## WELLINGTON ASTRONOMICAL SOCIETY



Graeme Jonas with one of the LBT primary mirrors

MONTHLY MEETING: Adventures in Arizona - the best and the worst of America by Graeme Jonas \& Warwick Kissling
7.30pm Wednesday $3^{\text {rd }}$ Decemberr 2008

Science House,
Turnbull Street,
Thorndon

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## Adventures in Arizona - the best and the worst of America. by Graeme Jonas \& Warwick Kissling.

Recently we spent two weeks in Arizona, and had the opportunity to visit several major observatories and optical fabrication facilities in that state. In this talk we will describe why we went to Arizona, what we saw when we got there, and how this will help us in the future. We will also talk about some of our non-astronomical adventures while in the USA...Abstract

## Notice of AGM

Since we didn't have a quorum at the November meeting the AGM has had to be deferred until the December meeting when hopefully enough members will be present to hold an AGM. At the AGM the Finances of the Society for the previous financial year are presented, a new council is elected, any resolutions that have been submitted are voted on, an auditor appointed and any other business that is applicable is transacted. The auditor's report is attached separately. A number of members have been approached to see if they would be prepared to stand on the WAS council and all of them said they would be prepared to stand for the positions of: President, Gordon Hudson; Vice President: Secretary; Treasurer and 4 committee members. Also another 4 are prepared to assist off council. It looks as though we will have an exciting new council for the coming year.

## No Gifford or Pauatahanui Star Parties in December or January

There will be no star party at the Gifford or Pauatahanui in December or January.

## Observing at Thomas King Observatory

Ross Powell is opening the TKO (on the small hill beside Carter) on fine weekends. Mainly Saturday nights but if anyone is keen on a Friday then contact Ross Powell on 3899765 or Vicki on 3838710.

## Editorial Disclaimer

Views expressed in this newsletter are not necessarily those of the Society as a whole.

## 2008 ANYTHING VINTAGE TRANSPORT \& MACHINERY FESTIVAL $27^{\text {th }}-29^{\text {th }}$ December 2008.

This is being held at MacKay's crossing Entrance, Queen Elizabeth Park, Paekakariki from 27th 29th December, 2008 10am until 4.30pm.
Again Wellington Astronomical Society will be involved at this event. The contact people for 2008 are Bill Parkin and Lesley Hughes. Their phone no. is 4725086 email hpwas@hugpar.gen.nz This is a great opportunity for us to showcase astronomy in the Wellington region and would be absolutely great if a number of our members were involved.


Themed around transport and machinery from yesteryear 'Anything Vintage' offers a wide variety of entertainment, rides, food, displays, market stalls and outdoor activities catering for all ages. The festival features live music twice a day by top Kapiti bands including 'Black Eyed Suzie' and 'Legal Tender', supported by fun and magic from 'Harry the Clown' and 'Zippity Zoo' for the kids. A variety of novelty rides will include vintage trams, vintage buses, other transport from the past, plus pony rides by 'Stables on the Park. To complete the vintage transport experience Tranz Metro are running their restored 1954 English Electric Suburban Unit from Wellington to Paraparaumu three times a day where passengers can ride vintage buses to and from the festival. (Trains depart Wellington at 9:00am, 12:00pm \& 3:00pm and depart Paraparaumu at 10:05am, 1:05pm \& 4:05pm.)


## What's In the Sky in December: Information Provided by Alan Gilmore

Venus and Jupiter make an eye-catching pair of 'evening stars' in the western sky at dusk at the beginning of December. Venus is by far the brighter of the two. Jupiter slips lower in the sky, and sets earlier, as we move to the opposite side of the sun from it. Venus, catching us up on the inside lane, swings out to its greatest angle from the sun. So it sets after midnight. It is bright enough to cast shadows in dark surroundings. Mercury begins a brief evening sky visit, swinging out from the far side of the sun. It climbs toward sinking Jupiter. The two will be close at the end of the month, but low in the southwest twilight. Jupiter, on the right, is the brighter of the pair. The thin crescent moon passes between Mercury and Jupiter on the $29^{\text {th }}$. At mid-month Jupiter is 900 million km away; Venus 130 million km, and Mercury 200 million km from us.

The brightest stars -- way fainter than Venus -- are in the east and south. Sirius, the brightest of all the stars, is due east at dusk, often twinkling like a diamond. Left of it is the bright constellation of Orion with 'The Pot' at its centre. Further left, in the northeast is the V-shaped pattern of stars making the face of Taurus the Bull with the Pleiades/Matariki/Seven Sisters cluster to its left. Canopus, the second brightest star, is high in the southeast. Low in the south are Crux, the Southern Cross, and the Pointers, Alpha and Beta Centauri.

The Milky Way is low in the sky, visible around the horizon from the west, through south into the eastern sky. The broadest part is in Sagittarius low in the west, fading in the twilight. It narrows toward Crux in the south and becomes faint in the east below 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 thick hub of the galaxy, 30000 light years* away, is in Sagittarius. The nearby outer edge is the faint part below Orion.

A scan along the Milky Way with binoculars will show many clusters of stars and a few glowing gas clouds.

The Clouds of Magellan, LMC and SMC, high in the in the southern sky, are two small galaxies about 160000 and 200000 light years away. They are easily seen by eye on a dark moonless night. The larger cloud is about $1 / 20$ th the mass of the Milky Way galaxy, the smaller cloud $1 / 30$ th. That's still many billions of stars in each.

Low in the south are the Pointers, Beta and Alpha Centauri, and Crux the Southern Cross. In some Maori star lore the bright southern Milky Way makes the canoe of Maui with Crux being the canoe's anchor hanging off the side. In this picture the Scorpion's tail can be the canoe's prow and the Clouds of Magellan are the sails.

Left of Sirius is the constellation of Orion. The line of three stars makes Orion's belt in the classical constellation. To southern hemisphere skywatchers they make the bottom of 'The Pot'. The faint line of stars above and right of the three is the Pot's handle. Rigel, directly above the line of three stars, is a bluish hot star. Orange Betelgeuse, below the line of three, is a cooler red-giant star.

Left of Orion is a triangular group making the upside down face of Taurus the bull. Aldebaran, is the brightest star in the V pattern. The name is Arabic for 'the eye of the bull'. Still further left is the Pleiades/ Matariki cluster, also called the Seven Sisters, impressive in binoculars.

Very low in the north is the Andromeda Galaxy, easily seen in binoculars on a dark night and faintly visible to the eye. It appears as a spindle of light. At three million light years distance it is the closest galaxy that is comparable to our Milky Way galaxy.

The Geminid meteor shower should be seen in the morning hours of Sunday December 14. The meteors appear to radiate from the constellation of Gemini, initially in the northeast but moving to the north toward dawn. This year the view is spoiled by a full moon in the sky.
*A light year (l.y.)is the distance that light travels in one year: nearly 10 million million 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

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## What's in the Sky in January 2009: Information Provided by Alan Gilmore

Venus Is the brilliant 'evening star', appearing in the west soon after sunset. It sets in the southwest after 11 pm ; a dazzling object in the dark sky. Venus has swung out from the far side of the sun and is now at its greatest angle from the sun. Over the next two months it will appear to move closer to the sun as it passes us on the inside lane. In a telescope it looks like a small, featureless first quarter moon. It is about 75 million km from us at mid-month. Early in the month Jupiter and Mercury might be seen in the early twilight from places with a low southwest skyline. Both fall lower in the twilight. Bright Jupiter goes behind the sun; fainter Mercury passes between us and the sun.

The brightest stars (not to be confused with the brilliant planet Venus) are in the east half of the sky at dusk. They are spread from Taurus and Orion in the north, through Canis Major and around to Crux and the Pointers in the south. Canopus, the second brightest star, is southeast of overhead.

Sirius is the first star to appear at dusk, high in the east. Left of Sirius, as the sky darkens, are Rigel and Betelgeuse the brightest stars in Orion. Between them, but fainter, is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of three make the bottom of 'The Pot'. Left of Orion is the V-shaped pattern of stars making the face of Taurus the Bull. Left again, toward the north and lower, is the Pleiades/Matariki star cluster, also known as the Seven Sisters and Subaru. From northern New Zealand the bright star Capella is on the north skyline.

Sirius, 'the Dog Star', marks the head of Canis Major the big dog. A group of stars to the right of it make the dog's hindquarters and tail, upside down just now. 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. Being bright and white Sirius often twinkles like a diamond. Procyon, in the northeast below Sirius, marks the smaller of the two dogs that follow Orion the hunter across the sky.

Rigel, directly above Orion's belt, is a bluish supergiant star, 70000 times brighter than the sun and much hotter. It is 800 light years away. Orange Betelgeuse, below the line of three, is a red-giant star, cooler than the sun but hundreds of times bigger: a ball of extremely thin hot gas.

The V-shaped group making the face of Taurus the bull is called the Hyades cluster. It is 150 light years away. Orange Aldebaran, Arabic for 'the eye of the bull', is not a member of the cluster but on the line of sight, half the cluster's distance. The Pleiades/ Matariki cluster, pretty to the eye and impressive in binoculars, is 400 light years from us.

Low in the south are Crux, the Southern Cross, and Beta and Alpha Centauri, often called 'The Pointers'. Alpha Centauri is the closest naked-eye star, 4.3 light years away. A telescope shows it is a binary star: two stars orbiting each other. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away. Canopus is also very luminous and distant.

The Milky Way is in the eastern sky, brightest in the southeast toward Crux. It can be traced along the eastern sky towards the north but becomes faint below Orion. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars. The thick hub of the galaxy, 30000 light years away, is hidden by the sun at this time of year. The nearby outer edge is the faint part below Orion. Binoculars show many star clusters and a few glowing gas clouds in the Milky Way.

The Clouds of Magellan, LMC and SMC are high in the southern sky. They are easily seen by eye on a dark moonless night. They are two small galaxies about 160000 and 200000 light years away. The larger cloud is about 5\% the mass of the Milky Way galaxy, the smaller cloud 3\%.
*A light year is the distance that light travels in one year: nearly 10 million million km or $10^{13} \mathrm{~km}$. 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.


Dec. 15 at 10 p.m.

## Evening sky in December 2008

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 also shows a small extra clockwise rotation each night as we orbit the sun.

Brilliant Venus appears in the western sky soon after sunset. Jupiter is close by it at the beginning of the month but slips lower and more leftward of Venus. Mercury begins an evening twilight visit, slowly climbing from the southwest toward Jupiter. Mercury will be left of Jupiter at the end of the month. Sirius, the brightest star, is due east, twinkling like a diamond. Left of it is Orion, with 'The Pot' at its centre. Further left is Taurus and the Pleiades/Matariki/Seven Sisters star cluster. The Pointers and Crux, the Southern Cross, are low in the south. The Milky Way is bright along the skyline from southwest to southeast but becomes fainter below Orion and into the north.


## Evening sky in January 2009

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 clockwise or westward rotation from night to night as we orbit the sun.

Venus is brilliant in the western twilight; setting in the southwest after 11 p.m. Jupiter and Mercury are low in the southwest twilight in the first half of the month. Sirius, the brightest star (but much fainter than Venus) is high in the east at dusk. Left of it is Orion, containing 'The Pot', with Taurus and the Pleiades/Matariki further left toward the north. Canopus, the second brightest star, is southeast of the zenith. Crux, the Southern Cross, and the Pointers are low in the south.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, the University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.

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