

# Newsletter

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## WELLINGTON ASTRONOMICAL SOCIETY

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Wednesday, 3<sup>rd</sup> of November,  
7:30 PM at Carter Observatory

### THIS MONTH'S MEETING FEATURES:

#### **Next Steps in Mars Exploration** By David Maclennan President, NZ Spaceflight Association

Since 1997, a new generation of Mars orbiters, landers and rovers have revolutionised our view of the red planet. Once thought a cold, dry and lifeless world, the new Mars has been revealed as a dynamic world where water has played a key role in the planet's history, and the prospects for life on Mars - either past or present - have improved. Now a new generation of robotic explorers is about to take our knowledge of Mars to the next level.

A large and sophisticated rover named Curiosity will land on Mars in 2012 to actively search for evidence of conditions that might have supported life. This will be followed by further orbiters and landers later in the decade, part of a joint US-European effort that will significantly improve our knowledge of the Martian environment, and may well provide definitive answers to the question of life on the planet.

## 11-2010

Wellington  
Astronomical  
Society





## **WAS ANNUAL REPORT for 2010 by Gordon Hudson President**

### **New WAS Council for 2011**

Nominations for WAS council were received by the deadline of October 11th and 8 people had been nominated for all the available positions.

They are: Gordon Hudson - President; Roger Butland - Vice president; Ross Powell - Secretary; John Talbot - Treasurer; Councillors - Frank Andrews, Chris Mongatti, John Homes, Aline Homes.

As this was the number required for council all those mentioned are elected as the new Council for 2011. As all positions have been filled there will be no nominations from the floor.

John Homes will remain as Web Master. Hari Mogosanu will carry on as Newsletter Editor but not on council.



*At last years AGM I presented an evening about the late Peter Read and showed a couple of his Night Sky programs and had several of his paintings on display.*

*This has now come full circle with Carter Observatory featuring an exhibition about Peter Read and his Night Sky.*

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On November 19th and 20th 2009, John Field and I installed a Meade Ultrawedge under the WAS 12" Meade at Pauatahanui Observatory.

The society had also purchased a second hand SBIG ST7-E CCD Camera which was to be used on the societies telescope at Pauatahanui but was found to be not suitable.

The camera is at my place and has been used a couple of times but that is about to change as we now have a serious program to run it.

### **November 2009**

On November 21st a number of WAS members travelled to Ron Fishers Stargazers along with the Foxton





Astronomical society who held a Space Film Show at the Foxton Audio Visual Museum. The afternoon feature was a presentation by Frank Andrews at 4:00 PM about the Planets and this was a spectacular DVD made up by our own Editor Hari Mogosanu and Frank who 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.

At 5:00 PM 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.

This was a great afternoon and evening and enjoyed by all who attended.

This time last year we were still running IYA events at the Wellington City Library and on November 26th we ran a Mata Ora talk with special guests: Hekenukumai Puhipi Busby MBE, builder of Te Aurere - the twin - Hull Waka 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. This talk was well attended by about 70 people.

### **December 2009**

The December talk was presented by Frank Andrews titled the Christmas Star where he tried to solve the mystery of the Star of Bethlehem. Frank also presented this talk to the Wellington City Library. This was the final talk for the IYA. The talk was done on and Overhead projector using film however that is about to change with a new

version being created and will be on DVD and we will see it through the Data Projector next month.

*The December Observing at the Pauatahanui Observatory had to be canceled because of rain.*

### **January 2010**

There was no WAS meeting during January and not a good time for observing as it doesn't get dark until after 10:00 PM too late for most people.

The first meeting of the year was on February 3rd and the presenter was Ross Powell and his talk was 'The Life and Science of Galileo'. This was a well presented talk and Ross had to do a lot of research for this talk, thanks Ross for a great presentation.

*Observing on March 13th at Pauatahanui was again clouded out.*

### **February 2010**

On Saturday February 20th a Light Pollution Workshop was run at the Carter Observatory with a special guest from Scotland Mr. Dan Hillier. A small number of 13 attended this workshop which included Steve Butler the RASNZ Light Pollution expert from Invercargill this was a very good event and a pity it was missed by a number of people.

However Dan was able to present his talk to the society meeting on March 3rd when we had many more people in attendance.

### **March 2010**

March 27th was the opening of the new Carter Observatory this was a Saturday and hundreds of people queued to get the first glimpse of the inside of Carter this would be the new home or should that be return home for the Wellington Astronomical Society with our first meeting there on April 7th.

March 27th was Earth Hour. The idea of this was to see how many people turned their lights off for an hour from 8:30 PM to 9:30 PM. A few of us gathered at the Thomas King Observatory to observe and changes to the amount of lighting. There was no noticeable change in the amount of light pollution.

### **April 2010**

The April meeting at the new Carter Observatory featured the DVD made by Haritina and delivered by Frank Andrews called 'The Planets' and this was again very well done and well presented and the society's biggest turnout of 70 people who attended.

Observing at the Pauatahanui Observatory on April 17th was our most successful observing session with a clear sky and a number of people showed up and Roger brought along his telescope and Chris brought along 2 telescopes from Tawa college. A great observing night.

### **May 2010**

On May 5th at the new Carter Observatory John Field presented his talk on 'An Introduction to Digital Astrophotography' this was another well presented talk by John and a big number of members attended.

The observing on May 15th at Pauatahanui was again canceled because of rain.

### **June 2010**

The June meeting was a special presentation by Haritina and it was about the 'Pleiades' (Matariki, Subaru, Seven Sisters) this was a most enlightening talk we then went into the new Planetarium as the society was allowed to use the Planetarium for the first time.



John showed us how the new planetarium works and ran a couple of programs for us.

The society ordered a set of UBVRI filters from SBIG which cost \$1600.00.

An hour before the main meeting for the society started the new 'Research Astronomy Group' meeting started and this is for any member who would like to get involved in research which is mostly around Variable Stars and Minor Planet Occultations and Lunar Occultations but we also discuss other fields we may go into. This group is run by John Talbot & myself but Murray features as well.

### **July 2010**

In July Murray Forbes presented to the society "The Power of the Sun" this was a most interesting talk by Murray and we now know a bit more about how the Sun works.

The July observing at Pauatahanui had to be canceled because it had been raining and the field was very muddy although the sky cleared the ground was mad.

The Filters we ordered from SBIG arrived and have been tested with the SBIG camera.

On July 15th Heather Cooper & Nigel Henbest gave a presentation at the Carter Observatory called 'Cosmic Quest' and this was very well attended by 100 people. This was an amazing presentation and covered everything from the Big Bang through the ages and the controversy of the Earth at the centre of the Solar System to Comets and how big is the Cosmos.

The Skyline Carpark became available to people attending Carter Observatory and this of course included the WAS. Parking at last.

### **August 2010**

In August Dr. Aline Homes presented to the society 'Variable Stars South' which she is involved in and explained to us the sort of programs one can get involved in with very modest equipment. This is also what we are doing at the Research Group meetings.

*Observing on August the 14th was clouded out so no observing that night.*

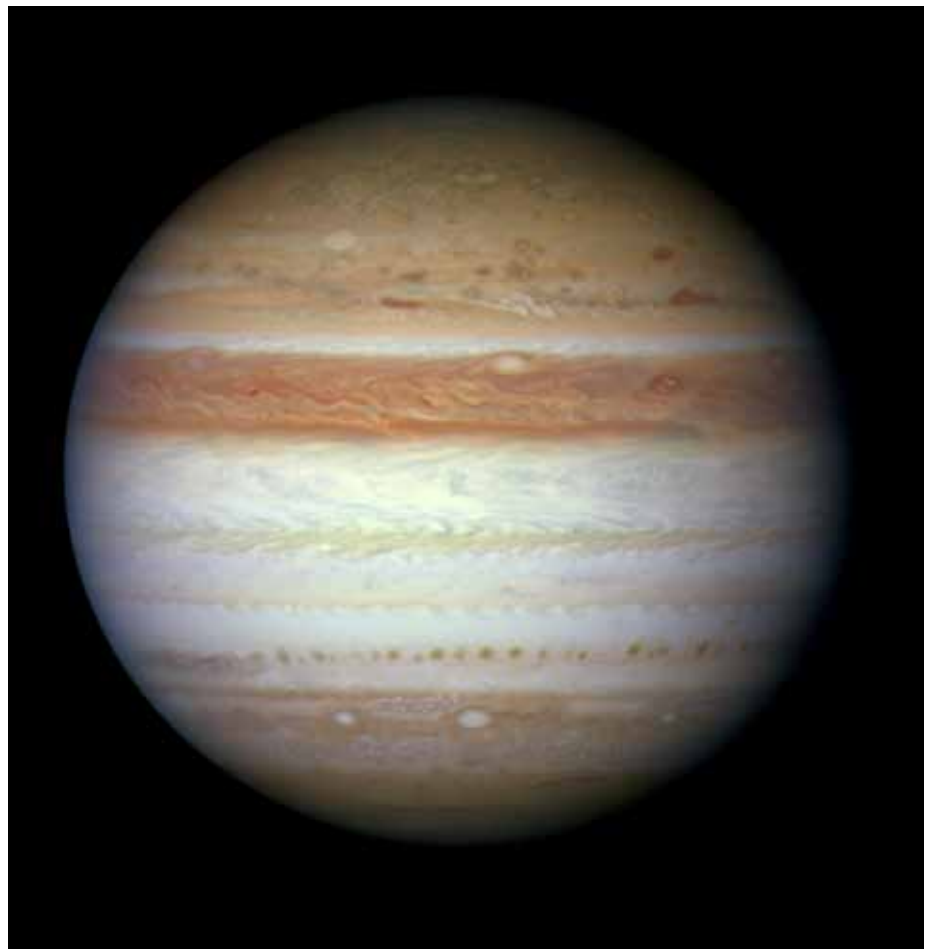
### **September 2010**

September 1st the meeting started off with a Special meeting to change the WAS constitution to enable the society to hold AGM's without being tied to a fixed number of paid up members to a 25 percent of paid up members this was passed with out a problem.

The main talk for the evening was 'The Black Sun' about the recent solar eclipse that passed over the Island Mangaia in the South Pacific on July 11th and this was presented by Luca Quaglia who traveled to the event only to be clouded out as were most of the people who tried to observe it from the South Pacific. Luca talked about other eclipses and future eclipses as well.

*Observing at Pauatahanui on September 11th was canceled yet again because of cloud.*

On September 21st Chris Mongatti and myself laid a new path of Plastic matting to the Pautahanui observatory and this is much better to access the observatory.



## October 2010

The October meeting was a presentation by Dr. Krista G. Steenbergen of the USA who lives in Wellington and works for IRL. Her presentation on 'Remote Sensing' was most intriguing and it was about looking at Earth from Space and how they do it with special sensing equipment a lot of which is used by the US Military. This had little to do with astronomy but most interesting.

The Research Group meetings are going very well with a small group of us attending which is what we expected.

*The October observing at Pauatahanui was rained out yet again*

**On October the 15th Carter opened the new exhibition about the late Peter Read and will run at the observatory until August next year this is a fascinating look at Peter Read and the Night Sky he presented on TV in the 60's and 70's. I have spent the last two months refurbishing his 6" refractor which is central to the exhibition and opening on October 20th was attended by his son Adam.**

## WAS Equipment

The 7 WAS dobsonian telescopes are all out on loan at present and Murray is using the WAS C8.

Chris Mongatti looks after the loan of the WAS telescopes so if someone wanted to borrow one they need to contact Chris.

The CCD camera is at my place and about to start regular observing with the new filters.

John field has the WAS occultation timing equipment.

Haritina has the WAS Questar telescope.

The Doland telescope is at Carter in the workshop.

The Tony Dodson telescope is in pieces and is sitting in my workshop waiting to be rebuilt.

## Acknowledgements

I would like to thank the out going committee for their help and support for the last year although the next committee is the same.

Thank you Ross for running the Thomas King Observatory on Friday evenings when you were available and who is also our secretary.

I would like to thank the volunteers who help Ross each Saturday evening to run the 9.75" Cooke Refractor at Carter and I hope this will continue.

Thank you Murray for the great Crossword you supply to us each month.

John Field and Chris Mongatti have been running the Pautahanui observatory when we have fine weather for the events which was not very often, thanks for doing that.

John Homes who has been looking after the Web page.

John Talbot who is our most accomplished treasurer and John mostly runs the Research Group meetings which I assist with.

Thank you to Bill & Lesley for looking after the supper every month.

A big thank you to Haritina for putting together the newsletter each month and making such a wonderful job of it.

*Gordon Hudson*

President 2010

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## CARTER VOLUNTEERS



Remember we are now based at the New Carter Observatory and at the first meeting at Carter I called for volunteers to assist in the running of the very famous Thomas Cooke Refractor at Carter on Saturday evenings. Carter will be open to the public every Saturday evening and the Wellington Astronomical Society will be assisting in running this telescope and maybe another as well.

The response for volunteers was very encouraging and we have 15 names down as volunteers. Claire from Carter will be in touch by e-mail with each of you as to how the roster will work. Remember we are getting the full use of these facilities for our meetings once a month for nothing.

When we were at the Royal Society Rooms we were paying up to \$1000 per year. So any contribution you make will be a huge saving for the society. So think of it as your contribution to help the society to save some money.

**OBSERVING AT THOMAS KING**  
All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. from 7:30. **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.

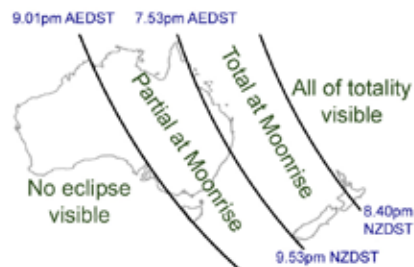
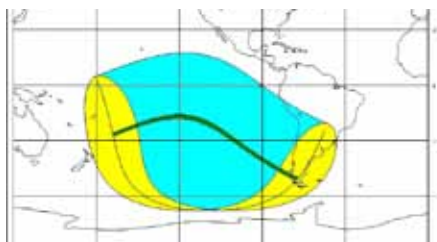
## ASTRONOMY EVENTS 2010

### 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 PAUATAHANUI**  
The next observing evening at Pauatahanui is on November 13th starting at 8pm. **If the weather is looking doubtful please contact Chris Mongatti on his mobile 021 890 222 to see if the session is going ahead.**

## 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.

## Financial Report for Year ended 31-August-2010

WAS Unaudited Accounts Summary	2010	2009	2008
Total Income	\$ 5,321.04	\$ 5,471.97	\$ 5,070.35
Operating Costs	\$ 4,495.28	\$ 5,726.12	\$ 3,432.92
Capital expenditure	\$ 4,784.22	\$ -	\$ -
Total Expenditure	\$ 9,279.50	\$ 5,726.12	\$ 3,432.92
Cash Income less Expenditure	-\$ 3,958.46	-\$ 254.15	\$ 1,637.43
Accrual adjustments	\$ 2,795.39	-\$ 1,072.70	-\$1,181.92
Excess Expenditure over Income	-\$ 1,163.07	-\$ 1,326.85	\$ 455.51

WAS Assets at 31 August	2010	2009	2008
Bank Accounts	\$ 7,217.07	\$ 11,175.53	\$ 11,000.00
Fixed Assets after depreciation	\$ 13,202.47	\$ 10,758.82	\$11,831.52
Total Assets	\$ 20,419.54	\$ 21,934.35	\$ 22,831.52
Total Current Liabilities	\$ 497.94	\$ 849.68	\$ 420.00
Net Assets	\$ 19,921.60	\$ 21,084.67	\$ 22,411.52

**The above table is the coarse summary.**

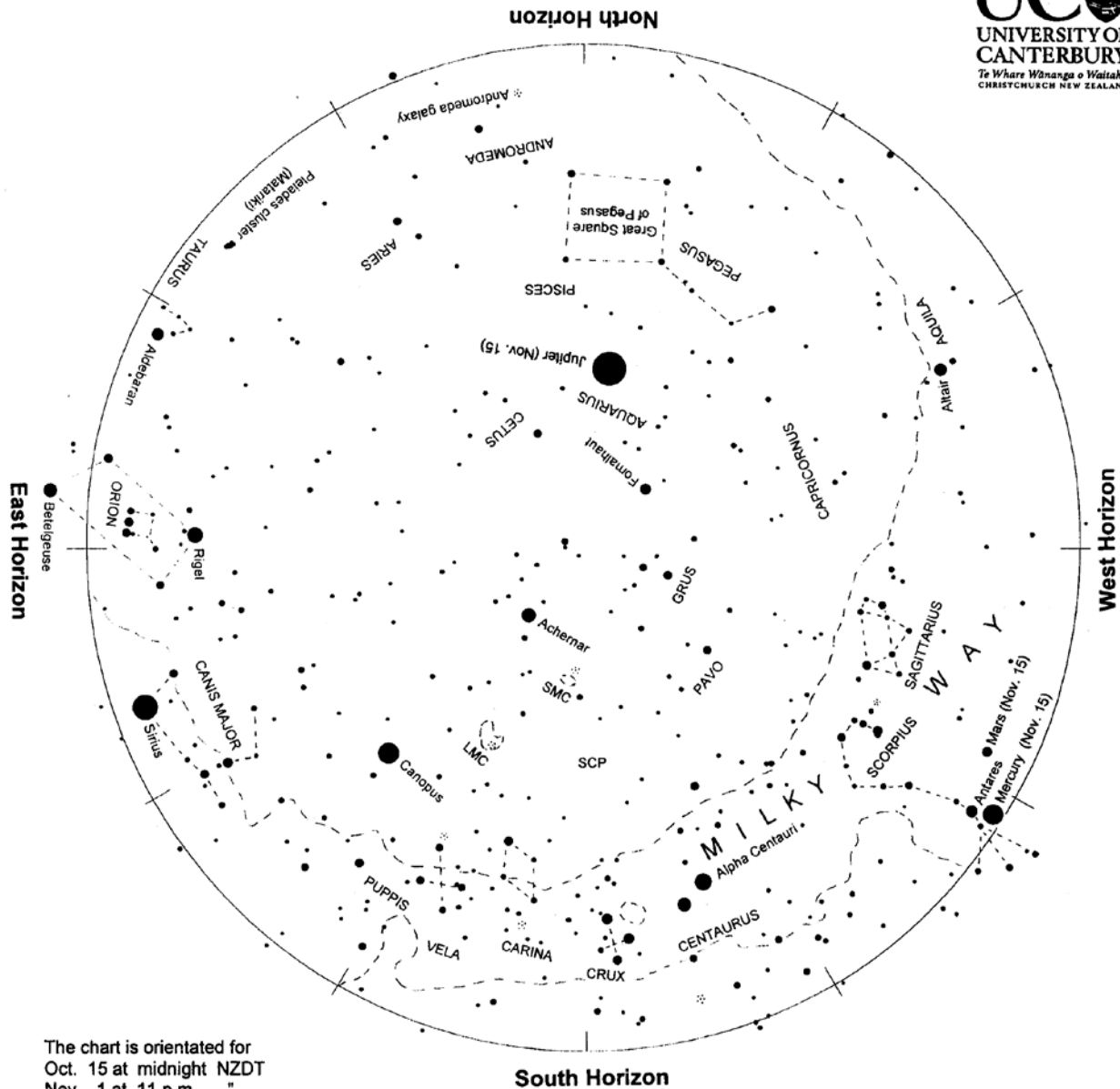
The detailed accounts were delivered to the Auditors on 6th October. I hope to have final audited reports available for the AGM on 3rd November. The final report will be published on the web site as soon as possible and if complete by AGM will be shown on screen or with paper copies.

For the first time this report uses Accrual accounting for all income and expenditure but cash balances are also shown.

**Capital items purchased during the year include: Pauatahanui Meade Super wedge, SloMo Adapter, S-Big ST-7 2nd Hand camera, Spectral Filters.**

The move back to Carter means our room hire costs will go down a further \$1,500 next year so we are budgeting to be close to breakeven after holding subscription rates the same as last year.

*John Talbot, Treasurer*



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

### Evening sky in November 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 makes a small extra clockwise rotation each night as we orbit the sun.

Jupiter is the first 'star' to be seen after sunset, north of overhead. It sets in the west around 3 a.m. Mercury and Mars, and the star Antares, play tag on the southwest skyline at dusk. The Milky Way is wrapped around the horizon. It is low in the west and south sky early in the night. As the western portion sets the eastern part comes into view. Along with it rise Sirius, the brightest star, twinkling like a diamond, Orion (containing 'The Pot'), Taurus and the Pleiades/Matariki star cluster. The Pointers and Crux, the Southern Cross, are low in the south. The north sky is empty but for the Great Square of Pegasus with the Andromeda galaxy nearby.

Chart produced by Guide 8 software; [www.projectpluto.com](http://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](http://www.canterbury.ac.nz)





## The Evening Sky in NOVEMBER 2010



Jupiter is the evening 'star', appearing north of overhead soon after sunset. Binoculars and small telescopes will show Jupiter's brightest moons on either side of the planet, swapping sides from night to night. Jupiter is around 650 million km away from us now.

From mid November to early December Mercury and Mars are near the southwest horizon at twilight. Mercury is bright and white. Mars is fainter and reddish; similar to nearby Antares, the red-giant star at the Scorpion's heart. (Antares means 'rival to Mars' in Greek.) At the beginning of the month Mars is directly below Antares. Mercury is further below and left. The stars slip downward past the two planets. By the 13th Mars will be to the right of Antares with Mercury just below the pair. Around the 17th Mercury will be between Antares and Mars. Thereafter Mercury will be above Mars as both disappear in the December twilight. The planets' apparent closeness is strictly line of sight. At mid-month Mercury is around 200 million km from us and coming closer, while Mars is 350 million km away on the far side of the sun. Scorpius has its tail pointed up toward the zenith, like a back to front question mark. The tail is 'the fish-hook of Maui' in Maori star lore.

Canopus, in the southeast, is the second brightest star in the sky. It moves eastward and upward during the night as the stars appear to circle clockwise around the south celestial pole, SCP.

Canopus is 300 light years\* away. Seen up close it would be 13 000 times brighter than the sun.

Sirius rises in the east around dusk. When low in the sky it is shining through a lot of air. The air breaks its white light into colours so Sirius twinkles like a diamond. It is the brightest star both because it is relatively close, nine light years away, and 23 times brighter than the sun.

Left of Sirius in the late evening is the constellation of Orion, with 'The Pot' at its centre. Rigel, a bluish supergiant star, is directly above the line of three stars; Betelgeuse, a red-giant star, is straight below. Left again is a triangular group around Aldebaran making the upside down face of Taurus the bull. Still further left is the Pleiades or Matariki cluster, also called the Seven Sisters, Subaru and many other names. Six or seven stars are visible to the eye; dozens are seen in binoculars. The Pleiades cluster is 400 light years away and around 70 million years old.

The Milky Way is low in the sky, visible around the horizon from the northwest, through south into the eastern sky. The broadest, brightest part is in Sagittarius, to the right of the Scorpion's sting. 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.

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 Clouds of Magellan, (LMC and SMC), high in the 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. That's still billions of stars in each. The globular star cluster 47 Tucanae appears near the SMC but is 'only' 16 000 light years away. Globular clusters are spherical clouds of stars many billions of years old.

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. It is similar in shape to our galaxy but a little bigger and nearly three million light years away.

Venus, the former brilliant evening star, has passed us by. It is now in the morning sky, rising in the southeast dawn twilight. It appears as a tall thin crescent in a telescope; about 50 million km away.

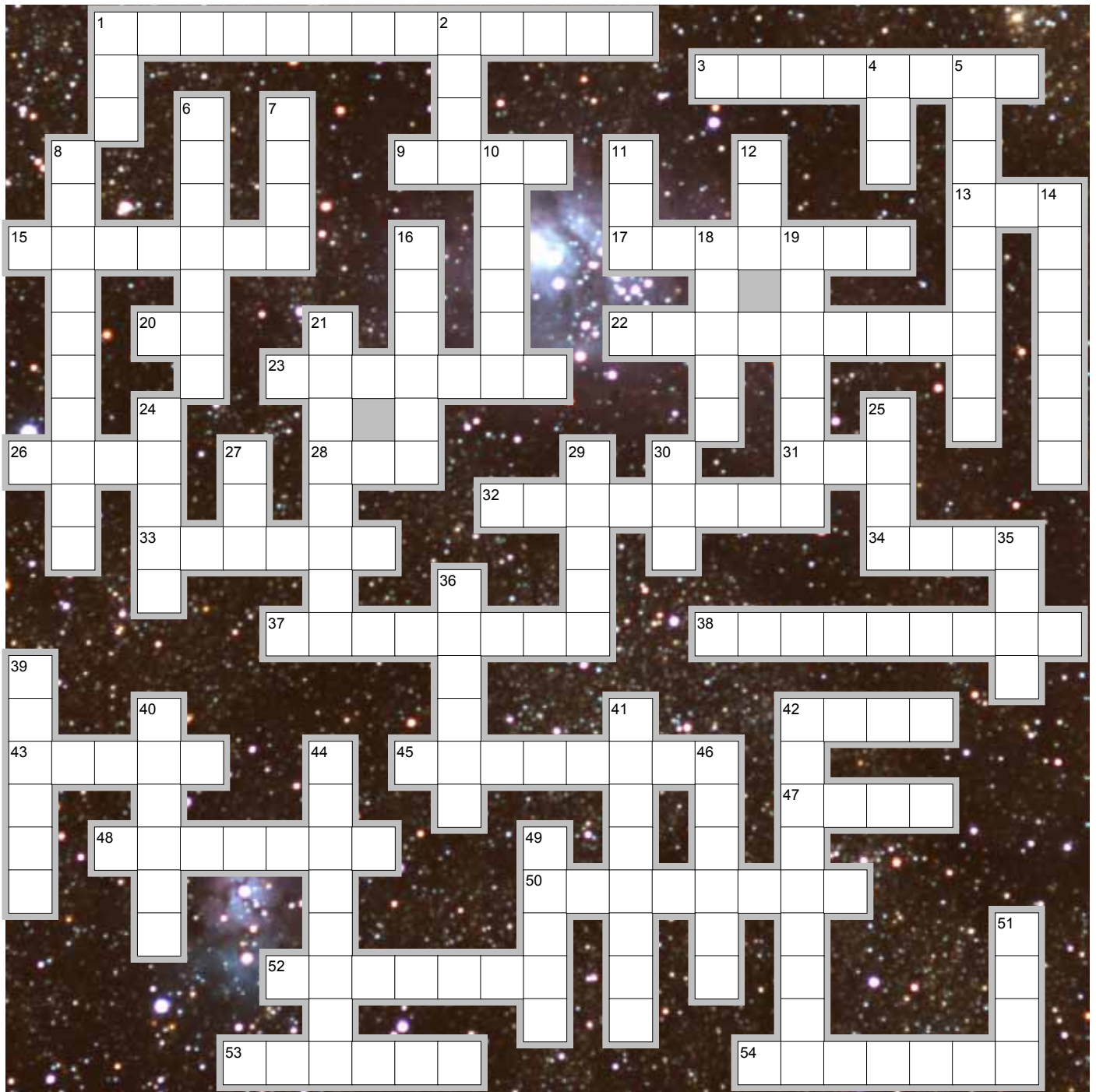
*\*A light year (l.y.) is the distance that light travels in one year: nearly 10 million million km or  $10^{13}$  km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, 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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100826



## Cross Word with Murray Forbes



**Across** 1. A cosmological model; 3. astronaut; 9. satellite observatory studying the Sun; 13. could be mistaken for a cloud; 15. a catalogue; 17. Antabi; 20. One of the Galilean satellites; 22. Mars; 23. to block light from another object; 26. New Zealander; 28. an arrested atom; 31. frozen liquid; 32. The Seven Sisters; 33. Name of ESA spacecraft that intercepted Halley's comet; 34. smallest indivisible piece of a element; 37. constellation with a sting; 38. Carter Observatory's public telescope; 42. volcano on Io; 43. alpha Cygnus; 45. A type of star whose core hydrogen has been used up; 47. a new star; 48. type of telescope; 50. road site (anagram); 52. type of galaxy with unusually bright nucleus; 53. second most common element; 54. When the Moon is closest to the Earth; naut; 53. New Zealander; 54. a catalogue; 55. satellite observatory studying the Sun;

**Down** 1. some spiral galaxies have one; 2. angels and galaxies both have one; 4. an orbiting telescope; 5. type of telescope; 6. 23rd September; 7. unit of time; 8. son's recipe (anagram); 10. an open cluster in Taurus; 11. satellite galaxy to the Milky Way; 12. flying saucer; 14. A type of pulsating variable star, often used for distance measurements; 16. process that powers stars; 18. opposite to zenith; 19. The North Star; 21. plane of Earth's orbit around the Sun; 24. Constellation with Spica; 25. alpha Lyr; 27. A lion circling the Earth; 29. a very cloudy planet; 30. solid, liquid or ...; 35. I weight 6 times less on the Moon, but still have the same ???; 36. When the Moon is furthest from the Earth; 39. also a small inflated rubber boat; 40. used to prevent moisture condensing on a telescope; 41. allow some leeway; 42. Latitude and ?; 44. star time; 46. You don't want this constellation in a China shop; 49. Tellus; 51. volcano on Io;