Newsletter

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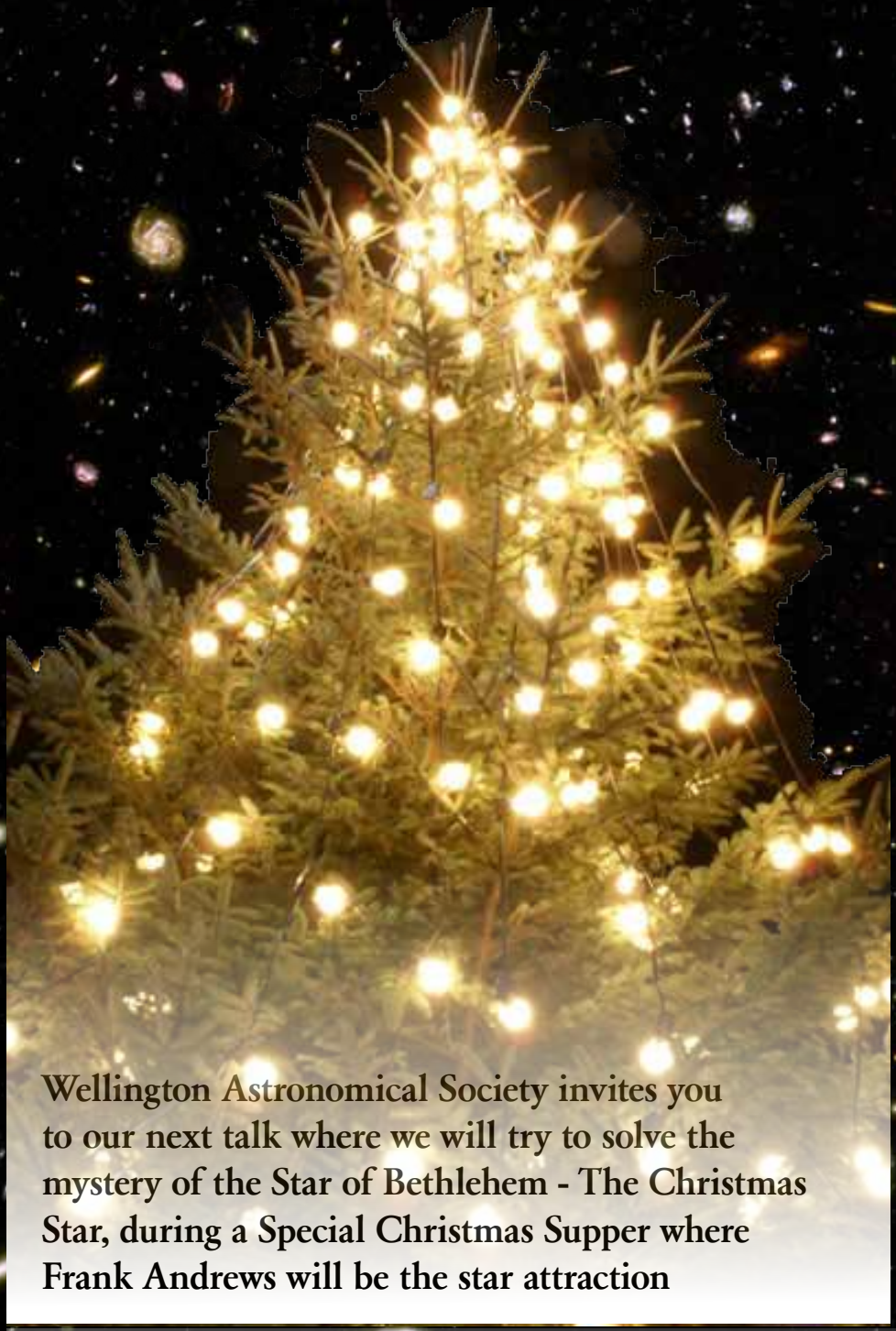
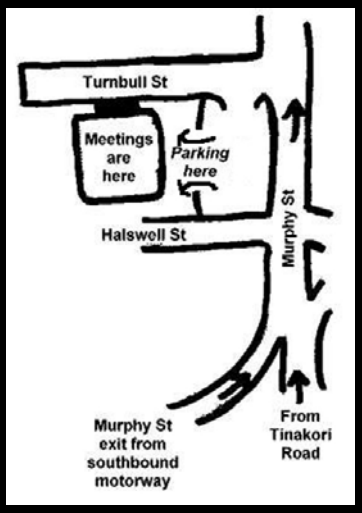


Wellington Astronomical Society invites you to our next talk where we will try to solve the mystery of the Star of Bethlehem - The Christmas Star, during a Special Christmas Supper where Frank Andrews will be the star attraction

In this issue:



7.30pm Wednesday 2nd of December 2009
Science House, Turnbull Street, Thorndon

12-2009

Wellington Astronomical Society

PRESIDENT's REPORT FOR NOVEMBER 2009

John's famous Possum Observatory

This month has been a bit quieter for the society since the AGM and I would like to thank those council members from last year for their help. I would like to welcome the new council for 2009-2100. The new council is in the highlighted box on another page.

The Peter Read videos talk at the AGM was very well received and brought back many memories for members, there was also on display a selection of the Peter Read original paintings.

John Field and Gordon Hudson installed the new Meade Super Wedge under the WAS 12" Meade in the Pauatahanui Observatory. We thought we would be able to fit it onto the mount on Thursday the 19th in the evening and then fit the SBig ST7 Camera on to the Telescope and start to take images. But that was not the case the Pier in the observatory was going to have to be modified to take the new Wedge. We went back the next day and had to drill extra holes and tap them and grind part of the flange off the top of the pier so that we could fit the new parts. Having done this we fitted the new wedge to the pier which worked perfectly. But when we attempted to fit the telescope onto the wedge we found the bolts were too short and were rusty anyway.

By this time Roger Butland had turned up and he offered to drive me to Porirua to buy some new Stainless Steel longer bolts to hold the telescope.

The telescope is fitted and ready for accurate polar alignment however since we fitted the new wedge and telescope we have not seen the night sky which we need to do so we can align it with the South Celestial Pole accurately. Johns says then and only then can we fit the ST 7 Camera and do longer exposures than the previous 30 sec ones he was restricted to.

John has also ordered an Orion Auto Guider which will make life for him a lot easier when it comes to taking longer exposures.

Anyone wishing to use the Pauatahanui Observatory should contact John Field.

The event planned for this month is about to start on November 26th at the Wellington City Library and this will be the **Mata Ora** talk with special guests: Hekenukumai Puhipi Busby MBE, builder of Te Aurere - the twin - hull canoe that navigated to Hawaii and back using only the stars, Jack Thatcher navigator and Dr. Hoturua Barclay-Kerr, from the Waikato's Te Wananga O Aotearoa.

Mata Ora is an annual event held in Orongo/November celebrating celestial navigation, how Maori used the stars to reach Aotearoa with pinpoint accuracy. The main event starts on Tuesday the 24th in the evening at the Takapuwahia Marae in Porirua and will run right through to Saturday 28th. (See SMART Web site for details www.star-smart.maori.nz).

I shall report on this in the February newsletter.

I have been away in Northland for a week selling the Carter Observatory's Old Planetarium Dome and Projector and seats. This trip was very successful.

I then travelled to Gisborne to attend the 'Gissey Gathering' at John Drummond's place to christen his new telescope and mount. A Meade 14" on a Paramount ME Mount and an SBig 11000 CCD Camera.

Frank Andrews and Matt Jury the only other Wellingtonians there. The weather was not looking good for the weekend and so it was that during the day it was fine and sometimes sunny but in the evenings it was cloudy which did clear but not until after midnight.

John and his new telescope

John is still in the process of building the new observatory for the new telescope so he only had the foundations and the mount along with the floor in place. (See photo).

The gathering was quite small with just 7 of us but we still had a great time and look forward to seeing the observatory finished.

Happy Gissy Gatheres

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On the 21st November Ron Fishers Stargazers along with the Foxton Astro Society held a Space Film Show at the Foxton Audio Visual Museum.

Frank Andrews, Toa Waaka, Hari Mogosanu and Gordon Hudson made the trip to Foxton in the early afternoon.

The afternoon feature was a presentation by Frank Andrews at 4pm about the Planets and this was a spectacular DVD made up by our own Editor Hari Mogosanu and Frank talked to the audience over the images that were presented on a large screen inside the Old Picture Theatre in Foxton which also doubled as an Audio Visual Museum. (This Museum is well worth visiting).

At about 5pm Frank finished his presentation and we were then entertained with Old Film clips from The Film Archive's collection. A representative from the Film Archive was there.

The first film was THE ASTRONOMERS DREAM, from 1898 duration3 min and next film was
A TRIP TO THE MOON, 1902 duration 12 min. The next film THE ECLIPSE 1907 duration 9 min the next film MAN WALKS IN SPACE, 1965 duration 20 min. The next film was an advertisement

BANANAS- they're out of this world, 1960's and the final film ALIEN INVESTIGATION, 2005 excerpts, duration 20 min and this featured UFO investigators and the Kaikoura Lights in 1978.

This part of Space Film Show finished at 6pm. We broke for dinner which was Fish & Chips in the Park. The evening show started at 8.30pm with an Audio visual spectacular of images from Space and the Sounds from these Space objects in the Night Sky and manipulated to sound like music.

We didn't stay to the end as we had to get back to Wellington.

Interesting Objects in Orion and Taurus

Taurus the Bull and Orion the Hunter are constellations recognised by most northern hemisphere cultures. To see the northern hemisphere pictures turn the chart upside down. The face of Taurus is outlined by the V-shaped Hyades cluster. The brightest star in this group is orange Aldebaran, the name meaning 'the eye of the bull' in Arabic. Taurus's long horns extend down our sky. The Pleiades cluster rides on the Bull's back.

Orion, in the northern hemisphere view, has a shield raised toward Taurus and a club ready for action. The line of three stars makes Orion's Belt. The line of faint stars above and left of the belt form Orion's Sword in the northern view, dangling from his belt. To most southern hemisphere sky watchers the belt and sword form The Pot, The Iron Pot, or The Saucepan.

The Hyades cluster is 160 light years away. Its brightest stars (not Aldebaran!) are about 70 times brighter than the sun. Aldebaran is not a member of the cluster but simply on the line of sight. It is 65 l.y. away and 150 times brighter than the sun. Aldebaran is a giant star about 25 times bigger than the sun though only five times heavier. Its orange colour is due to its temperature, around 3500o C. The sun is 5500o C.

Rigel is a blue 'supergiant' star around 40 000 times brighter than the sun and 800 l.y. away. Its surface temperature is around 20 000oC, giving it a bluish colour.

(continued in page 7)

The Balance sheet and accounts from the Auditor have not as yet been received but a draft version is available on our website. The audited accounts will appear there when we receive them from the auditor.

COUNCIL OF THE WELLINGTON ASTRONOMICAL SOCIETY INC.

News from the Pauatahanui Observatory

with John Field

New wedge installed

On the 19th and 20th of November a Meade Ultrawedge was installed in the Pauatahanui Observatory by Gordon Hudson and John Field.

The Meade 12-Schmidt –Cassegrain Telescope in the observatory was mounted on a fixed wedge built by Gordon Hudson when the telescope was installed two years ago. This wedge enabled a good polar alignment for visual observing but for the demands on astrophotography or data imaging the lack of fine adjustment meant that only exposures of a maximum of 30 seconds could be taken.

The installation of the new wedge allows fine adjustment in both Right Ascension (North – South) and Declination (Latitude) which will allow much longer exposures to be possible. With the wedge installed I will spend the next few clear nights going through and alignment procedure using both camera and illuminated eyepiece to refine the alignment and also perform Periodic Error Correction on the drive to improve the tracking of the drive. Once this is completed it will allow users to improve their imaging and enjoyment of the night sky.

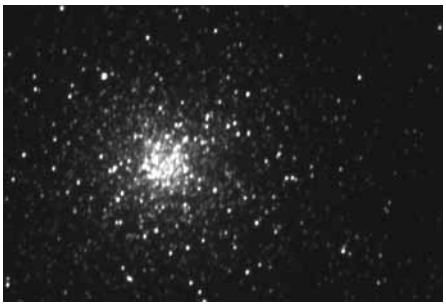
The operation manual for the LX200 telescope can be downloaded at: http://www.meade.com/manuals/TelescopeManuals/LXseries/LX200_Classic_Manual.pdf.

Contact John Field to have a training session on the telescope or come along to a Star Party.

Society purchases SBIG ST7-E CCD Camera

The Society recently purchased a SBIG (Santa Barbara Instruments Group) ST7-E CCD Camera. This camera is an entry level CCD imager that is thermo-electrically cooled and also has a filter wheel set for taking colour images.

The camera is for members to learn how to operate and take images or collect data on variable stars and other research programs. The ST7-E is a two chip design with the main chip for imaging and a smaller secondary chip that allows the telescope to guide on a star in the chip allowing long exposures



of many minutes to be taken.

Gordon and I tested the camera on his telescope and found it reasonably straight forward to operate. On the night we took some images of a globular cluster near to the Large Magellenic Cloud and of the Trapezium in M42 at f-10. Both of the images were of 4 second exposures and have had darks subtracted but not flat fielded.

The seeing on the evening was not the best, but gave us an opportunity to check thee usability of the system. The camera will be used at Pauatahanui for imaging were with the new wedge should allow long exposure imaging to possible.

If you are interested in learning how to operate the camera/ telescope you can contact John Field.

To operate the telescope for imaging you will need a laptop with a parallel port (printer) and the following software CCDOPS V5 (freeware) that can be downloaded from: http://www.sbig.com/sbwhtmls/softpbod.htm you can also download the manuals for the camera and software on this sight as well.

For the manual for the Meade telescope go to: http://www.meade.com/manuals/TelescopeManuals/LXseries/LX200_Classic_Manual.pdf.

If anybody has an old laptop that would like to donate for use at Pauatahanui please contact John Field.

NEXT NEWSLETTER
WILL BE AT THE END OF JANUARY 2010

NEXT MEETING
WILL BE ON FEBRUARY 4th 2010

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A half hour interview of Ross Powell by Noel Cheer will be broadcast at 9pm on Thursday, December 3, about Galileo. It can be seen on the following channels: Stratos Freeview 21, Sky 89, Telstraclear cable 89.

New Zealand's first astrophotography magazine is on sale now. You could order you own copy for the price of $8.50 + P&P

from www.star-smart.maori.nz Goto Smart Shop page

The magazine, a compilation of New Zealand's best astrophotographer's pictures, is packed with useful information on how to photograph the night sky.

November's Crossword answers

Across *1. MATARIKI,-signals it's time to start spring planting of kumara; 5. TAURUS,-You don't want this constellation in a China shop; 8. NOVA,- a new star; 10. COMET,- Encke is one; 12. NOISE,- one is (anagram); 13. DINOSAURS,- an asteroid may have done them in; 15. HST,- an orbiting telescope; 17. NASA, -space agency; 21. UFO,- flying saucer; 22. RED PLANET,- Mars; 25. DUMBELL NEBULA,- A gas cloud used for weight-lifting; 26. HOUR,- unit of time; 27. TIDE,- "... and time wait for no man"; 28. EARTH,-Tellus; 29. IO, -One of the Galilean satellites; 32. NEAP TIDE,- pen a diet (anagram); 35. HELIUM,- second most common element; 36. ICE,- frozen liquid; 37. HUBBLE,- discovered universe was expanding; 39. SETI,- BEM search; 41. CYGNUS,- centre of the Milky Way is in this constellation; 42. PISCES,- The fish constellation; 44. VIRGO,- Constellation with Spica; 47. DESDEMONA,- small satellite of Uranus, also one of Shakespeare's characters; 48. CORVUS,- The Crow; 49. ECCENTRIC,- non-circular orbit, also like some of my clues; 50. SCORPIUS,- constellation with a sting;*

Down *2. TYCHOBRAHE,- An early Dutch astronomer; 3. LOKI,- volcano on Io; 4. HALO,- angels and galaxies both have one; 6. REDSHIFT,- used to calculate an object's velocity; 7. SUN,- closest star; 9. KIRKWOOD,- ... gaps in the asteriod belt; 11. DUST,- obscures centre of our galaxy; 12. NEPTUNE,- god of the Sea; 14. SMC,- satellite galaxy to the Milky Way; 16. DARKMATTER,- 80% of the universe is made of this stuff; 17. NEBULAE,- cloud of dust and gas; 18. ZODIAC,- also a small inflated rubber boat; 19. DAY,- 24 hours; 20. ASTROPHYSICS,- astronomy; 23. EPHEMERIS,- A regular publication with predicted positions of the Sun, Moon etc; 24. ZENITH,- opposite of nadir; 28. EPOCH,- used as a standard reference date; 30. DENEB,- alpha Cygnus; 31. FUSION,- process that powers stars; 33. PHOENIX,- us; 34. ION,- an arrested atom; 38. BAR,- some spiral galaxies have one; 40. MARIA,- once thought to be seas on the Moon; 41. COSMIC,- "... censorship" - why Black Holes can't be naked; 43. CANCER,- The Crab; 44. VENUS,- a very cloudy planet; 45. LGM,- acronym for aliens; 46. MASS,- I weight 6 times less on the Moon, but still have the same ???;*

2009	Wellington Astronomical Society/ Foxton Beach AS	Wellington City Libraries
DECEMBER 09	December 2nd Christmas Star	December 1st Christmas Star
All talks start 7PM	December 3rd Christmas Star at Foxton Beach Astronomical Society	December 10th Christmas Star
	Frank Andrews will be presenting all talks	

OBSERVING AT PAUATAHANUI

The next observing at the Pauatahanui will be on December the 12th after 8:00 PM. For January observing contact John Field.

If the weather is looking doubtful please **contact John Field** on his mobile **021-255-1904** 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. There are public observing evenings at the Thomas King nearly **once a week** starting as soon as it gets dark depending on the weather.

Ring Ross on 389 9765.

BCITO BBQ, Star Party and Fireworks a celestial spectacle!

On the 7th of November the team from the Lower Hutt office the Building and Construction Industry Training Organisation (BCITO) visited the Pauatahanui Observatory for a BBQ followed by a stargazing session and fireworks. Around 20 adults and children descended on Pauatahanui enjoying a great spread of meats, salads and other delights cooked on the hot plate and whilst the stars came out we observed Jupiter and its moons

Some of the BCITO team at the Star Party enjoying the BBQ.

and then toured a number of double stars, star clusters and nebulae.

Tours of the heavens with telescopes and laser pointer by: Chris Monigatti, Patrick Sharp and Mitchell, Robert and myself. The night was exceptionally clear, for a change, and all we impressed with the range of telescopes and what they saw through them.

At 10pm the fireworks commenced with the launching of Sky Lanterns and followed by a diverse range of rockets and other spectacular pyrotechnic devices! After the fireworks finished we observed to around 11pm before tidying up and heading home. The BCITO crew are already planning their next session to coincide with a view of Mars and the Moon!

I would like to thank all who came along to help and the Farm Manager, Paul Nation, for allowing us to set off the fireworks and Vivienne for suggesting it to the BCITO team.

John Field

(ctd. from page 3)

Betelgeuse is a red giant star 250 times bigger than the sun -- wider than earth's orbit! -- but only around 20 times heavier, so it is mostly very thin gas. It is around 10 000 times brighter than the sun, about 400 l.y. away, and has a surface temperature around 3000oC.

Sirius is the brightest star, though the planets Venus and Jupiter, and sometimes Mars, are brighter. Sirius appears bright because it is both brighter than the sun and relatively a close 8.6 l.y. away. Sirius was often called 'the dog star' being the brightest star in Canis Major, one of the two dogs that follow Orion across the sky.

The Pleiades / Seven Sisters / Matariki / Subaru, and many other names, is a cluster of stars well known in both hemispheres. Though often called the Seven Sisters, most modern eyes see only six stars. Dozens are visible in binoculars. The cluster is about 440 light years away. Its brightest stars are around 200 times brighter than the sun.

One light year (l.y.) is the distance light travels in one year: about 10 million million km or 6 million million miles. Light from the sun reaches us in 8 minutes; from the moon in 1 second. Sunlight takes 4 hours to reach Neptune, the outermost significant planet, and 4 years to reach Alpha Centauri, the nearest star.

The Orion Nebula is visible in binoculars as a misty glow around the middle stars of Orion's Sword or the handle of The Pot. It is a vast cloud of dust and gas about 1900 l.y. away and more than 20 l.y. across. Ultra-violet light from a massive, extremely hot star in the cloud causes it to glow. Some stars in this region may be less than a million years old. The sun, by contrast, is 4.6 billion years old. Stars continue to form in a giant cloud behind the glowing nebula. There are many bright and dark nebulae in this region. The Horsehead nebula, a favourite of astronomy books, is beside the right-hand star of Orion's Belt, but too faint to be seen in small telescopes.

Pictures and words by Alan Gilmore, University of Canterbury's Mt John Observatory, Lake Tekapo, New Zealand;

Sunrise on the Sea of Serenity

This image shows the region of, and around, the Mare Serenitatis (Sea of Serenity) as seen through a small-medium telescope with medium power eye piece. Named in 1651 by Riccioli the mare is a circular basin measuring 670 x 670 km. The outer rim of the Mare is the uplifted rim of the impact crater that formed around 3.9 billion years ago. The crater was filled with dark lava during the Moons volcanic period and covered other impact structures, features and craters. The absence of any large craters on the surface shows that crater formation had decreased by the time the lava flooded the basin. There is lava has a lighter colour towards the center of the mare and can be seen around the crater Dawe at the lower right outside the mare.

The prominent crater in the Mare Serenitatis is called Bessel and is 17 km in diameter and includes a faint system of rays. Named after Wilhelm Bessel (1784 – 1846) it was formed within the last 1 billion years.

The large flooded crater Posidonius (99 x 99 km) is at upper right and has the smaller crater Posisidonius A (11 x 11 km) in side.

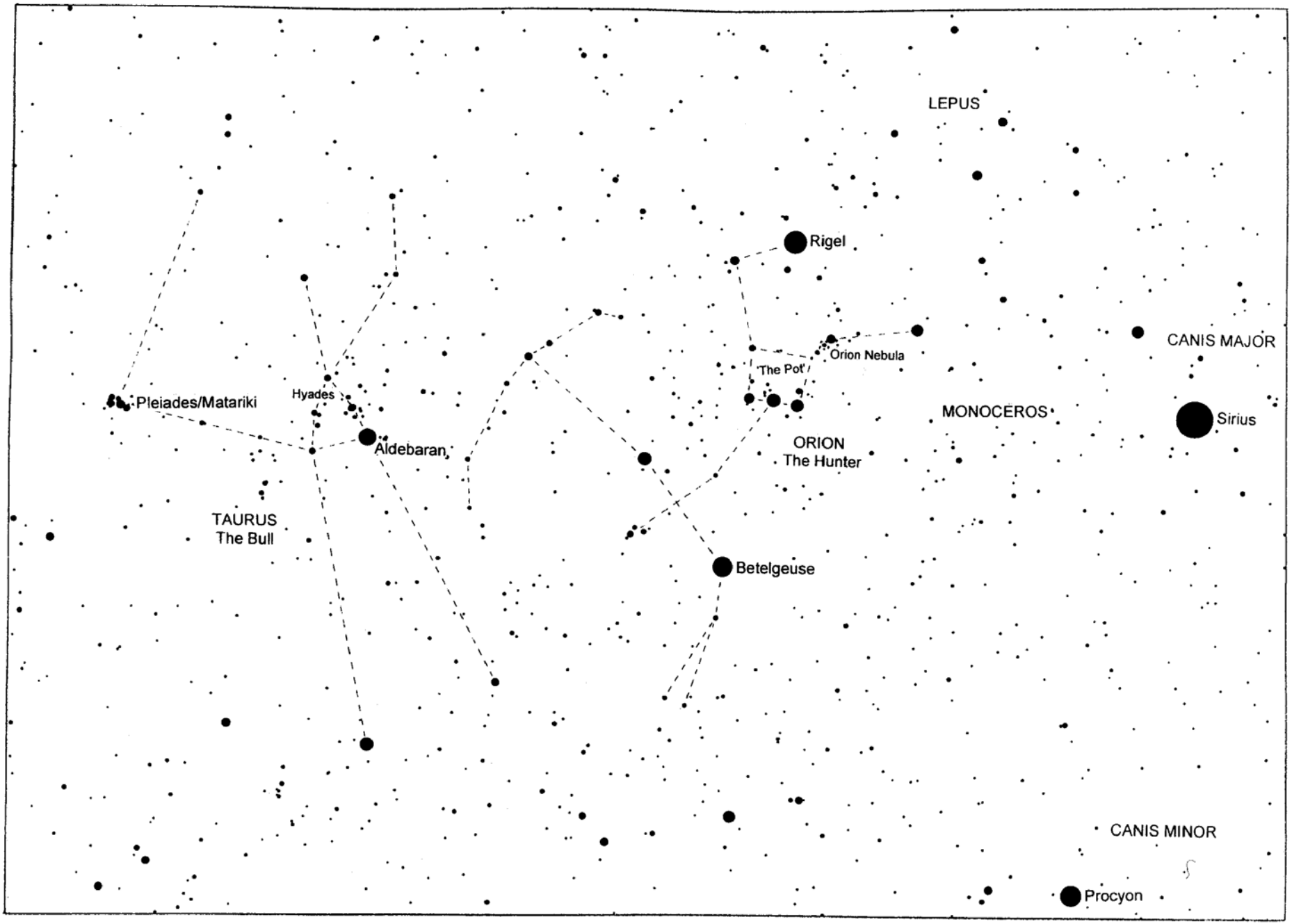
The two mountain ranges at left, with the gap between are the Montes Apenninus (Apennine Mountains) at the bottom and the Montes Caucasus (Mounts of Caucase) top.

As the sun rises of the peaks, craters and wrinkles it throws long shadows the make a dramatic appearance. The floor of the mare shows many wrinkles caused by faulting and cooling of the lava flows.

The crater at upper left, with a smaller crater in side is Cassini, the middle left craters with just their sunward rims illuminated are, from top, Aristillus (56 x 56 km) and Autolycus (41 x 41 km).

A large number of other features and craters are visible in this image and are beyond the scope of this article. Using a Moon map to locate and name some of these features is recommended.

The image was taken with a Meade LX 90 8 inch SCT and Meade LPI camera at f10 by John Field around first quarter.



Eastern Evening Sky in Spring

This chart shows the area of sky in the east on spring evenings. During the night these constellations move into the north, tilting leftward as they go. Interesting objects are described on the other side of the page.

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

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Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND