Newsletter

WELLINGTON ASTRONOMICAL SOCIETY

April 2011, Volume 41, Number 3, ISSN 01147706, www.was.org.nz

Wednesday, 6th of April,
7:30 PM at Carter Observatory

THIS MONTH'S MEETING FEATURES

Our Changing View of Saturn

... over the last 400 years
(with special emphasis on its ring system)

Description:

The talk consists of two distinct sections. The first one outlines important milestones in the history of the observation of the planet Saturn. The second part focusses on the ring system and some of the more recent discoveries and their attempted explanations.

In this issue:

04-2011

Wellington Astronomical Society

Presidents Report

Last months talk with Hari Mogosanu showed us what she was doing in the Dessert in the USA . She lived in a Mars surface simulation for two weeks. This was an excellent presentation and this showed with the number of questions that were asked after the show. Thanks Hari for a great presentation.

The societies CCD camera the ST7 is getting quite a lot of use at present as Roger Butland and myself have been sorting out the problems with focus and arranging the filter wheel so that it can be controlled. This is now done and we are ready to start imaging variable stars.

The observing at the Pauatahanui Observatory had to be canceled on the 5th of March but 12th of March which was our backup night was nice and clear. Chris tells me that only one student and his dad show up. However Chris managed to take a couple of photos through the telescope.

We are not having a very good run for any observing at Pauatahanui over the last 12 months when the observatory was only used three times last year.

We are considering moving the observatory to a more accessible site which would mean it would get more use but not necessary better weather. Watch for further developments on this.

The weekend camp at Tatum Park will be on April 8-9 see article in this newsletter.

The next observing at Pauatahanui will be on April 30th starting at 8.00pm.

This year we have added an extra Saturday to the observing at Pautahanui each month so if one is clouded or rained out we will have the following Saturday to fall back on.

Because of the Full Moon on the 18th this is why our observing evening is late this month but we will be involved with the program at Tawa College on Astronomy month.

Observing at the Thomas King Observatory is every Friday evening but ring Ross Powell first.

The WAS Dobsonian telescopes are all out on hire at present. Anyone wanting to hire one of the societies Dobsonians should call Chris Monigatti.

The WAS Research Group was approached by the Gifford Observatory Trust to see if any of our members would be interested in using the Observatory all be it with a different telescope installed which would possibility be a C14 with a CCD camera attached. This proposal is still under discussion. There is no further update on this.

I have been working on the Thomas King Observatory fixing the dome so that it will not come off in high winds. I have also stripped the walls of the display panels and the room is about to be painted. Work still needs to be done on the steps going up to the telescope. We are waiting for thePainters to come in and paint the walls.

Carter Observatory decided to start running two observing evenings each week starting on Tuesday 5th of April and this evening will be run by the Phoenix Society while the WAS will run the Saturday night observing this will start on the 9th of April. We therefore require two volunteers every Saturday evening so put your name forward to Ross Powell as soon as possible.

Next months talk will be another of our popular Video's the title is 'Telescope Hunting the Edge of Space'.

Remember the RASNZ conference coming up in May in Napier and now is a good time to register.

COUNCIL OF THE WELLINGTON ASTRONOMICAL SOCIETY INC.

Tawa College

Tawa College Astronomy Club

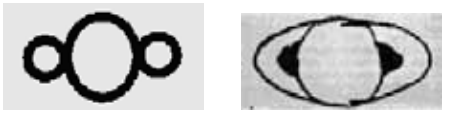
invites students, parents, and friends of Tawa College to a presentation followed by observing session at the school celebrating:

Saturn Watch – Saturday 2 April, talk begins 7:00 pm

'Changing Views of Saturn' *by Roland Idaczyk*

Galileo's drawing of Saturn,

1610, 1616



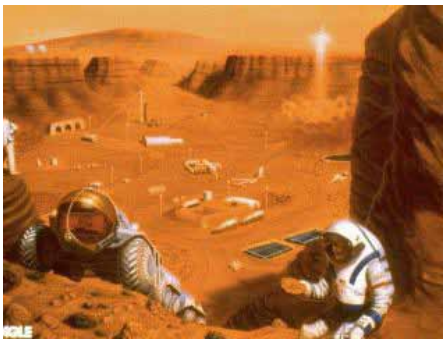
Hubble Space Telescope, March 22, 2004

Global Star Party – Saturday 9 April, talk begins 7:00 pm

followed by observing Saturn, the Moon, and the fabulous southern night sky

'Can Kiwis help colonise Mars?'

by Haritina Mogosanu



P.T.A. building – above the Canteen, at the end of the rugby field. In the event of cloudy skies, this event will continue, although observing will be replaced by video.

OBSERVING AT PAUATAHANUI

The next observing evening at Pauatahanui is on April 30th starting at 8.00pm. **If doubtful please ring Chris Monigatti on his mobile 021 890 222 to see if the session is going ahead.**

OBSERVING AT THOMAS KING

All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. from 8:30. **Ring Ross on 389 9765 t**o check if there are public observing evenings on most FRIDAYS, starting as soon as it gets dark depending on the weather and Ross's availability.

March Crossword answers

Across

6. VENUS, - a very cloudy planet; 9. DEIMOS, - One of the Moons of Mars; 10. SOHO, - satellite observatory studying the Sun; 11. MESSIER, - a catalogue; 12. ECLIPSINGBINARY, - clip singer in bay (anagram); 15. ANDROMEDA, - Largest galaxy in the Local Group; 16. BINARY, - a double star; 18. DAY, - 24 hours; 20. LMC, - could be mistaken for a cloud; 23. BIGBANGTHEORY, - A cosmological model; 24. HST, - an orbiting telescope; 26. NOVA, - a new star; 29. BAR, - some spiral galaxies have one; 30. HOUR, - unit of time; 31. NOON, - mid-day; 34. PAVO, - The Peacock constellation; 35. KEPLER, - Early German astronomer - formulated 3 laws of planetary motion; 36. CLUSTER, - An open or globular ...; 40. AZIMUTH, - horizontal angle around the sky; 44. LEO, - A lion circling the Earth; 45. KIWI, - New Zealander; 46. VIRGO, - Constellation with Spica; 47. DENEB, - alpha Cygnus; 48. ATOM, - smallest indivisible piece of a element; 50. APOGEE, - When the Moon is furthest from the Earth; 51. PRECESSION, - son's recipe (anagram); 53. SIDEREAL, - star time; 54. FUSION, - process that powers stars;

Down

1. ICE, - frozen liquid; 2. GAS, - solid, liquid or ...; 3. PELE, - volcano on Io; 4. IO, - One of the Galilean satellites; 5. ZODIAC, - also a small inflated rubber boat; 6. VEGA, - alpha Lyr; 7. SCHMIDT, - type of telescope; 8. SEYFERT, - type of galaxy with unusally bright nucleus; 13. SHEPHERD, - astronaut; 14. RUTHCRISP, - Carter Observatory's public telescope; 17. NADIR, - opposite to zenith; 19. APHELION, - one phial (anagram); 21. HALO, - angels and galaxies both have one; 22. POLARIS, - The North Star; 25. SCORPIUS, - constellation with a sting; 27. PANDORA, - a shepherd satellite of Saturn's F ring, also the first women in Greek mythology; 28. OBAFGKM, - spectral classes; 32. TAURUS, - You don't want this constellation in a China shop; 33. JODRELLBANK, - site of the Lovell radio telescope; 35. KILOGRAM, - The SI unit of mass; 37. LOKI, - volcano on Io; 38. SMC, - satellite galaxy to the Milky Way; 39. GIOTTO, - Name of ESA spacecraft that intercepted Halley's comet; 41. UFO, - flying saucer; 42. HYADES, - an open cluster in Taurus; 43. GIBBOUS, - a phase of the Moon; 49. MASS, - I weight 6 times less on the Moon, but still have the same ???; 52. ION, - an arrested atom;

Globular clusters of the Autumn sky

As we move into the autumn we get to see a number of globular clusters gracing our evening skies and this article will cover some of the brightest and best.

What is a globular cluster?

There are two types of star clusters in and around our galaxy.

Open clusters that are found along the plane of our Galaxy and come in a variety of sizes, ages and are "loose" or "open" in shape consisting of up to a few thousand stars and may include reflection and emission nebulae. They are loosely bound by gravity and most only remain as cluster for a few million years.

Globular clusters appear as spherical clusters containing many more stars than an open cluster, millions in the case of the largest. Early observers plotted their position as they created star charts and may have the title Messier, NGC, or other depending on the survey that found them. Globular clusters contain more stars and are much older and are denser than open clusters and can be found in and above the galactic plane. There are currently 150 globular clusters known around the Milky Way.

Hunting for the globs

I spent a few hours reading through Hartung's "Astronomical Objects for Southern Telescopes 2nd Edition" Collin's "Stars and Planets", and created a database of targets for imaging.

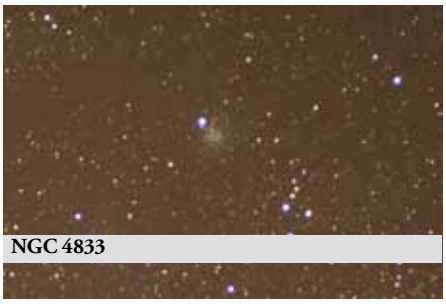
Images for this article

All of the images in this presentation were taken from my back garden observatory in Stokes Valley. Images were taken with a Canon 1000D camera attached to a Takahashi TSC-225 225mm f-12 Schmidt – Cassegrain telescope operating at f-7.6. Images are a stack of five four minute exposures at ISO 800 images were then processed in Deep Sky Stacker and Photoshop 6.0.

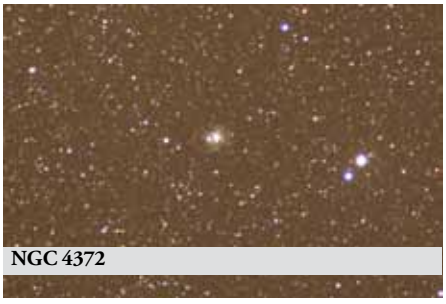
47 Tucanae - NGC 104 in Tucana Mag 4.0

47 Tucanae

NGC 2808



NGC 4833



NGC 4372

NGC 104

The rivalry between this cluster and Omega Centauri for "best glob" is legendary. Visible to the unaided eye near to the SMC it is an easy object to find in binoculars it is even better with the use of a telescope. The cluster is roughly the same size of the Full Moon and is the second brightest globular cluster in the sky and has a very bright and dense core. It is a massive globular cluster containing millions of stars and is about 16,700 light years away and 120 light years across.

NCG 362 in Tucana Mag 6.4

At the "pointy" end of the SMC NGC 362 is over shadowed by 47 Tuc. Visible in binoculars this cluster belongs to our galaxy and is estimated to be 29,000 light years distant.

NGC 2808 in Carina Mag 6.2

Not far from the Diamond Cross NGC2808 is an easy target for binoculars and telescopes. In 2007, a team of astronomers led by Giampaolo Piotto of the University of Padua in Italy investigated Hubble Space Telescope images of NGC 2808 and found that this cluster is composed of three generations of stars, all born within 200 million years of the formation of the cluster.

Globs in Musca

Two globular clusters can be found in Musca NGC 4833 and 4372.

NGC 4833 Mag 7.4

Near Delta Muscae is a 7th magnitude glob that can be easily seen in a small telescope and 16'000 light years away and discovered by Abbe Lacaille during his journey to South Africa in 1751-1752.

NGC 4372 Mag 7.8

Near to Gamma Muscae is a smaller and fainter globular cluster and can be seen in this wide field image along with NGC 4833. It is about 17'000 light years distant and was discovered by James Dunlop on April 30th, 1826.

Omega Centauri - NGC 5139 in Centaurus *(continued in page 7)*

This April 8th-10th

Stargazers Astro Camp

Tatum Park, 1 hr north of Wellington

Register your interest now

Anyone willing to give a short presentation on anything astronomical will have their registration fee halved. A handful of WAS and Levin Stargazers members are already confirmed.

Registration is just $10 per person or $20 for a family. A wide range of accommodation options available (at reasonable rates) from tent sites, bunk rooms, cabin or lodge. More details to follow in next months newsletter or contact the organisers.

The Levin Stargazers and the Wellington Astronomical Society are preparing for a weekend of stargazing to mark this year's Global Astronomy Month. We will be hosting a weekend star party at Tatum Park just 7 minutes south of Levin.

The Astro Camp is an opportunity for people to relax with family, friends and fellow astronomers. All accommodation is situated next to the observing field so you can say up late and gaze at the starry firmament from the darkest of skies.

Accommodation includes a range of options from basic bunks and tent sites to the more luxurious cabins and lodge. Full conference facilities are provided.

A buffet of presentations will be served. The feast will include The Aurora Hunters, The Moon, Solar observing, Occultations, A trip to Mars, Star Hopping, Messenger to Mercury, Planet spaceship and a side order of the latest Yuri Gagarin film 'First Orbit' with a dash of collimating your telescope. For dessert you will be served an array of telescopes with your choice of eyepiece candy.

Registration is just $10 for the entire weekend. Family and one day rates available.

For further details visit www.levinstargazers.org.nz or contact Ron Fisher 06 3686251

Aurora Astronomy School

CANCELED

Cancelled after the Christchurch Eartquake

WAS April's talk resumee

Presenter: Roland Idaczyk

Duration: approx. 1 hour

Abstract:

The rings of Saturn have always been an exciting sight and inspired the imagination of observers. But the remoteness and small size of individual features have long prevented to develop an educated understanding of this phenomenon. This all changed with the fly-bys of the Pioneer (1979), Voyager (1980/1981) and Cassini (since 2004) spacecraft. They finally provided us with close-up views of such an exquisite quality, that we are now experiencing a true inflation of data. Especially over the last 30 years we have dramatically improved our views of Saturn and its ring system.

Astronomy Without Borders presents: Global Astronomy Month April 2011

Global Astronomy Month continues the excitement of the unprecedented International Year of Astronomy 2009 (IYA2009). (AWB) Astronomers Without Borders is dedicated to fostering understanding and goodwill across national and cultural boundaries by creating relationships through the universal appeal of astronomy.

Astronomers Without Borders projects promote sharing. Sharing resources. Sharing knowledge. Sharing inspiration. All through a common interest in something basic and universal. Sharing the sky.

A host of events are planned worldwide throughout April 2011 (see list below), all amateur and professional astronomers and in fact anybody is invited to participate, encourage your local astronomy club to run at least one event for the public, giving the public a chance to explore and enjoy our night sky.

If your Astronomy club in New Zealand has events planned please let me know very soon, a Press Release will go out to the New Zealand media organisations on the 25th March, we can advertise your events in this release.

March 24 to 6 April Globe at Night - Southern Hemisphere

1 April Online Messier Marathon: Observe all the Messier objects remotely

1 to 8 April International Dark Skies Week

1 to 30 April 30 Nights of StarPeace

2 April Around the Ringed Planet: Observe Saturn remotely

2 to 3 April Beatuy without Borders - Saturn Watch

9 April Global Star Party

Be sure to reserve Saturday, April 9th, for GAM's ultimate observing event: the Global Star Party. Of course, it's B.Y.O.T. - Bring Your Own Telescope - but encourage even those who don't have one to come anyway. All are invited, all will be excited. It is amazing that when we turn our gaze upward all religious, national, cultural and political barriers fade into the darkness. April 9th is the time to come out under the stars, bridge gaps across the seas, and join your brother and sister skywatchers in proving that the world is, in fact, "One People, One Sky."

9 April Stars for All: Observe deepsky objects remotely

10 to 16 April Lunar Week

12 April Walking on the Moon: Observe Moon remotely

12 April Yuri's Night - 50th Anniversary of Human Space Flight

17 April SunDay 17 April Here Comes the Sun: Observe Sun remotely

21 to 22 April Meteors without Borders - Lyrids Watch 2011

28 April, 20:00UT Cosmic Concert - Online Musical Concert

30 April Write Your Name in the Sky!: Observe asteroids remotely

Throughout April One Star at a Time - Fight Light Pollution

Throughout April MoonDays

Throughout April Astronomy without Barriers - programs for people with disabilities

Throughout April Planetarian without Borders

Throughout April Astropoetry for Global Astronomy Month

You are also invited to register your event at http://www.astronomerswithoutborders.org/global-astronomy-month-2011.html

You are also invited to join the AWB New Zealand Google group newsletter to keep up to date with the AWB events in New Zealand. http://groups.google.com/group/awb-nz-newsletter?hl=en-GB&pli=1

Great ideas to get the public in your area involved in GAM April 2011

• Visit a retirement home, or children's hospital and give those able a chance to see the Universe up close.

• Have a club member dress up as a famous astronomer from history.

• Use our resources page to get the materials to accommodate the seeing impaired.

• Host "How Telescopes Work" demonstrations and put your ATM guys to work with mirror grinding demos and use some of that extra glass to let the public try.

• Hold events outside of art galleries or musical events.

• Surround a shopping mall or city park with telescopes at every corner or entrance.

• Get a local scout or school group to assist at your star party—have the youngsters ask questions, provide information, and even help run the scope.

• Have an "artists table" set up so that younger observers can make and take their own souvenirs of the event.

• Work with a local library to have book displays set up near the telescope so that people can learn more.

• Work with another club in a different country and set up an internet connection so that those attending your event can connect with others doing the same thing at the same time in a different part of the world.

• Live-stream your event on Ustream.

All the best with your GAM 2011 events, remember to let us know what you have planned so we can advise New Zealand media organistions in our 25th March 2011 press release.

Clear Skies

Robert McTague

Astronomy With Out Borders New Zealand Coordinator.

28 Kiwi Drive,

Timaru

Ph 03-6883735

(continued from page 4)

Visible to the naked eye and covering a region as large as the full Moon is the brightest Cluster in our night sky and was listed in Ptolemy's catalogue 2000 years ago as a star. In 1677 Edmond Halley 1677 recorded it as a nebula. John William Herschel recognized it as a globular cluster in the 1830s.

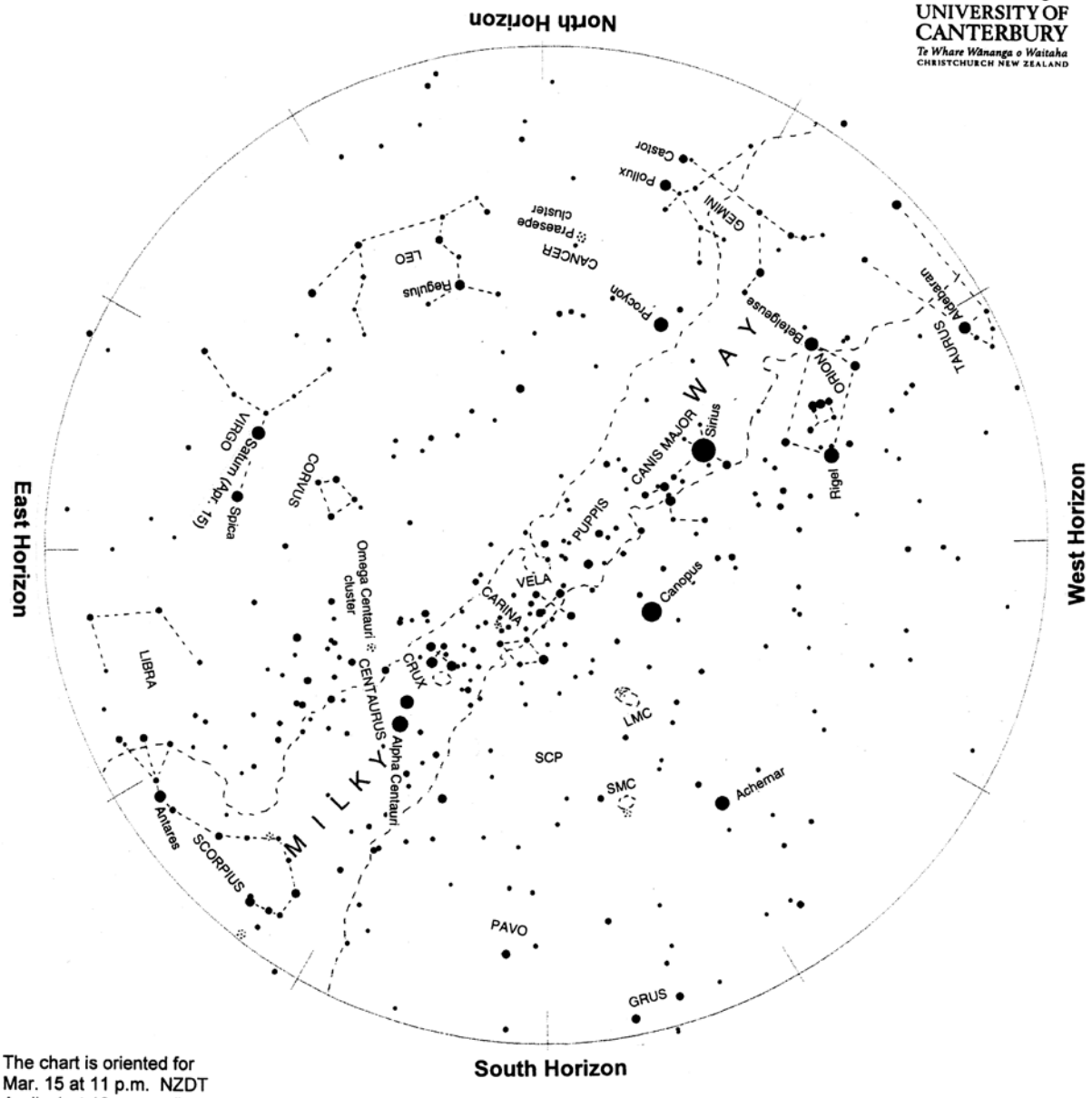
Go find them!

These globs range from the spectacular to the diminutive and show that globs are as individual as us observers. The clusters in this article are with in the range of binoculars or small telescopes. I have had fun finding, imaging and preparing this article and I am looking forward to adding to these images over the coming months. Hopefully you will grab your binoculars' or telescope and with a star-chart go grab some glorious globs!

RASNZ Conference 2011, Napier, May 27 to 30.

The RASNZ conference, hosted by the Hawkes Bay Astronomical Society, will feature David Malin and Fred Watson. The conference is preceded by an Occultation Symposium and followed by an Imaging Workshop.

Notice of the 2011 Annual General Meeting to be held during the conference weekend. www.rasnz.org.nz



The chart is oriented for
Mar. 15 at 11 p.m. NZDT
April 1 at 10 p.m. "
April 15 at 8 p.m. NZST
May 1 at 7 p.m. "

Evening sky in April 2011

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole, SCP on the chart. Stars rise in the east and set in the west, just like the sun. The sky makes a small extra westward or clockwise shift each night as we orbit the sun.

Sirius, the brightest star, is midway down the western sky. Below it is Orion with bright stars Rigel and Betelgeuse. Orion's belt and sword, aka 'The Pot', appears between them. Canopus, the second brightest star, is southwest of overhead. Saturn is in the east with fainter Spica to its right. Crux, the Southern Cross, and The Pointers, Alpha and Beta Centauri, are high in the southeast sky. The Scorpion, on its back, is rising in the southeast. The Milky Way spans the sky from SE to NW.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury.www.canterbury.ac.nz

The Evening Sky in April 2011

Sirius is the first star to appear at dusk, midway down the northwest sky. It is soon followed by Canopus, southwest of the zenith. Below Sirius are Rigel and Betelgeuse, the brightest stars in Orion. Between them is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of three makes the bottom of 'The Pot', now tipped on its side. Orion's belt points down and left to a V-shaped pattern of stars making the face of Taurus the Bull. Below and right of Sirius is Procyon. The planet Saturn is in the east sky, making a widely spaced pair with Spica. In the southeast are the Pointers, Beta and Alpha Centauri, with Crux, the Southern Cross, above them.

Sirius, 'the Dog Star', marks the head of Canis Major the big dog. A group of stars above it make the dog's hindquarters and tail. Sirius is the brightest star in the sky both because it is relatively close, nine light years* away, and 23 times brighter than the sun.

Low in the north are Pollux and Castor, the heads of Gemini the twins, making a line vertical to the skyline. Above and right of them is the Praesepe cluster, marking the shell of Cancer the crab. Praesepe is also called the Beehive cluster, the reason obvious when it is viewed in binoculars. It is 500 light years away.

Further right is Regulus, the brightest star of Leo. Below Regulus a sickle-shaped pattern of stars makes the lion's mane. To its right a zigzag of stars form the lion's hind legs. Leo is upside down to us as these constellation pictures were thought up by northern hemisphere sky watchers.

Saturn is the brightest 'star' in the empty eastern sky at dusk. To its right, and slightly fainter, is Spica the brightest star in Virgo. Saturn's rings appear quite narrow in a telescope after being edge-on for the past two years. Saturn is 1300 million km away in mid April. It is midway up the north sky by midnight.

Rigel, left of Orion's belt, is a bluish supergiant star, 40 000 times brighter than the sun and much hotter. It is 800 light years away. Orange Betelgeuse, right of the line of three, is a red-giant star, cooler than the sun but much bigger and 9000 times brighter. It is 400 light years from us. The handle of "The Pot", or Orion's sword, has the Orion Nebula at its centre; a glowing gas cloud many light-years across and around 1300 light years away.

Crux, the Southern Cross, is high in the southeast. Below it, and brighter, are Beta and Alpha Centauri, often called 'The Pointers'. Alpha Centauri is the closest naked-eye star, 4.3 light years away. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away. Canopus is also a very luminous distant star; 13 000 times brighter than the sun and 300 light years away.

The Milky Way is brightest in the southeast above Crux. The Milky Way can be traced to nearly overhead where it fades. It becomes very faint in the northwest, right of Orion. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The centre of the galaxy is toward Sagittarius, below Scorpio's sting, where the Milky Way is broad and bright.

The Clouds of Magellan, LMC and SMC are midway down the southwest sky, easily seen by eye on a dark moonless night. They are two small galaxies about 160 000 and 200 000 light years away.

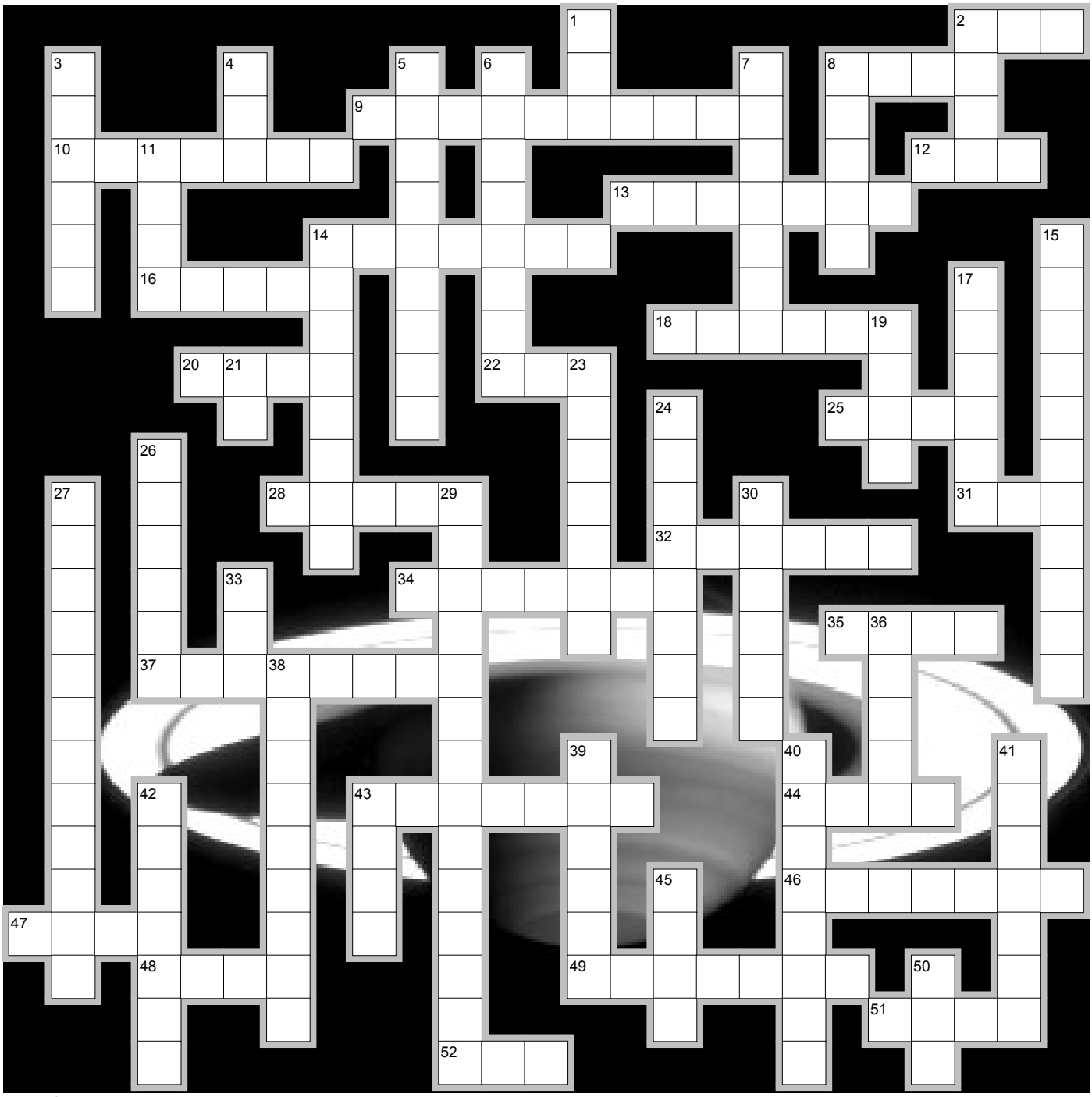
Brilliant Venus rises in the east after 4 a.m. It circles the sun faster than us and is now moving to the far side. Near the end of April the planets Mercury, Mars and Jupiter will all appear in the dawn sky below Venus. Mercury passes us on April 9 and is moving to the far side of the sun. It appears just below Venus but is much fainter. We are catching up on Mars and Jupiter which are presently on the far side of the sun. They are close together in the sky, well below Venus. Jupiter is bright, though outshone by Venus. Mars has an orange tint and similar brightness to Mercury. On April 30 their distances from us are: Mercury 107 million km; Venus 215 million km; Mars 350 million km; Jupiter 890 million km.

**A light year (l.y.)is the distance that light travels in one year: nearly 10 million million km or 1013 km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.*

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.

www.canterbury.ac.nz
110206

Cross Word with Murray Forbes



EclipseCrossword.com

Across

2. an orbiting telescope; 8. alpha Lyr; 9. Point in an object's solar orbit that is closest to the Sun; 10. a shepherd satellite of Saturn's F ring, also the first women in Greek mythology; 12. an arrested atom; 13. The winged horse constellation; 14. The North Star; 16. Demon star; 18. process that powers stars; 20. New Zealander; 22. could be mistaken for a cloud; 25. unit of time; 28. alpha Cygnus; 31. satellite galaxy to the Milky Way; 32. When the Moon is furthest from the Earth; 34. type of galaxy with unusally bright nucleus; 35. A serious search for aliens (abbrev); 37. constellation with a sting; 43. When the Moon is closest to the Earth; 44. satellite observatory studying the Sun; 46. 23rd September; 47. volcano on Io; 48. The Peacock constellation; 49. brightest star in Canis Minor; 51. I weight 6 times less on the Moon, but still have the same ???; 52. solid, liquid or ...;

Down

1. frozen liquid; 2. angels and galaxies both have one; 3. Early German astronomer - formulated 3 laws of planetary motion; 4. A lion circling the Earth; 5. Mars; 6. star time; 7. heart of the scorpion; 8. a very cloudy planet; 11. a new star; 14. The Seven Sisters; 15. Bending of light around the edge of an obstruction; 17. You don't want this constellation in a China shop; 19. mid-day; 21. One of the Galilean satellites; 23. An open or globular ...; 24. Causes small changes in RA and Dec coordinates; 26. One of the Moons of Mars; 27. men's concerto (anagram); 29. 'braking radiation' produced by the rapid decleration of an electron; 30. also a small inflated rubber boat; 33. flying saucer; 36. Tellus; 38. type of telescope; 39. used to prevent moisture condensing on a telescope; 40. road site (anagram); 41. Autahi; 42. to block light from another object; 43. volcano on Io; 45. smallest indivisible piece of a element; 50. 24 hours;