

Newsletter

WELLINGTON ASTRONOMICAL SOCIETY

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THIS MONTH'S MEETING FEATURES:

The Star of Bethlehem By Frank Andrews

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Wednesday, 1st of December,
7:30 PM at Carter Observatory

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12-2010

Wellington
Astronomical
Society





Presidents Report for December Newsletter



Last months AGM went through without any difficulties except that we had not received a financial report from the Auditor. However we did show the meeting our Treasurers version of the financial report which was very good and acceptable. However we still await the Auditors Report.

The new council, well it is the same as the previous year. The only change is that Chris Mongatti has taken over the Observatory Directors roll at Pauatahanui.

Newsletter Editor is Hari Mogosanui and she will do this for another year.

John Homes carries on as Website Master.

WAS has two Life Members: Dennis Goodman & John Field.

WAS also has four Honorary

members who were re-elected for another year.

The presentation by David MacLennan on Mars 'Next Steps in Mars Exploration' was well presented by Dave who is president of NZ Spaceflight Association and his presentations are always well done and very informative.

The Observing at Pauatahanui which was supposed to be on November 13th was clouded out yet again with low cloud which seem to have been the same for much of the year in fact I think we have had only two observing evenings for the whole year.

Roger Butland and I had a good observing session with the societies ST7 camera on my telescope but

with the fickle weather we are having we haven't had another chance to do any more but the first results are looking good. However I find we are not able to use my 3.3 Focal Reducer on the ST7 as there is no way to attach it to the Filter Wheel and we need the filter wheel so that we can use the filters. What to do!

I had a call from Ross Powell our other Observatory Director to say that the Thomas King Observatory Dome had come off the rollers and that the shutter would not close.

I went to Carter on the Saturday and fixed the dome although it needs some more serious maintenance. I have fixed one of the rollers but I still have 7 to do. The shutter just needed greasing.

WAS has had a request from the 'Levin Stargazers' to see if we would join them at a Stargazers camp at Tatum Park 10km south of Levin in March or April next year. Stay in touch for more information especially on our website.

On December the 21st there will be a Lunar Eclipse with totality starting at 8.40pm, maximum at 9.18pm and totality ends at 9.53pm visit the WAS website for more information.

The WAS Dobsonian telescopes are all out on hire at present. Anyone wanting to hire one of the



societies dobsonians should call Chris Mongatti.

The society has invested in a new Finder for one of the Dobsonians as one has gone missing.

The support from WAS members to assist Ross Powell who runs the 9.75" Thomas Cooke telescope at Carter on a Saturday Night has run very well this year and we will need to carry this on over the next couple of months. Please contact Ross anyone who can help over the next two months.

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 was a suggestion at the last council meeting about WAS having a Facebook but this was turned down by the council also a new website idea was presented but this was also turned down by council.

Franks talk at this meeting will be the new version of the 'Star of Bethlehem' this has been created by Hari so we can look forward to a spectacular presentation.

At Decembers meeting we will have our usual Xmas supper put on by Bill & Lesley.

A couple of notices:

Subs are now due.

There will be no observing at Pauatahanui in January 2011

There will not be another newsletter until the end of January 2011.

The next meeting will be on February 2nd 2011.

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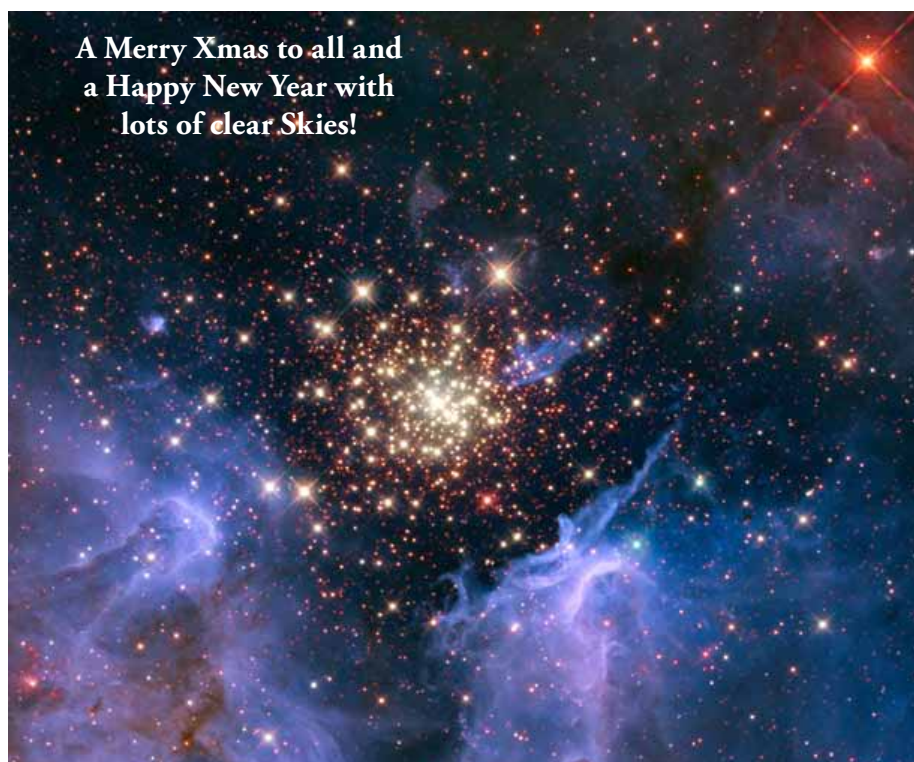
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November Crossword answers

Across 1. *BIGBANGTHEORY*,—A cosmological model; 3. *SHEPHERD*,—astronaut; 9. *SOHO*,—satellite observatory studying the Sun; 13. *LMC*,—could be mistaken for a cloud; 15. *MESSIER*,—a catalogue; 17. *CANOPUS*,—Autahi; 20. *IO*,—One of the Galilean satellites; 22. *REDPLANET*,—Mars; 23. *ECLIPSE*,—to block light from another object; 26. *KIWI*,—New Zealander; 28. *ION*,—an arrested atom; 31. *ICE*,—frozen liquid; 32. *PLEIADES*,—The Seven Sisters; 33. *GIOTTO*,—Name of ESA spacecraft that intercepted Halley's comet; 34. *ATOM*,—smallest indivisible piece of a element; 37. *SCORPIUS*,—constellation with a sting; 38. *RUTHCRISP*,—Carter Observatory's public telescope; 42. *LOKI*,—volcano on Io; 43. *DENEK*,—alpha Cygnus; 45. *REDGIANT*,—A type of star whose core hydrogen has been used up.; 47. *NOVA*,—a new star; 48. *SCHMIDT*,—type of telescope; 50. *ASTEROID*,—road site (anagram); 52. *SEYFERT*,—type of galaxy with unusually bright nucleus; 53. *HELIUM*,—second most common element; 54. *PERIGEE*,—When the Moon is closest to the Earth; **Down** 1. *BAR*,—some spiral galaxies have one; 2. *HALO*,—angels and galaxies both have one; 4. *HST*,—an orbiting telescope; 5. *REFLECTOR*,—type of telescope; 6. *EQUINOX*,—23rd September; 7. *HOUR*,—unit of time; 8. *PRECESSION*,—son's recipe (anagram); 10. *HYADES*,—an open cluster in Taurus; 11. *SMC*,—satellite galaxy to the Milky Way; 12. *UFO*,—flying saucer; 14. *CEPHEID*,—A type of pulsating variable star, often used for distance measurements; 16. *FUSION*,—process that powers stars; 18. *NADIR*,—opposite to zenith; 19. *POLARIS*,—The North Star; 21. *ECLIPTIC*,—plane of Earth's orbit around the Sun; 24. *VIRGO*,—Constellation with Spica; 25. *VEGA*,—alpha Lyr; 27. *LEO*,—A lion circling the Earth; 29. *VENUS*,—a very cloudy planet; 30. *GAS*,—solid, liquid or ...; 35. *MASS*,—I weight 6 times less on the Moon, but still have the same ???; 36. *APOGEE*,—When the Moon is furthest from the Earth; 39. *ZODIAC*,—also a small inflated rubber boat; 40. *DEWCAP*,—used to prevent moisture condensing on a telescope; 41. *LATITUDE*,—allow some leeway; 42. *LONGITUDE*,—Latitude and ?; 44. *SIDEREAL*,—star time; 46. *TAURUS*,—You don't want this constellation in a China shop; 49. *EARTH*,—Tellus; 51. *PELE*,—volcano on Io;

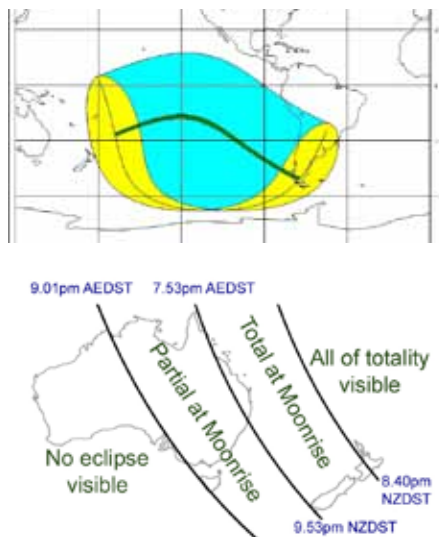
ASTRONOMY EVENTS 2010

December

December 21st – Total Lunar Eclipse – much of New Zealand and the Queensland coast will see the Moon rise totally eclipsed.

Times of events:

Phase NZDST Starts 7.32pm
Totality starts 8.40pm
Maximum 9.18pm
Totality ends 9.53pm
Ends 11.01pm



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** to 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.

Research Astronomy Group

The main areas we have decided to focus on are **Variable Stars and Occultations**. Many of the group already observe one or both.

Murray Forbes is leading the Variables group and set us home work to map and locate a known eclipsing binary variable star RS Cha (Chameleon) also known as Tycho 9403-1987-1 at RA 8:43:12, Dec -79:04. This should be visible above 0 deg altitude year round so is not season dependant.

John Talbot is leading the Occultation group and is publishing predictions for the Wellington area on our web site at <http://was.org.nz/01Occs.html>.

These include both Lunar events that should be visible in a 6 inch telescope and Minor Planet events that may be a bit dimmer but which have high probability of being seen. Even if you do not have recording equipment it can be fun in the evening to observe a star disappearing behind the dark edge of the moon during the first half. Or if you like getting up real early and want a harder challenge try for some bright reappearances during the second half of the cycle.

The Research group meets each month at 6:30pm before the main meeting.

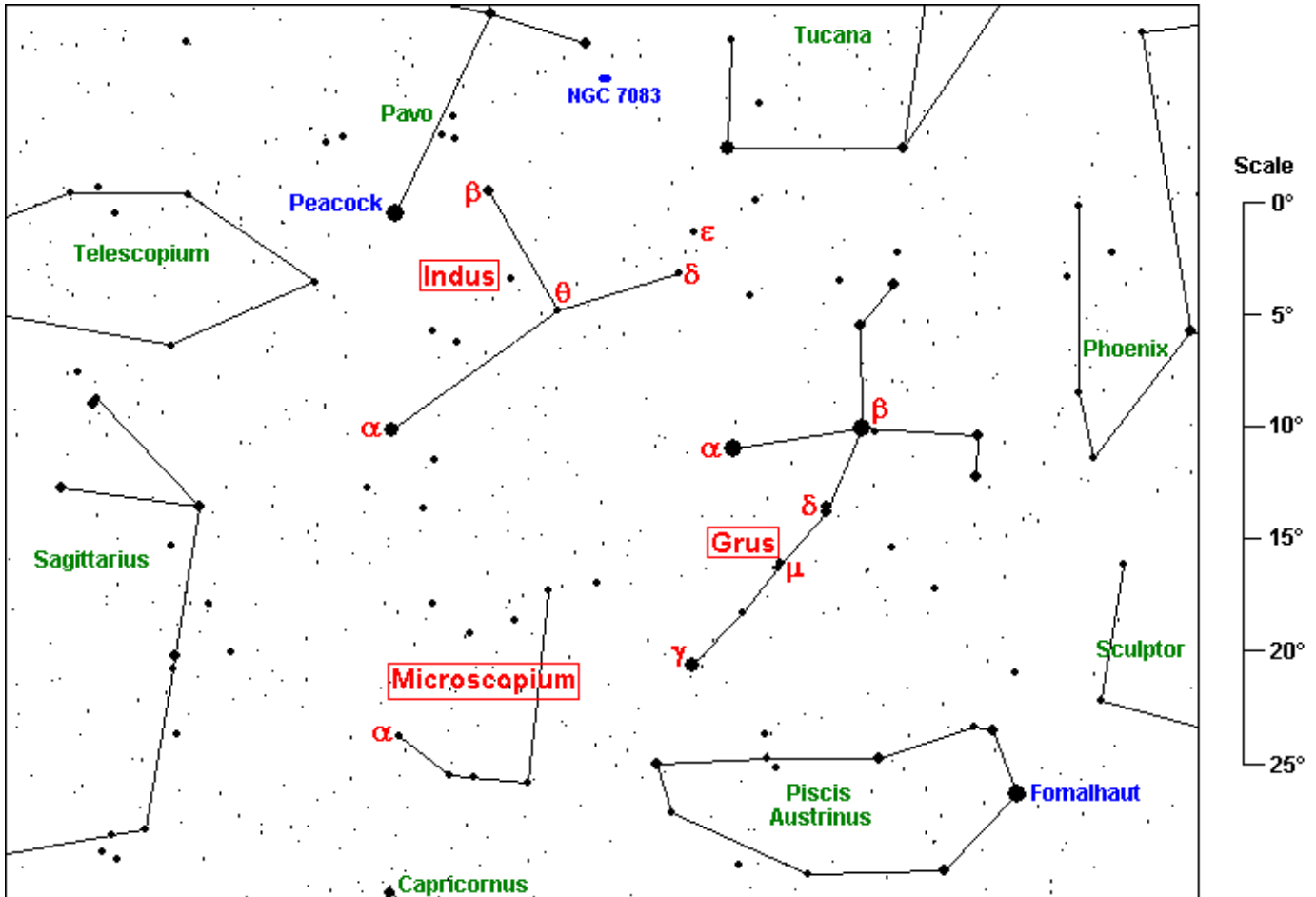
Please feel free to come along and join in if you are interested. This is also a good time to bring along that telescope or observing problem you may have for discussion.

OBSERVING AT PAUATAHANUI

The next observing evening at Pauatahanui is on December 11th starting at 8:30 pm. **If the weather is looking doubtful please contact Chris Mongatti on his mobile 021 890 222 to see if the session is going ahead.**



Gazing through Grus



High in our southern sky during November is Grus, the celestial Crane. Officially designated by Johann Bayer in 1603 catalogue. The crane shape can be seen near to the star Fomalhaut and appears as an arc of stars. Although not a very bright it can be easily made out from my back garden and there is a number of interesting sights for small to medium size telescope.

The brightest star Alpha Gru is a blue main-sequence star about 57 light years away and 70 times brighter than our Sun. Beta Gru is a variable red giant 140 light years away and 800 times brighter than the sun and makes a good comparison to Alpha. Delta and Mu Gru are both naked eye double stars and a good challenge for unaided

observers. Both are optical doubles rather than true binary stars and are the result of line-of-sight effects. Pi Gru is another optical double visible in binoculars as red semi-variable star (between magnitudes 5.4 & 6.7) 500 light years away and white magnitude 5.4 star at 150 light years away.

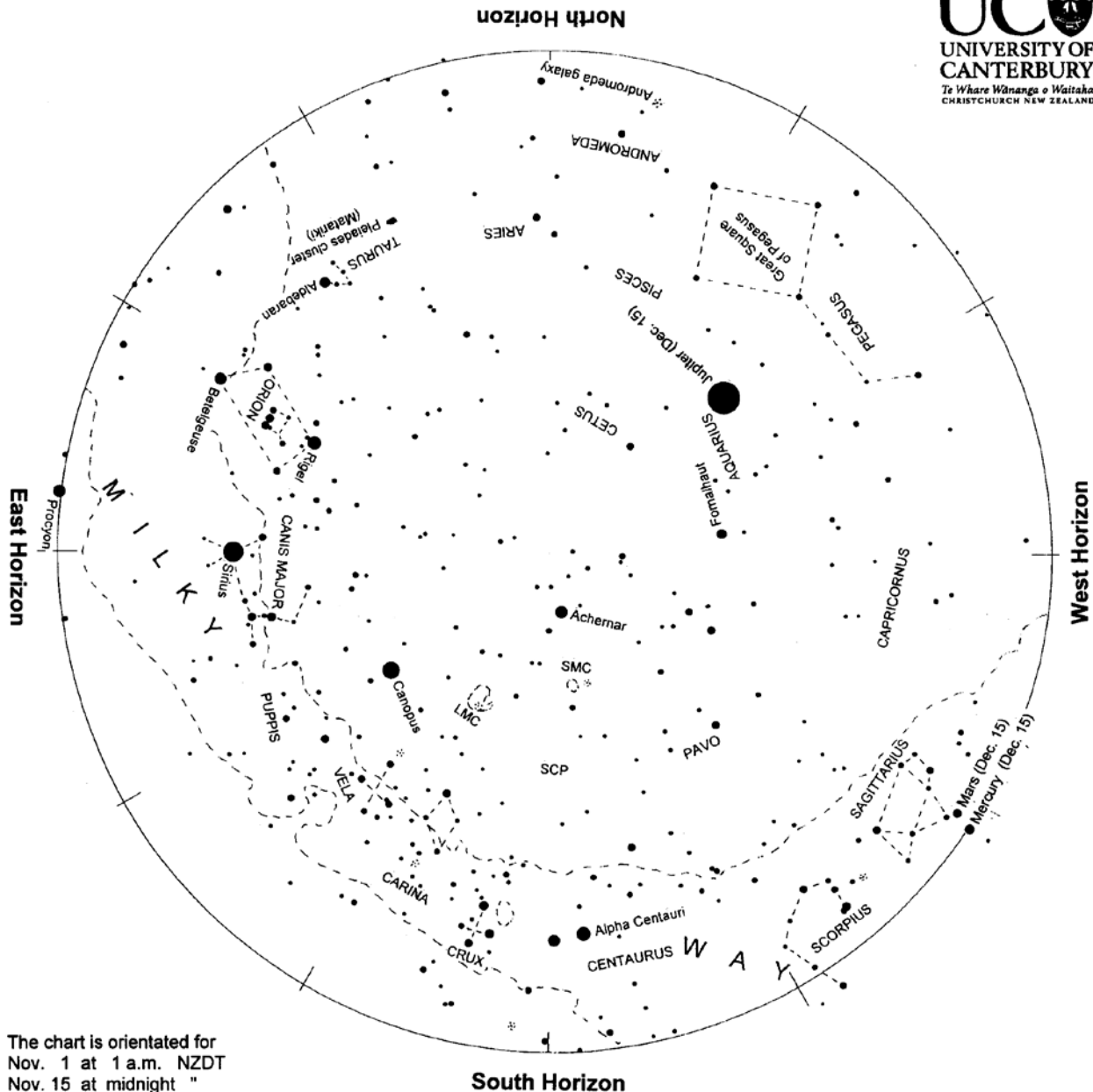
Being far from the galactic plane there are there are a number of galaxies that are visible in a 4 – 8 inch telescopes. A number of dim galaxies can be found in northern part of Grus near the borders of Pisces Austrinus and Sculptor. Here are their descriptions from north to south:

IC1459 is faint at magnitude 10 and resembles a comet, complete with a nucleus. IC5264 sits 6.5' south of IC 1459.

South of IC 5264 you can find NGC7418, a face on spiral galaxy at magnitude 11.4 that gradually brightens toward the middle. It lies 28' south of IC5264. NGC7421 sits 19' south of NGC7418. It shines at magnitude 12.7.

NGC7410 is a spiral galaxy located in north-western Grus, 4.5° WNW of Theta Gruis. At magnitude 11.5, it appears extended, with a much brighter middle. A 4-inch or greater will show its shape.

John Field



The chart is orientated for
Nov. 1 at 1 a.m. NZDT
Nov. 15 at midnight "
Dec. 1 at 11 p.m. "
Dec. 15 at 10 p.m. "

Evening sky in December 2010

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.

Jupiter is the first 'star' out after sunset, midway up the northwest sky. It sets in the west around 1 a.m. Mercury and Mars set in the southwest twilight. 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 fades below Orion. Right of Canopus, the second brightest star, are the Clouds of Magellan (LMC and SMC on the chart), two nearby galaxies. The Andromeda Galaxy faint and low in the north.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore.



The Evening Sky in December 2010

Jupiter is the 'evening star' in the northwest sky at dusk, setting in the west around midnight. It slips lower in the sky, and sets earlier, as we move to the opposite side of the sun. A small telescope easily shows its four bright moons, lined up on each side of the planet.

Mercury and Mars are very low in the southwest twilight. At the beginning of the month Mercury is bright and easily seen. Mars is below and left of it, much fainter. Both sink into the twilight and disappear by mid month. Mercury is 100 million km away. Mars is 360 million km from us on the far side of the sun.

The brightest stars 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. 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. At its centre is the Orion Nebula, a glowing gas cloud nicely seen in binoculars. Rigel, directly above the line of three stars, is a hot blue-giant 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. Orange 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/Seven Sisters/Subaru cluster, impressive in binoculars. It is 400 light years* away.

Canopus, the second brightest star, is high in the southeast. 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.

The Milky Way is low in the sky visible around the horizon. The broadest part is in Sagittarius low in the west at dusk. 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, 30 000 light years away, is in Sagittarius. The nearby outer edge is the faint part of the Milky Way 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 southern sky, are two small galaxies about 160 000 and 200 000 light years away, respectively. They are easily seen by eye on a dark moonless night. The larger cloud is about 1/20th the mass of the Milky Way galaxy, the smaller cloud 1/30th.

Very low in the north is the Andromeda Galaxy seen in binoculars in a dark sky as a spindle of light. It is similar in size to our Milky Way galaxy and three million light years away.

The Geminid meteor shower might be seen in the morning hours of December 14 and 15. The meteors appear to come from Gemini, in the northeast at first, moving to the north by dawn.

There is an eclipse of the moon on December 21st. The moon rises in the northeast at sunset. In the North Island it will rise almost fully eclipsed; only its top edge still in the sunshine. At moonrise in the South Island the moon will be fully in Earth's shadow and will be quite faint in the evening twilight. Colours of eclipsed moons vary: anything from red, through apricot to dark brown. Mid eclipse is 9:17 NZDT, moonrise time in the deep south. The moon begins to emerge from Earth's dark shadow (the umbra) at 9:54 and is fully clear of the fuzzy edge of the shadow (the penumbra) by 12:06 a.m.

Venus is the brilliant 'morning star', rising about two hours before the sun. Above and left of it are Saturn and Spica, making a matched pair. Saturn is the one on the left.

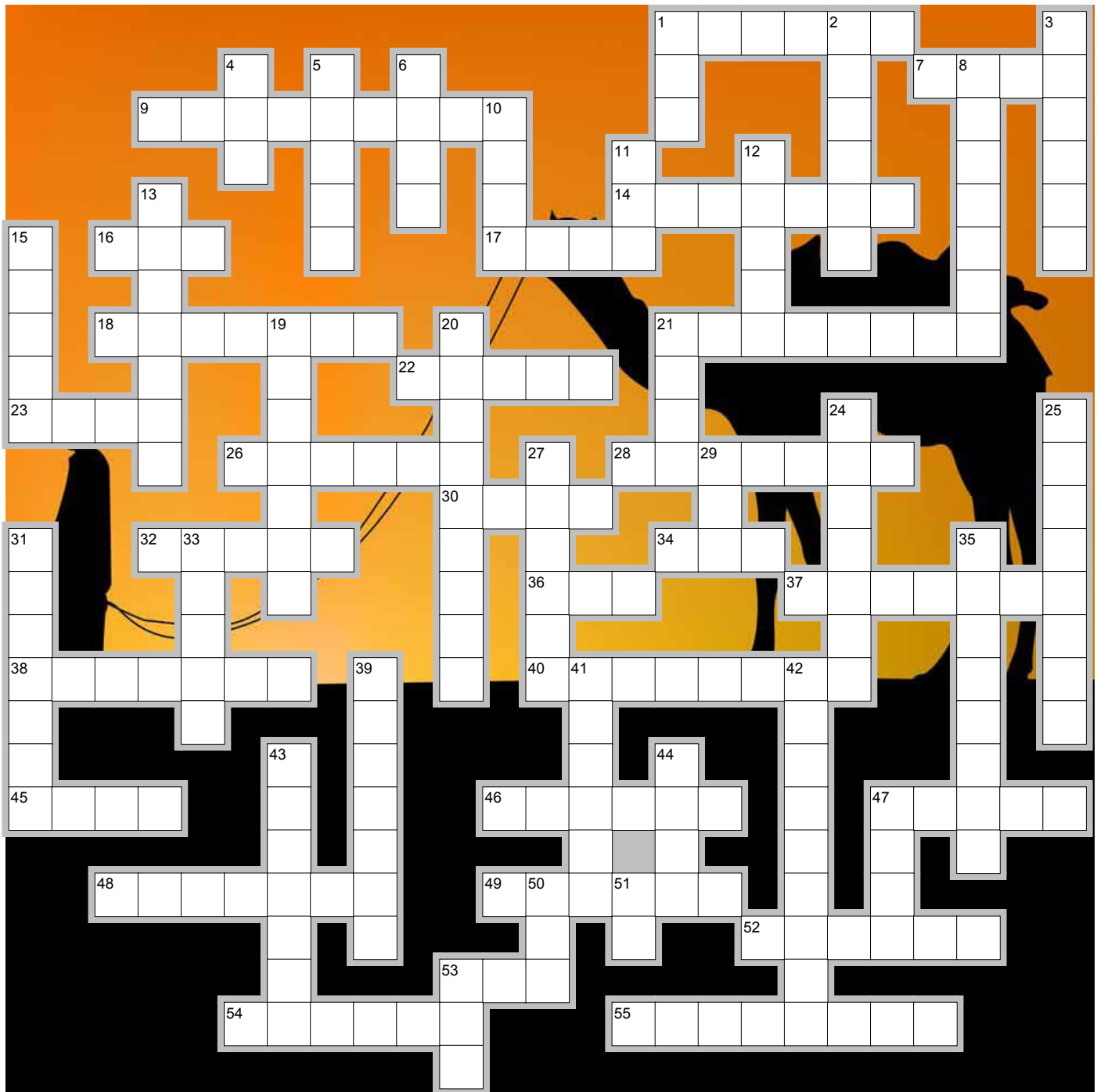
**A light year (l.y.) is the distance that light travels in one year: nearly 10 million million km or 10^{13} km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.*

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



Across 1. used to prevent moisture condensing on a telescope; 7. alpha Lyr; 9. A satellite of Uranus, a character in Othello; 14. heart of the scorpion; 16. an arrested atom; 17. I weigh 6 times less on the Moon, but still have the same ???; 18. Antabi; 21. apparent shift of an object against a distant background due to the observer's movement; 22. Constellation with Spica; 23. volcano on Io; 26. Name of ESA spacecraft that intercepted Halley's comet; 28. a catalogue; 30. satellite observatory studying the Sun; 32. alpha Cygnus; 34. frozen liquid; 36. some spiral galaxies have one; 37. type of galaxy with unusually bright nucleus; 38. An open or globular ...; 40. astronaut; 45. mid-day; 46. also a small inflated rubber boat; 47. thorn (anagram); 48. type of telescope; 49. process that powers stars; 52. a double star; 53. A lion circling the Earth; 54. second most common element; 55. plane of Earth's orbit around the Sun;

Down 1. 24 hours; 2. When the Moon is furthest from the Earth; 3. You don't want this constellation in a China shop; 4. an orbiting telescope; 5. a very cloudy planet; 6. unit of time; 8. 23rd September; 10. smallest indivisible piece of a element; 11. solid, liquid or ...; 12. opposite to zenith; 13. The North Star; 15. Demon star; 19. When the Moon is closest to the Earth; 20. an asteroid may have done them in; 21. volcano on Io; 24. A type of pulsating variable star, often used for distance measurements; 25. Causes small changes in RA and Dec coordinates; 27. A Moon of Mars; 29. satellite galaxy to the Milky Way; 31. brightest star in Canis Minor; 33. Tellus; 35. Main Sequence stars cooler & smaller than the Sun, also the name of a cult sci fi/comedy series; 39. horizontal angle around the sky; 41. an open cluster in Taurus; 42. Carter Observatory's public telescope; 43. to block light from another object; 44. angels and galaxies both have one; 47. a new star; 50. flying saucer; 51. One of the Galilean satellites; 53. could be mistaken for a cloud;