Horizon until about an hour later

The constellations of Taurus, the bull, Orion the hunter and Canis major, Orions hunting dog are now well above the horizon, and will be magnificent viewing later in the month, when the moon has waned.

Directly east, 8 handspans from the horizon is Canis major. The bright white star is Sirius (alpha Canis Majoris), the brightest star in the sky. The constellation of Canis Majoris has a number of open clusters that are well worth exploring with binoculars, Most of these lie two handspan to the right of Sirius, amongst the V shaped group of stars that marks the tail of Canis major. Below Sirius by two hand spans, and one handspan to the right is M47. This cluster is quite nice in binoculars.

To the left of Sirius by about four handspans is the distinctive saucepan shape of Orions belt. The handle of the saucepan is Orions sword, which contains some good naked eye open clusters, and the final star in the handle hosts the famous Orion nebula, which is visible to the naked eye under clear skies. Directly above the handle of the saucepan is bright Rigel (beta Orionis). Directly below the saucepan is the bright reddish Betelgeuse (alpha Orinonis), a red giant star.

To the left of Orions belt by about 4 handspans is Alderbaran (alpha Tauri),

SKY EVENTS FOR JANUARY 2004

another red giant which forms the base of the V shaped group of stars called the Hyades, which forms the head of Taurus.

Further to the left again is a faint, but pretty, compact cluster of stars called the Peliades (the seven sisters). The Peliades are particularly beautiful through binoculars.

Facing directly north, about three handspans up is Perseus. Six handspans up is the Peliades. The large square of stars that forms Pegasus, the flying horse is six handspans to your left on the north-western horizon.

Andromeda, and the famous Andromeda galaxy, is two handspans below the bottom right hand star of the square, and one hand span to the right, near a faint star. Andromeda is best seen through binoculars or a small telescope on a dark night. However, as Andromeda is so close to the horizon, it may be difficult to see anything.

Looking south, the bright, distinctive alpha and beta Centauri, the so called "pointers", are two handspans from the southern horizon, with alpha being the yellow star which is furthest from the horizon, and beta the blue white star below and to the left. Most of the rest of Centarus, the Centaur, is too close to, or below, the Horizon to be seen properly.

Alpha Centauri is the closest star to our sun at around 4 light years. However, recent measurements with the Hippacaros satellite put the system 300 million kilometres further away than previously thought. Alpha centauri is actually a triple star, consisting of two sunlike stars and a red dwarf, Proxima centauri, which is the closest of the triple stars to earth.

Returning to alpha Centauri, following a line east through the "pointers" brings you to the Southern Cross, one and a half handspans from beta Centauri to beta Crucis, and two handspans above the horizon between the 7 o'clock and 8 o'clock position on a clock. A high definition map of Centaurus and Crux is here.

The Southern Cross is a cross shaped formation with Acrux (alpha Crucis) and gamma Crucis forming the long axis of the cross (pointing down to the south-east, with bright Acrux on the end of the axis away from the horizon). Beta and delta Crucis, forming a nearly horizontal line, form the cross piece of the cross.

Just to the right of Acrux is the coal sack. This dark area against the glow of the milky way represents a large dust cloud and is usually clearly visible in dark skies, but will be hard to see this close to the horizon.

The Jewel box in the Cross is a small open cluster just above Beta Crucis. It is quite beautiful, but requires strong binoculars or a small telescope to see properly, and is unlikely to be good viewing this close to the horizon.

Above and to the left of the Southern Cross is Carina (the keel of the former constellation Argo Navis). It is now far enough from the horizon to appreciate its many faint objects. Looking almost anywhere in the area of Carina will reveal an interesting cluster or star formation.

However, the area between the Southern Cross and the false cross (which is just above the south-eastern horizon), is particularly rich. Here you will find the "Southern Peliades" surrounding the tail star (Theta Carina) of a prominent kite shaped group of stars, with theta Carina two handspans up, and one handspan to the left of Acrux.

Four fingerwidths below the Southern Peliades are two rich open clusters, and the barely visible star Eta Carina. Eta Carina's spectacular nebula is only dimly seen in binoculars.

Two handspans to the left and four handspans up from the Southern Cross is the False Cross, seven handspans from the southern horizon.

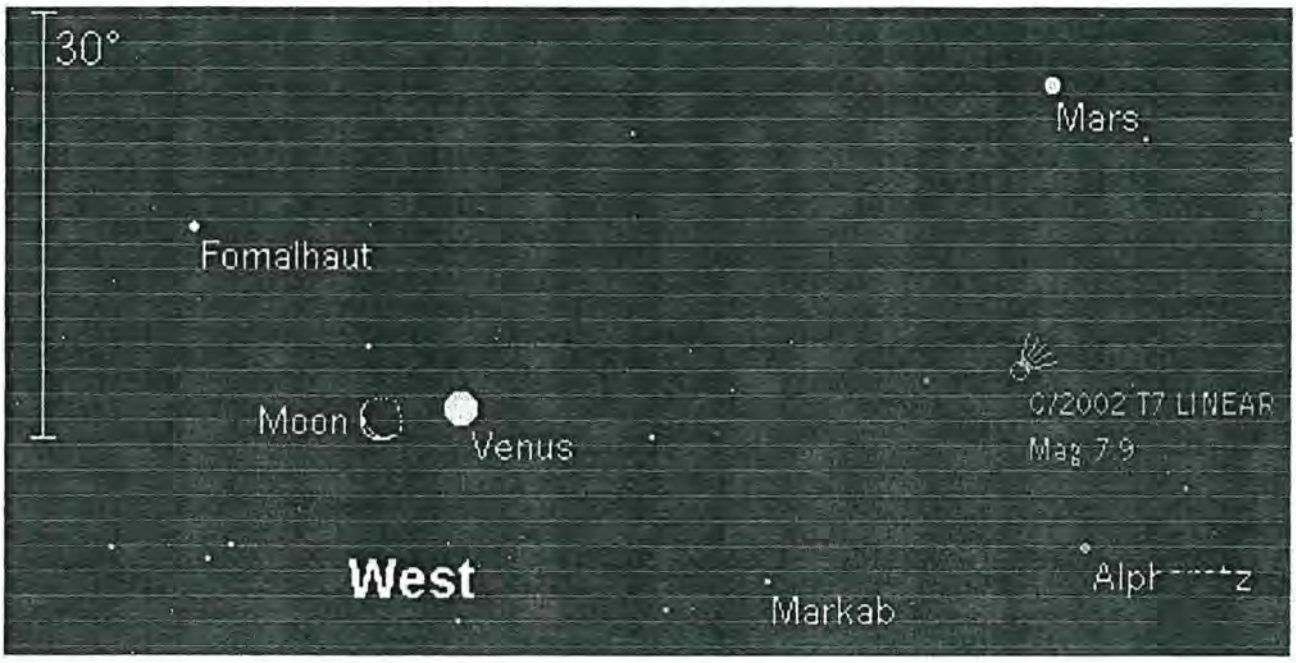
Just to the left of the False Cross is a good open cluster. Canopus (alpha Carina) is a bright yellowish star sitting 11 handspans above the south-eastern horizon (and about 4 handspans up from the False Cross.

Directly above the southern horizon by 11 handspans is the extended nebulosity of the Large Magellanic cloud, the largest of the dwarf satellite galaxies. Binoculars will reveal a rather attractive nebula near it, the Tarantula nebula.

To the left of this by 4 handspans is the Small Magellanic cloud, the second largest of the dwarf satellite galaxies to the Milky Way. In this nebulosity is what looks to be a fuzzy star, this is 47 Tucana, a spectacular globular cluster that is very nice through binoculars.

To the right of the Small Magellanic Cloud by about 4 handspans is the dim constellation of Tucana, the Toucan, the parent constellation of 47 Tucana.

http://home.mira.net/%7Ereynella/skywatch/ssky.htm



POVG MEETING - MINUTES

Minutes of Meeting. Nov 24th 03

Meeting Commenced at 7.05

Present. R.Tonello.R.Boelin.D Emrich.J.Milner. L.Martin. E.Walker T.Smith. J.Alcroft. G.Coletti. J.Morris. D.Alderson.T.Dunn. S.Schediwy. T.Beardsmore. L.Robinson. P.Birch. V.Levis. M.Freeman. F.Bilki. B.Harris.

Apologies. B.Hollebon. R.Loney. M.Zengerer. T.Beston. E.Cowlishaw L.Bell. J.Biggs. V.Smith.

Minutes of the previous meeting. Agreed as a true and correct record On the motion of J.Alcroft and F.Bilki.

Treasurer's Report. No change from the previous meeting. Bank balanceremains at $210.33

General Business.
1. G.Lowe reported that J.Biggs was in hospital for a minor operation, the members wished him a speedy recovery.

2. B.Harris gave a brief report on his participation with the Solar Challenge vehicle.

3. G.Lowe reminded members of the donation of the iFlamstead Star Atlas i on display in the Display Room and reported with regret that Mr.M.Moffatt, one of the Donars had recently passed away.

4. He also informed members that there was now a new Galvanised Metal Fuse box, that contained the switches to control the lights In the Car Park and Toilets.

5. P.Birch stated applications for Toms position were now closed and a decision would be finalised by Christmas.

6. T.Dunn stated that for personal reasons he wished to temporarily Stand down from the position as Chairman until after Christmas.

There being no further General Business the meeting closed at 7.20

PHASES OF THE MOON FOR 2004 (WA TIME)

New Moon	First Quarter	Full Moon	Last Quarter
		Jan 7 23:40	Jan 15 12:46
Jan 22 05:05	Jan 29 14:03	Feb 6 16:47	Feb 13 21:40
Feb 20 17:18	Feb 28 11:24	Mar 7 07:14	Mar 14 05:01
Mar 21 06:41	Mar 29 07:48	Apr 5 19:03	Apr 12 11:46
Apr 19 21:21	Apr 28 01:32	May 5 04:33	May 11 19:04
May 19 12:52	May 27 15:57	Jun 3 12:19	Jun 10 04:02
Jun 18 04:27	Jun 26 03:08	Jul 2 19:09	Jul 9 15:33
Jul 17 19:24	Jul 25 11:37	Aug 1 02:05	Aug 8 06:01
Aug 16 09:24	Aug 23 18:12	Aug 30 10:22	Sep 6 23:10
Sep 14 22:29	Sep 21 23:53	Sep 28 21:09	Oct 6 18:12
Oct 14 10:48	Oct 21 05:59	Oct 28 11:07	Nov 5 13:53
Nov 12 22:27	Nov 19 13:50	Nov 27 04:07	Dec 5 08:53
Dec 12 09:29	Dec 19 00:40	Dec 26 23:06	

http://www.wa.gov.au/perthobs/hpc5mn03.htm

DON'T MISS
the SUMMER LECTURE

PROF RAY NORRIS of ATNF, Sydney,

Date: Sun 15 Feb, 8pm. Perth Observatory.

Tickets to the public are just $5.00.
Please invite or promote other to attend.

2004 VOLUNTEER TRAINING/MEETING NIGHTS

Training is important for our volunteers, they enjoy it and we need to support these staff members in return for the assistance they render.

Generally, these training nights are scheduled for 7pm the Monday after the week of Last Quarter.

This list is also displayed on the volunteer noticeboard.

Your cooperation is appreciated. Jamie Biggs. Govt Astronomer

2004
Jan 19
Feb 23
Mar 15
Apr 19
May 17
Jun 14
Jul 12
Aug 9

PERTH OBSERVATORY VOLUNTEERS GROUP INC.

OBSERVATORY'S VOLUNTEER ACTIVE MEMBER LIST

Jeff Alcroft
Dick Alderson
Jeanne Bell
Trevor Beardsmore
Lyall Bell
Frank Bilki
Tony Beston
Ric Boelen
Eve Cowlishaw
Giuseppe Coletti
Peter Crake
Trevor Dunn
David Emich
Keith Ford
Marcel Fortsch
Mike Freeman
Lynda Frewer
Bevan Harris
Don Hartley
Mark Haslam
James Healy
Bert Hollebon
Karen Koltze
Erin Lalor
Vic Levis
Rob Loney
Andrew MacNaughtan
Len Martin
Jacquie Milner
John Morris
Kylie Ralph
Lloyd Robinson
Sascha Schediwy
Val Semmler
Vera Smith
Robert Taylor
Patricia Turner
Elaine Walker
Sandra Walker
Matthew Zengerer

PERTH OBSERVATORY STAFF

Dr Jamie Biggs	Director and Govt Astronomer
Peter Birch	Astronomer
Ralph Martin	Astronomer
Dr Andrew Williams	Astronomer
Tom Smith	Astronomer Assistant
Greg Lowe	Astronomer Assistant
Janet Bell	Administration Officer
Di Johns	Clerical Officer
Arie Verveer	Technical manager
John Pearce	Mechanical technician
David Tiggerdine	Maintenance Person
Sheryle Smith	Cleaner

POVG VOLUNTEERS

(To be advised)	Chairperson
Karen Koltze	Vice Chair
John Morris	Secretary
Bevan Harris	Treasurer and newsgroup moderator
(contact bevan on ngc2070@bigpond.com)	
Jeff Alcroft	Newsletter Editor

HAVE YOU JOINED THE VOLLIE NEWSGROUP YET?

If you've got any news, information or pic simply post them on the newsgroup for all (newsgroup members only) to enjoy or respond to.
To join simply send your email address to BEVAN HARRIS at:
ngc2070@bigpond.com

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