



Cover image - Driving through NSW, we seen lots of quirky mail boxes. Micro wave ovens, Beer kegs, old tracker parts were common. But this one beat them all, also a timely reminder for the new Doctor Who series. Plate explains how it came to got there, if you can believe it.

# SCORPIUS

THE JOURNAL OF THE  
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Volume XXIII, No 5 (September/October)

The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study and understanding of Astronomy by amateurs and promoting the hobby of amateurs Astronomy to the general community at all levels.

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranges to observe currently available celestial objects and phenomena. In addition, the society encourages the service of its members for education presentations and observing nights for schools and community groups. Reg No: A268 ABN: 34569548751 ISSN: 1445-7032



## DALEK INFORMATION

### DWATER IS SHAWCRAFT CLASSIC MK3

Legend has it that Dwater was brought into the area in latter half of the last century by well respected cattle and sheep breeder Mr Max Cox and his wife Joan to combat a rabbit and fox plague.

Dwater would roam the hills "exterminating" vermin on Kurramong and neighbouring properties Yarramundi, Merryvale, and Monavale. Vermin and many a brave man lived in terror as the dalek quietly and efficiently stalked the unaware in the dead of night unleashing it's deadly death ray.

After many years of accurate predation Dwater had eliminated almost all the imported pests in the area, folk lore also tells of a few cattle rustlers and horse thieves being brought to justice as well by this efficient killer.

Towards the end of the century Dwater's blood lust could not be satisfied as vermin was becoming scarce. Out of loyalty the Cox family put up with the dalek killing the occasional sheep or working dog as it had done an amazing job on the pests. The end for Dwater came when at full gallop Mrs Joan Cox had her favourite horse "Doctor" violently exploded from under her by a well aimed death ray. Burly local lads including Joan's brother Don Macansh restrained Dwater while Max removed the fuel cell and control organism which were sent to NASA for relocation. Dwater became a rusting lifeless shell.

In 2013 the people of Deepwater banded together to restore Dwater to some of it's former glory as a monument to Russ the postmaster for doing such a great job.

Some say that when you open the top mail compartment you hear the echo of the ancient dalek voices.



## SCORPIUS The journal of the Mornington Peninsula Astronomical Society

### Newsletter Disclaimer

The Scorpius Newsletter is published online, once every two months for its membership, by the Mornington Peninsula Astronomical Society, for Educational Purposes Only. As a newsletter, this publication presents news spanning a spectrum of activities, reports, and publications in order to keep society members abreast of a variety of events and views pertaining to astronomy. While prudent, reasonable effort has been utilized to verify factual statements made by authors, inclusion in this newsletter does not constitute or imply official MPAS endorsement. All materials (except previously published material, where credited) are subject to copyright protection © 2014, Mornington Peninsula Astronomical Society



# SOCIETY NEWS

By Greg Walton

**July public night** - As you'd be aware, at the July public night, to coincide with the Apollo 11 anniversary, Trevor's talk was all about the missions to the moon. In addition, some door prizes were on offer (by way of a raffle ticket being presented to each person as they arrived for the evening), the major prize being a nicely framed authentic moon fragment – quite a few 'oohs' and 'aahs' when Trevor announced this! Please find attached a couple of photos of the winners on the night – thought you might be able to put something in an upcoming Scorpius newsletter, but I'll leave that up to you. The young lad who won the major prize (in the blue and orange jacket) is named Taj – he was certainly very happy when Peter presented him with his very own piece of the moon! Unfortunately I didn't get the names of the other two minor prize winners. Cheers, Rohan (See images right)

**July Society Meeting** - Ross Berner from the Cosmology & Astrophysics Section Director of ASV. Talked on the "The Edge of the Universe" The region of the Universe we are familiar with as amateur observers represents a very small part of the Universe. Much of what we still have to learn such as how the first stars & first galaxies came to be formed, will only be found by observing these objects at the Edge of the Universe. Looking what we expect to find at the Edge of the Universe and some of the Telescopes that are being built to view them. Then members chat over coffee.

**July members BBQ** - seen about 20 member under a 100% cloudy. Thankyou Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for setting up the food and the cleaning up after wards.

**August public night** - Well, we had another successful public viewing night last night despite the rain, wind, hail and snow. The new MPAS roadway got its first real test give the amount of water laying about. It came through with flying colours. Trevor gave the second part of his Apollo Commemorative Talks and donated another lunar meteorite as a door prize. Believe it or not he actually started his trip to the Briars driving out of the snow. The skies cleared later in the evening and we all had a chance to see what was left of the Moon before it set and a good looks at Saturn and Mars. The skies improved toward the end of the evening into a beautifully dark and clear night. (but too cold to hang around) John and Helmuth manned the scopes supported by Kevin while Peter and Chris Skilton manned the door. All up quite a pleasant but cold evening. Thanks to all who helped out. Cheers Peter (See images right)

**August Society Meeting** - seen 25 members in attendance Peter Lowe (president) chaired the meeting. Professor Jeremy Mould from Swinburne University talked on dark matter and direct detection of dark matter experiment planned for Stawell gold mine, which would help make Hubble constant measurements more accurate. Members chat over coffee.

**August science week public night** - seen a excellent turn out of about 20 member under a clear sky with no Moon. Pity only 2 member of the public showed up. Felt more like a members viewing night.

**August members BBQ** - seen about 20 member under a 100% cloudy. Thankyou Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for setting up the food and the cleaning up after wards. We finally ditched the dangerous old BBQs, thanks Jamie for organizing a bigger and safer replacement. (See images right)



**VicSouth Desert Star Party.**  
Many MPAS members usually attend this annual event, jointly hosted by the Astronomical society of Victoria and Astronomical society of South Australia. Hope to see you there.

**VicSouth Desert Star Party 2014**  
Friday 24 October to Monday 27 October 2014  
For further information regarding Accommodation and Meals, Please contact the team at the Lodge on (03) 53915232 during business hours.  
Little Desert Nature Lodge  
PO Box 202 Nhill, Victoria, 3418  
Fax: 03 53915 217 Email: info@littledesertlodge.com.au



**Little Desert Nature Lodge**  
Little Desert Nature Lodge Pty Ltd  
1457Nhill - Harrow Road  
www.littledesertlodge.com.au

## New Members

## Welcome

Callum Nicol

Varessa Quigley

Andrew Nilsson

## PUBLIC NIGHT THANK-YOU

Recent public viewing nights and school viewing nights have continue to be very well received by the attendees. It is no coincidence that this is due to the efforts put in by the members that help out at these events. To everyone that has helped out over the past months, a very big thank-you goes to you all. Your efforts are very much appreciated, and are being very well received.

## 2014 SUBSCRIPTIONS DUE

The ticking over of the New Year also means that society fees are now due to be paid. The society has worked hard to ensure that 2014 fees are still the same as last years prices. So to assist the society in maintaining the facilities and service we provide, we appreciate your prompt payment for the 2014-year ahead.

As a reminder, the following structure of the fees are:

- \$50 – Full Member
- \$45 – Pensioner Member
- \$65 – Family Membership
- \$60 – Family Pensioner Membership

## SOCIETY FEES

Subscriptions can be paid in a number of ways:

- Direct Cash payments to a committee member
- Send a cheque or mail order to the society mail box MPAS. P O Box 596, Frankston 3199
- Make a direct electronic payment into the society working bank account.

The account details are BSB 033-272 Account 162207. Remember to add your name and details to the transfer so we can identify the payment in the bank records.

If you have any concerns please talk to a committee member.

Under the new government regulations, a list of financial member is required for insurance purposes, so please make certain your membership renewals are on time.

## A word from the Scorpius editing team.

Members please write a story about your astronomy experiences and add some pictures.

Send them to:

Brett Bajada

Peter Lowe

Greg Walton

gwmpas@gmail.com

CALENDAR		September / 2014				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Saturn, Mars & the Moon close in Libra	2 <b>First Quarter</b>	3	4	5 <b>Public Night 8pm</b>	6
7 Father's Day	8 Moon closest point to the earth this month at 358,389km	9 <b>Full Moon</b>	10 ASV Meeting	11	12	13 Comet C/2013 A1 Next to ngc6744 in Pavo
14	15	16 <b>Last Quarter</b>	17 Society Meeting 8pm	18	19	20 Members Night BBQ 6pm n6584
21 Jupiter left of a thin Moon	22	23 <b>Equinox</b>	24 <b>New Moon</b> Committee Meeting 8pm	25	26 Spica, Mercury left of the Moon ngc6496	27
28 Saturn below the Moon	29	30		Occultation of Saturn by the Moon visible from Hawaii, Japan on the 28th		

**Monthly Events & High Lights. Watch out for Auroras - Red Days** indicates School Holidays

**Public nights** 5th, 8pm start - **Society Meeting** at 8pm on 17<sup>th</sup> @ the Peninsula School

**Members Night BBQ** 6pm at the Briars 20th - **Dawn** - Jupiter left of the Moon 21st

**Evening - Equinox** 23rd - Saturn, Mars & the Moon in Libra 1st

**Evening - Spica, Mercury left of the Moon** 26th - Saturn below the Moon 28th

CALENDAR		October / 2014				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 <b>First Quarter</b>	3 <b>Public Night 8pm</b> Comet C/2013 A1 Next to ngc6400	4 M7 comet
5 Day Light savings starts	6 <b>Labour Day</b>	7	8 <b>Full Moon</b> <b>Total lunar eclipse</b> ASV Meeting	9 Comet C/2013 A1 Next to M6 Butterfly cluster	10	11
12	13 Mars above Globular cluster ngc6325	14	15 Society Meeting 8pm	16 <b>Last Quarter</b> Comet C/2012 K1 Next to ngc2467	17	18 Members Night BBQ 6pm Jupiter below the Moon
19 Comet C/2013 A1 Next to Mars	20	21 Orionids Meteor shower pecks	22 Committee Meeting 8pm	23	24 <b>Little desert star party</b>	25 <b>Little desert star party</b>
26 <b>New Moon</b> Saturn 2 degrees above the Moon at 2am	27 <b>Little desert star party</b>	28 Saturn below the Moon also Mars above M8	29	30	31 <b>First Quarter</b>	

**Monthly Events & High Lights. - Watch out for Auroras - Red Days** indicates School Holidays

**Public nights** 3rd 8pm start - **Society Meeting** at 8pm on 15<sup>th</sup> @ the Peninsula School

**Members Night BBQ** 6pm at the Briars 18th - **Little desert star party** 24th to 27th

**Evening - Full Moon Total lunar eclipse** 8th - **Comet C/2012 K1** Next to ngc2467 16th

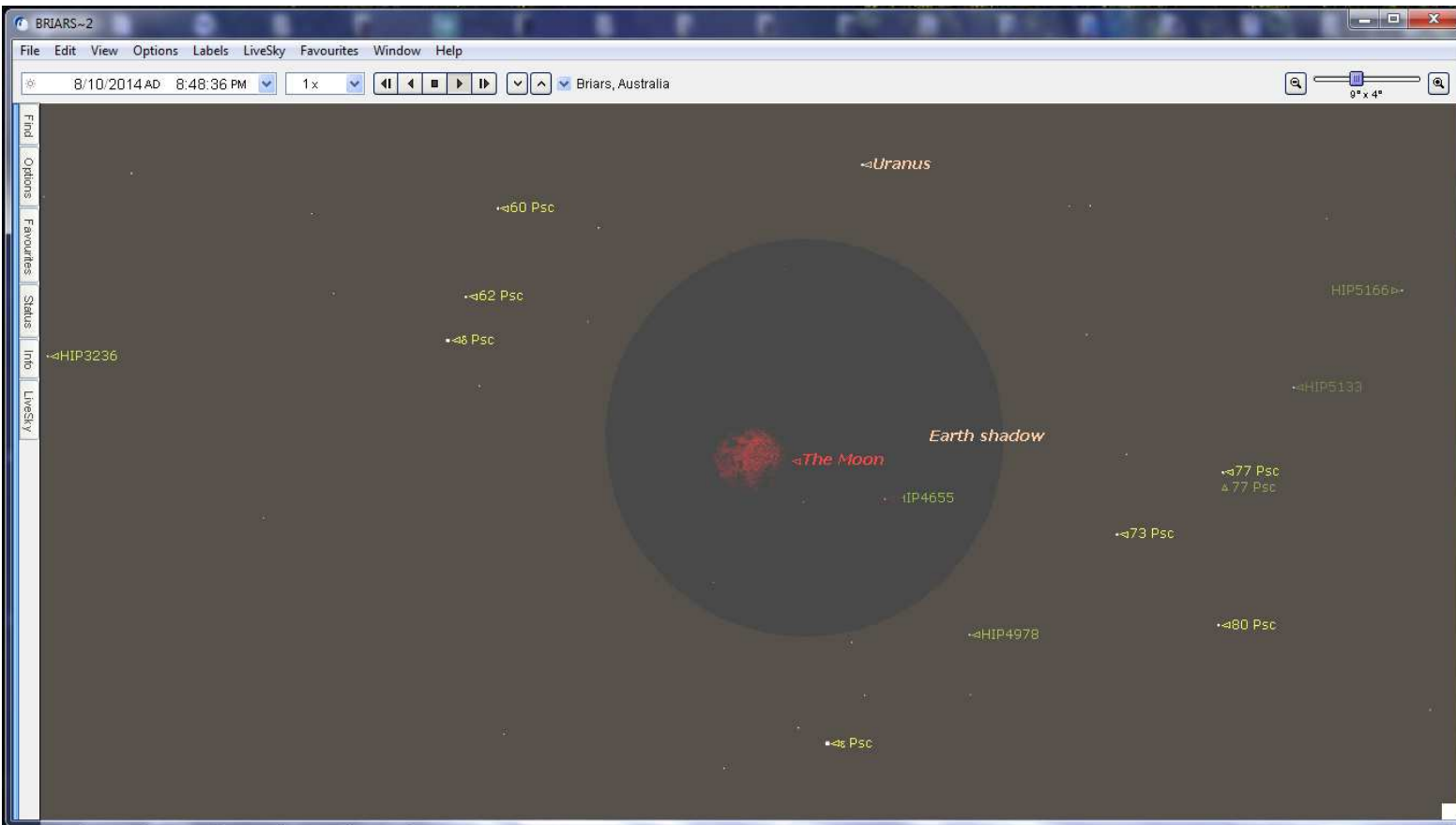
**Evening - Saturn below the Moon also Mars above M8** 28th - **Comet C/2013 A1** Next to Mars 19th

**Dawn - Jupiter below the Moon** 18th - **Orionids Meteor** shower pecks around the 21st

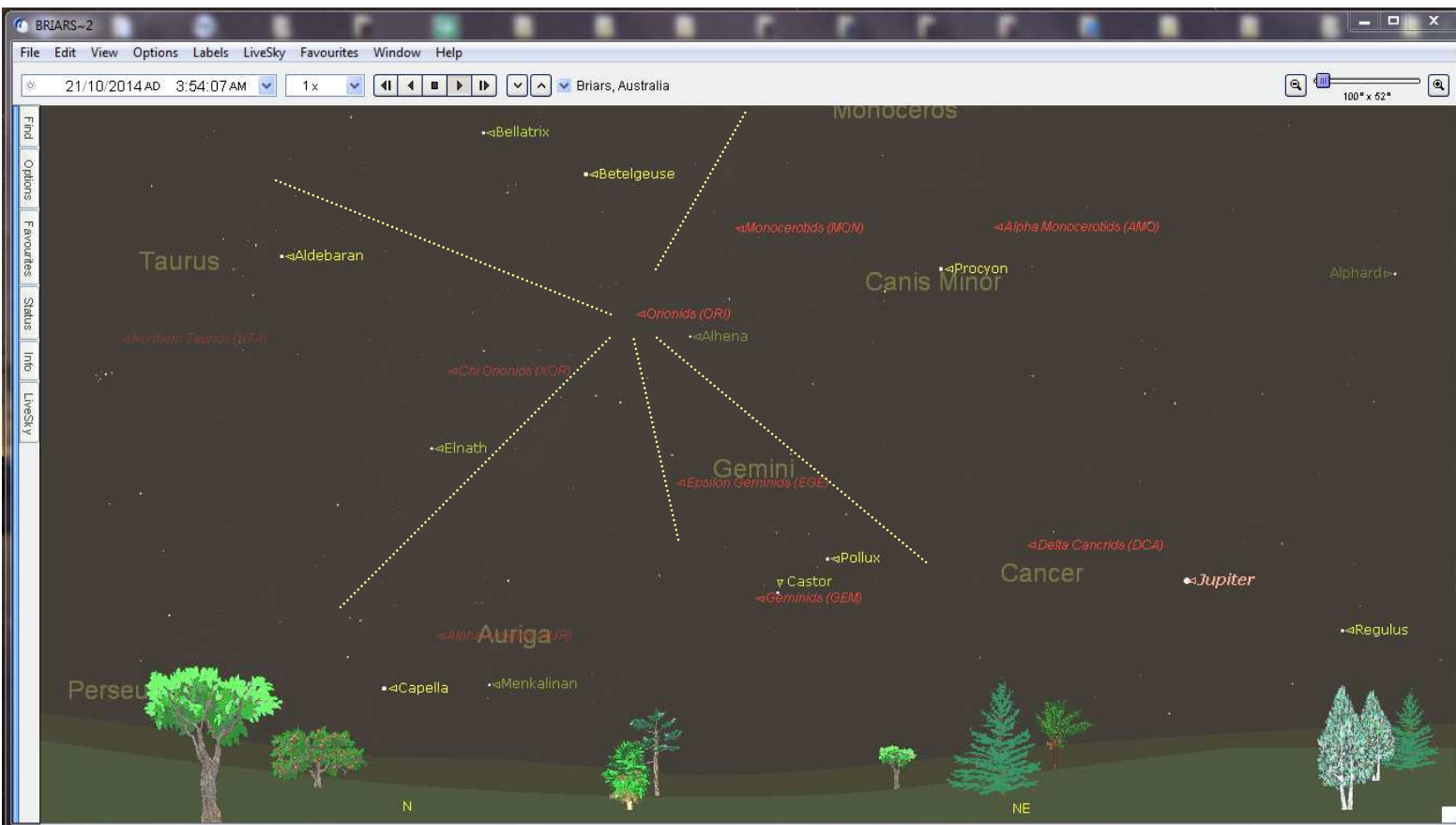
**Note** this years the Members night BBQ's will be the first Saturday after the Society Meeting. Also General Meetings will be called Society Meetings under the new regulations.

Produced on Starry Night by Greg Walton

Sky for October - From the Briars this Full Moon Total lunar eclipse on the 8th of October should be more impressive than the last one. Looking about 30 degrees above the north east horizon, Beginning at 7:18pm and reaching totality at 8:48pm when the Moon should be a deep red, than by about 10:30pm it should be all over. This event usually attracts large numbers to the Briars, I know many will be there trying to image the whole event.



The **Orionids Meteor** shower peaks around the 21st of October, the past few years have not seen much activity and was not worth getting out of bed in the early morning, may be this year it could put on an impressive show. Also the moon will be only a thin crescent risings just before sun rise. Looking north the centre of the radiant is just under the bright orange star Betelgeuse in Orion. I will most likely leave the camera out all night and stay in bed.







## NACAA REPORTS - SELECTED PAPERS FROM NACAA 2014

By Peter Lowe

### The Intertwined Lives of Close Binary Stars. (Tom Richards)

It's well known that eclipsing binaries provide the only direct way of measuring absolute stellar masses, radii, sizes, luminosities and distances – all together. That alone provides powerful tests for theories of stellar structure and evolution, as well as extending those properties to other stars of all classes. Moreover as one star eclipse another, we can detect and measure starspots, limb darkening and other photospheric and atmospheric phenomena. But more than that: binaries close enough to eclipse can also affect each other tidally changing their shapes and rotation periods, irradiating each other, and exchanging mass. This leads to quite different and often startling evolutionary behaviour for the half or more of all the stars in close binary orbits. All of that provides more complex and demanding tests for the theories of stellar structure and evolution that do isolated stars. Unfortunately acquiring the photometric and spectroscopic data that underpins all this is very demanding on telescope time and so is not popular professionally. But since thousands of eclipsing binaries are bright enough for study with very small telescopes the amateur armed with a tracking telescope, a camera and a computer can fill the gap and make significant contributions to astrophysics.

### Telescopes in Schools. (Jacinta den Besten)

The Telescopes in Schools program works with ten schools in metropolitan Melbourne and regional Victoria. Each of these schools has a 12" SCT installed with access to astrophotography equipment. The program serves to create aspiration in further education and science through the practical application of astronomy and bonds with astronomers. So far students have learnt how to align and move the telescope, arrange whole school events to observe the 2013 partial Solar Eclipse and tried their hand at astrophotography. Future aspirations for the program include student research projects, expansion to more schools and greater linkages with the Australian astronomy community. This outreach program has reached over 3000 students, held over 130 observing sessions in just two years and offers continual professional development for teachers and is a collaborative program between schools, the University of Melbourne and families. The program has the potential to be wide reaching, adaptable and create the next generation of astronomers, but also relies on the passion and voluntary time of current astronomers. More information's can be found at [telescopesinschools.wordpress.com](http://telescopesinschools.wordpress.com)

### Spotty Stars. (Donna Burton)

Magnetic and temperature spots on the surface of the Sun can be easily observed and studied. Other stars are far too far away and can only be partially resolved even in the most powerful telescopes. However, high-resolution stellar spectra contain sufficient information to detect and map stellar surface inhomogeneities using Doppler imaging, a well-established method for probing the stellar magnetic dynamos responsible for the generation of magnetic fields and activity cycles. Dark surface features on rapidly rotating stars cause "bumps" in their spectral line profiles. Doppler imaging inverts a time series of these "bumps" to produce a map of the surface features on a star. There is an opportunity for a pro-am collaboration to assist in building the database of new southern targets.



### Project Exo Planet. (Chris Rudge, Mike Thompson)

The goal of ExoPlanet is to observe and measure light curves of a transiting exoplanet. For many years their existence was hotly debated in astronomical circles. The first confirmed exoplanet discover came in 1992, when several planets orbiting the pulsar PSR B1257+12 were detected. Over the past few years, the number of confirmed exoplanet discoveries has exploded to almost 1000. In 2013, the ASV Junior Section wanted to get involved in "real science" projects and chose Project Exoplanet as its first project, scheduled to complete by the end of the year. This project will attempt to locate the parent star of a known exoplanet, imaging it using professional-grade equipment and measuring the changes in its magnitude as the exoplanet transits its face. This is a challenging project, as it requires careful research, planning and preparation to ensure that imaging runs capture the transit precisely. Then, once the data have been collected, processing the data to get accurate results.

### The Fossil of Saturn's Great Storm of 2010/2011. (Trevor Barry)

The Great Storm started as a small white spot 8 December 2010. By mid-January 2011 the storm had dredged up so much material that it totally encircled the planet. Professionals captured data with Cassini and ground based telescopes such as NASA's IRTF and ESO's VLT, the latter at thermal wavelengths. A dark vortex formed in the turbulence back from the storm. Amateurs also tracked the evolution of the storm including the dark vortex. By October 2011 the storm was dissipating, the vortex was shrinking and most thought that would be the end of it. Through 2012, amateurs tracked a dark spot at the latitude of the Great Storm.

Following solar conjunction in December 2012, a dark spot was again recovered by amateurs, and following right through 2013. The amateur data through 2012 was analysed in amateur spreadsheets and drift charts. When Kunio Sayanagi (Cassini ISS) merged this amateur data with his Cassini ISS data and drift chart, it became apparent that this dark spot was in fact the surviving fossil of the original dark vortex, formed by the Great Storm, the longest lived continually tracked feature of its type ever at Saturn. Another outstanding example of what Pro/Am collaboration can achieve.



**Captain Henry Evans Baker: A Star, Nerd or Futurist.** (Judith Bailey, Saeed Salimpour) – Best Paper Award

Captain Henry Evans Baker was one of the first telescope makers in Australia. Captain Baker embraced and introduced new technology onto the goldfields of Victoria. He was also instrumental in helping others to do so. At the age of over 70 years, Captain Baker embarked on his greatest and lasting work, the 26" Great Equatorial Telescope, now called "The Baker".

**Infrared Photography of the Solar System.** (Barry Adcock)

Photography of the solar system bodies may now be extended at both ends of the visible spectrum due to technical advances in the extra sensitivity of modern digital recording devices and the production of high quality infrared and ultraviolet filters. A survey of the spectral sensitivity of digital sensors as well as the spectral characteristics of interference filters will be presented. The equipment now offers the opportunity to acquire high-resolution images of the planets during the daytime hours thus offering an extended window for discovery.

**Bright Star Monitor South Program.** (Peter Nelson)

This talk will be an account of the setting up and running of the Bright Star Monitor South (BSM-Sth), part of AAVSONet, as well as opportunity for amateurs to submit target proposals.

**Delta Scuti-Type Pulsating Stars in Eclipsing Binary Systems.** (Margaret Streamer)

Isolated Scuti-type (DSCT) stars show pulsations with low amplitude (less than 0.1 magnitudes) and short periods (less than 3 hours). They can also be found in binary systems, which can be detached or semi-detached. In the detached systems, the Scuti component is a typical DSCT star. However in more evolved, semi-detached systems the pulsator is accreting mass from the other component in the binary system. Although not particularly common, several Scuti-type pulsating components in short-period (<5 days) eclipsing systems have been discovered as part of the Southern Eclipsing Binaries Programme of Variable Stars South. The light curves of each system are all slightly different but are characterised by a very shallow secondary pulsation periods, thus allowing the determination of the frequency and amplitude of the pulsations.

**Lunar Occultations of Close Double Stars.** (Brian Loader)

Video observations of lunar occultations on close double stars allow the determination of the separation and position angle of the pair. The method of observing and obtaining results will be described. A summary of some recent results and discoveries of new doubles was presented.

**Variable Star Photometry with a DSLR Camera.** (Mark Blackford)

Crucial to our understanding of variable stars is the accurate measurement of their brightness variations over time. Experienced amateur astronomers equipped with CCD cameras are now contributing professional quality data often in pro-am collaborations. In recent years standard commercial DSLR cameras have been employed as relatively low cost stellar photometers with surprisingly good results. So much so that the AAVSO ran a workshop in 2013 to write a DSLR Observing Manual to promote their use in variable star observing. DSLR cameras equipped with telephoto lenses are well suited to monitor stars that are too bright or with small amplitude that are difficult for CCD or visual observers, respectively. However, there are both advantages and disadvantages to DSLR cameras, which will be briefly with examples from observing programs on eclipsing binary and Cepheid variables. This work has been in collaboration with Australian and New Zealand amateur and professional astronomers.

**Measuring Trans-Neptunian Objects with Backyard Telescopes.** (Stephen Kerr, et al)

Trans-Neptunian Objects represent one of the last frontiers in solar system exploration holding secrets to the formation of the solar system. Their extreme remoteness means that even the most basic physical information such as size and shape are known for only a minority of objects. Stellar occultations are a technique to gather such data and a high level of coordination between amateur and professional astronomers is starting to produce excellent results.

**Grazing with Team Occultation 2012-2014.** (Dave Gault)

Team Occultation (Sydney and Canberra chapters) continues the tradition of observing lunar graze occultations. Despite the advances of technology such as data from the lunar Kaguya orbiter, the lunar graze, observed by a team of determined astronomers, is still a true test of Lunar Theory and stellar catalogues. The presentation summarises the grazes observed since NACAA XXV and suggests that a Melbourne chapter of Team Occultation would be a welcome addition and rival.

**2014/15 Jovian Mutual Event Programme.** (David Herald)

The next season of mutual eclipse and occultation of Jupiter's satellites runs from September this year to August next year, with about 120 events being visible from eastern Australia. Most events require making a video recording for about 10 minutes, although some events can last for an hour or more. The session reviewed the results of the last season and discusses the techniques to record these interesting events and report scientifically useful results.

**The Nucleosynthesis of All Elements by Supernova.** (Peter Norman)

All elements heavier than hydrogen are created by a process of successively adding alpha particles (i.e helium nuclei) to the nuclei of other elements. These stars destined to supernova and when the star explodes heavy elements are spread back out into space to seed the next generation of stars and planets. The successive process of alpha particle addition is explained showing how the wide array of elements we observe in the universe came into being.





## An Observatory Roof Slot opened by Power, *by Roland Knabe*

The observatory is located on a 4 ha site in Red Hill and was built some 6 years ago. The building is square, 3 x 3 meters with a gable roof. It consists of a steel frame, is clad with Colourbond and lined with 4 mm plybrance. The whole thing weighs about 2.5 t, sits on a circular track and rotates. A 1 m wide slot in the roof is covered by a “door” which also goes ½ way down the wall. It is also steel frame, clad with corrugated Zinalume and also runs on tracks. The observatory has been an absolute pleasure to use, open the door, unlock the parking brake, open the roof, uncover the scope and observe – 5 mins. However, with the roof opening ceremony I could always imagine myself ending up in the emergency ward with some broken bones. In the dark (to keep the moths away) one needed to stand on the top platform of a small stepladder and on full stretch with 2 finger push on a projection on the “door” and just have enough power to move it. A powered drive was needed. As the observatory is rotated using a cheap modified 240 V power drill, the same should be possible for the roof. An old 9.6 V battery drill (which had a failed battery) was used. Battery drills are easily reversed by reversing the connection thus no modification to the drill is necessary. These drills are notoriously difficult to mount, for buyer-appeal these are “streamlined” in every possible way with no flat mounting surfaces. The collar which adjusts the torque limiting clutch was used to clamp it and together with a bolt through the handle did the trick. The whole was mounted on a plate for easy installation on the roof. A length of 10mm “all-thread” galv rod was then driven by the drill. This pushed on a nut secured to the “door”. The nut was rubber mounted so that some misalignment could be tolerated. The first test run resulted in the threaded rod slipping in the keyless chuck (these are hopeless for that). A hex driver was then welded to the threaded rod and the hex shaft then had a good grip in the drill chuck. The drill was powered by a 12 V battery via a change-over switch. All works well but a bit slow and noisy, but it beats a trip to the hospital.

Photo 1: shows the observatory, photo 2: the mounted drill, photo 3: the space between roof and “door” where the drill is mounted,



Photo 2



Photo 3

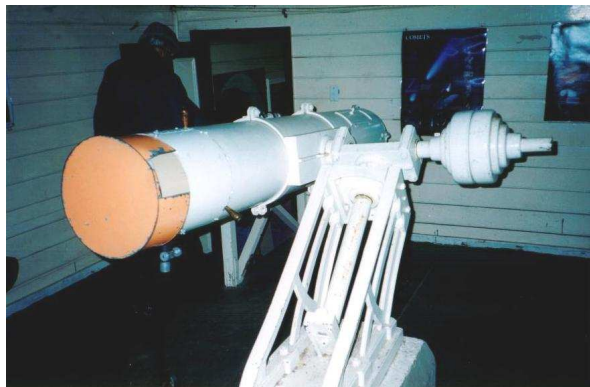


Photo 1



## Dear MPAS,

I am writing to you with regard to a certain telescope that I believe use to play a prominent part in the earlier history of the MPAS. The telescope I am referring to is the 'B.J.Smith telescope'. I came across an article about the telescope in an MPAS newsletter JAN/FEB 2009, Society History section, which talked about the resurrection and first use of the telescope. The reason for being so curious about the telescope is because I obtained the telescope from the ASV, many years ago now, and have grown increasingly curious about its origins and who actually constructed it.



The similarity with the telescope at The Ballarat Municipal Observatory (see image above) has me intrigued and I wonder if the mount on the B.J.Smith telescope had something to do with Capt. Henry Baker Evans who manufactured some of the telescopes at the observatory. If the MPAS has any knowledge of the prehistory to the MPAS restoration of the telescope I would be very interested or if you could direct me to someone or an organisation who might I would be grateful.

Thanks and regards Philip Morriss

## Hello Philip

The B.J.Smith telescope is indeed one of many telescopes manufactured during the Capt. Baker era at Ballarat. The base castings are from the original as are the telescope tube rings, counter weights, the rotating eyepiece ring and parts of the lower tube assembly. The telescope was loaned to the Astronomical Society of Frankston (now Mornington Peninsula Astronomical Society ) in the early 70's and was mounted on a car trailed for a few years before being permanently mounted in a roll off observatory at what is now the Monash Uni. Campus, Frankston. It was stored in my backyard for a few years while the Monash building was built. We used the instrument as part of our astronomy classes until Monash required us to remove it. It was relocated to the Peninsula School, Mt Eliza for a few years but when the school required us to relocate it again it was decided to hand the instrument back to the ASV who essentially just put it into storage.

The telescope was in a terrible state when the ASF acquired it. The entire tube assembly had rusted away and only the larger casting remained. The tube had to be rebuilt in fibreglass. The optics were in better condition. I have a number of photographs of it in various guises. I believe I also have the spare secondary flat somewhere in the garage which you are welcome to have if I can find it. It is pretty hopeless as a flat though. It was tested at about 3 waves flat. (About enough to surf on!!) The person who did the main restoration was a man called David Wirly. David died several years ago and was a "fanatic" about fibreglass and made a number of fibreglass domes. (as well as boats, mostly Titanic's !!) David was one of the Astronomical Society of Frankston founding members in 1969.

There are a number of stories about this scope and the ASF and I must admit I look back on that period fondly remembering lost friends. Thank you for bring it back to me. I hope you enjoy the instrument.

Cheers Peter Lowe President, MPAS

PS: tread carefully if you approach the Ballarat society some of their members are sensitive about ownership issues on scopes from this area. I believe there were over a hundred casting made for that sized instrument as well as castings for both smaller and larger instruments. The Ballarat 26" instrument if essentially a scaled up B.J.Smith.

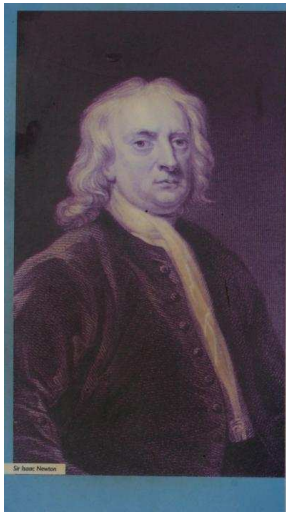
You might find this interesting. The long haired git is me. I think it was taken around 1971 because I grew long hair when I went to Mawson, Antarctica and kept it after my return. Cheers Peter Lowe





# North to clear skies, *by Greg Walton*

Pia & I were tired of being cold with nothing but cloudy skies, so we decided to head north to clearer skies. We travelled up through the centre of NSW, visiting the Parks radio dish where we seen apple trees which were direct descendents of the same trees which stood in Sir Isaac Newton's garden. We also played with the 2 whisper dishes where we could talk to each other across the gardens in front of the information centre. The dish was not working while we were there. We seen work men climbing around under the dish doing repairs, they looked so small against the size of the dish. There was a few sundials in the garden, but with no sun in the sky to show the time and rain falling we moved on north.



## Newton's Apple Tree

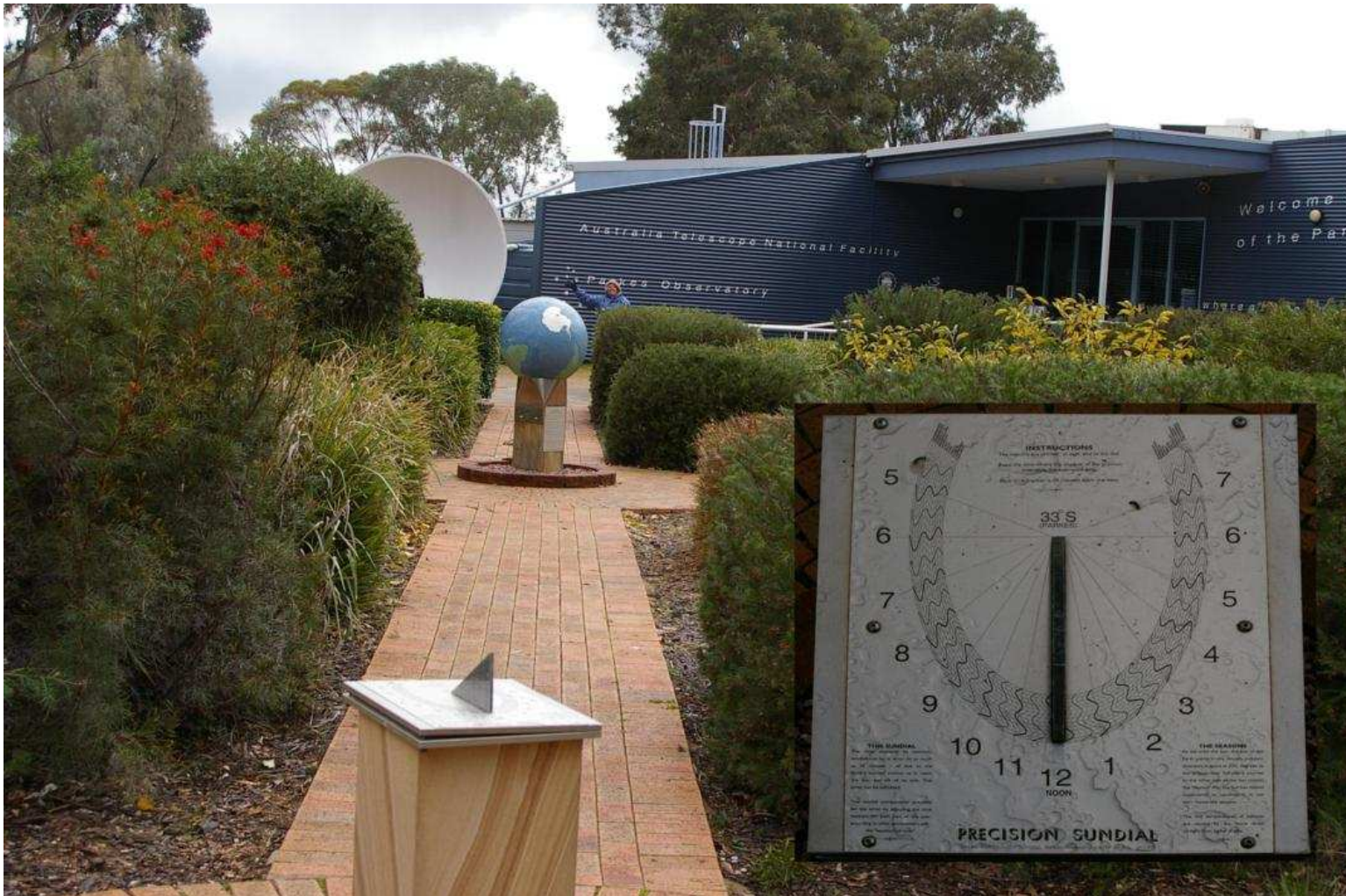
The apple trees growing in our gardens are direct descendents (scion) of an apple tree that stood in Sir Isaac Newton's garden in Lincolnshire, England, and which is reputed to be the tree from which fell the apple that helped Newton to formulate his theory of gravitation.

Around 1814 Newton's original tree was thought to be dying so some of the wood was taken, propagated and distributed around the world.

### History of Parkes Newton's apple trees

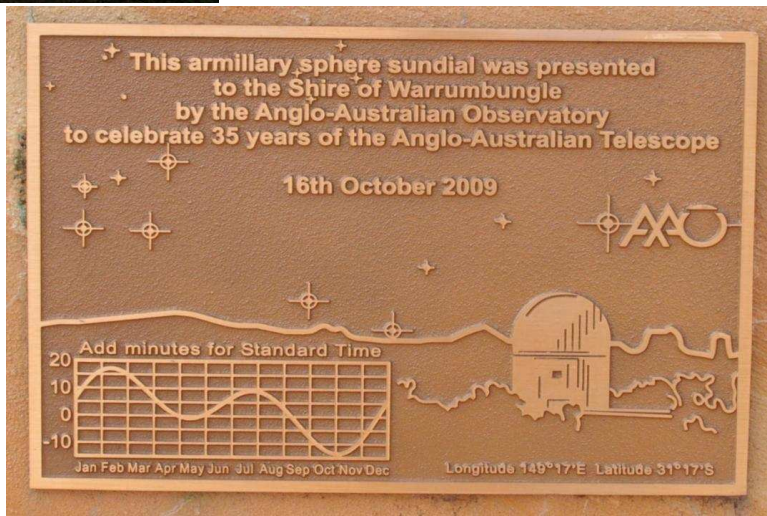
- 1960's Towards the end of the 60's the Vice Chancellor of Monash University, Melbourne, arranged for a cutting to be planted in the university's garden.
- 1977 Saw a cutting, taken from the tree at Monash, planted outside the CSIRO laboratory in Highett, Melbourne.
- 1990 Pat Naughtin, communications manager at CSIRO Wool Technology, took cuttings from the Highett tree and arranged for its progeny to be planted at the CSIRO laboratories in Geelong, the Parkes radio telescope in central west NSW and the Science Works museum in Melbourne.
- 1991 Ron Ekers, then Director of ATNF, planted the tree in the visitor centre gardens at the Parkes radio telescope at the 30th anniversary of the telescope celebrations.
- 2009 Department of Primary Industries Orange collected wood from Parkes apple tree which was in poor health. The collected wood was grafted to new apple trees to keep the lineage alive.
- 2010 Six of the grafted trees were planted on site, four in the front garden of the telescope's visitor centre and two in the side garden of the Astronomer Quarters.

**THIS GARDEN**  
Dedicated to budding scientists everywhere





So we decided to keep heading north to the Warrumbungle's where we made camp for the night in the nation park with the kangaroos. Only days before we left home, we made up an annex which attaches to the back of the car, which proved to be quick to setup and very comfortable. The next morning we did a quick visit to the Anglo Australian Telescope, where we found the telescope sit in the clouds. On the road up the mountain we seen miles of burnt out forest all the way up to the telescope it's self, we are all lucky the telescope survived last summers fires.



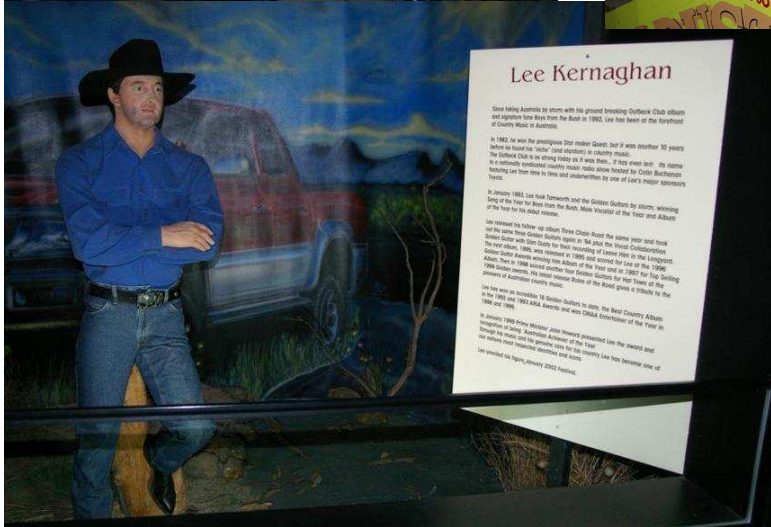
I'm always impressed by this telescope, how clean and shiny it looks. The air was very cold and with nothing to see but clouds from the viewing platform, we headed down the mountain to the town of Coonabarabran where we found a solid bronze armillary sundial which celebrated the telescope's 35 years of service back in 16th October 2009. The southern cross and pointers are marked on this plate, so I wondered if their position was relevant? So I punched the time, date and location into starry night, to find they would have been in this orientation at 2am.

A local artist has made the sculptures around the grounds of the telescope.





It was too cold their, so we travelled north to Tamworth were we found clear skies, stopping at the golden guitar were we wondered around looking at some country and western stars, instead of the stars in the sky.



Then on to split rock dam, were we set up the camera with a 10mm lens and camped for the night on the edge of the dam, under a very dark clear sky. In the morning we awake to find the dam hidden in fog and it was very cold. We were the only ones there except for some kangaroos. So it was time to move north wards again.

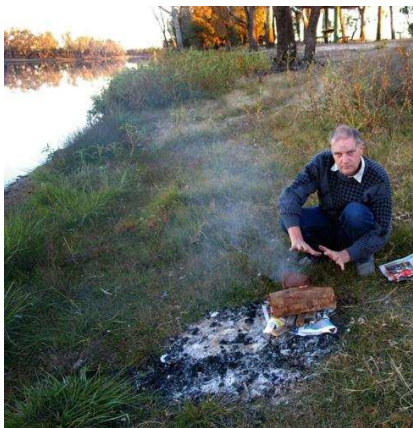
Split Rock Dam  
<https://vimeo.com/12225297>



Split Rock Dam 1 July 2014 by Greg Walton - What was that?



Next day we travelled over the border into sunny Queensland, where we stopped for the night at Caliguel Lagoon. There we set up the cameras and lit a camp fire under the stars. I have been looking for sometime, for a place like this, where the stars would reflect in the water. The cameras were set up facing the east, so we could image the milky way crossing the sky. Smoke from the camp fire also played in front of the cameras and cows wondered around on the opposite bank. Some four wheel drivers set up flood light, which lit up the trees till midnight. I am very happy with this time lapse video, one of my prettiest. See the time lapse video at Greg Walton on Vimeo/ Caliguel Lagoon



Hundreds of noisy Parrots woke us in the morning, so we recorded the sound and added it to the time lapse.

Caliguel Lagoon

<https://vimeo.com/104677786>







Still a bit too cold, so we continue to move northward to Rockhampton, where we were welcomed by a large bull. We stopped at the information centre to find another sundial with an interesting plate, telling us that we have arrived at the Tropic of Capricorn and how it got its name. But it was still cloudy so we continued north, hoping to once again see that elusive Sun.



## THE TROPIC OF CAPRICORN

LATITUDE  $23^{\circ} 27' 30''$  S



BECAUSE OF THE TILT OF  $23^{\circ} 27' 30''$  OF THE EARTH'S AXIS OF ROTATION TO ITS ORBITAL PATH, THE TROPIC OF CAPRICORN IS THE SOUTHERNMOST LATITUDE AT WHICH THE SUN REACHES THE ZENITH. THIS HAPPENS ONLY ONCE EACH YEAR ON THE SUMMER SOLSTICE (ABOUT 22ND DECEMBER).

CAPRICORNUS WAS, IN ROMAN MYTHOLOGY THE SEA GOAT INTO WHICH PAN WAS CHANGED TO ESCAPE FROM THE TERRIBLE GIANT TYPHON. IT IS ALSO THE NAME GIVEN TO THE CONSTELLATION RESEMBLING IT AND WHEN THE DECEMBER SOLSTICE WAS FIRST OBSERVED THE SUN WAS SITUATED IN THIS CONSTELLATION, HENCE THIS TROPIC WAS NAMED CAPRICORN

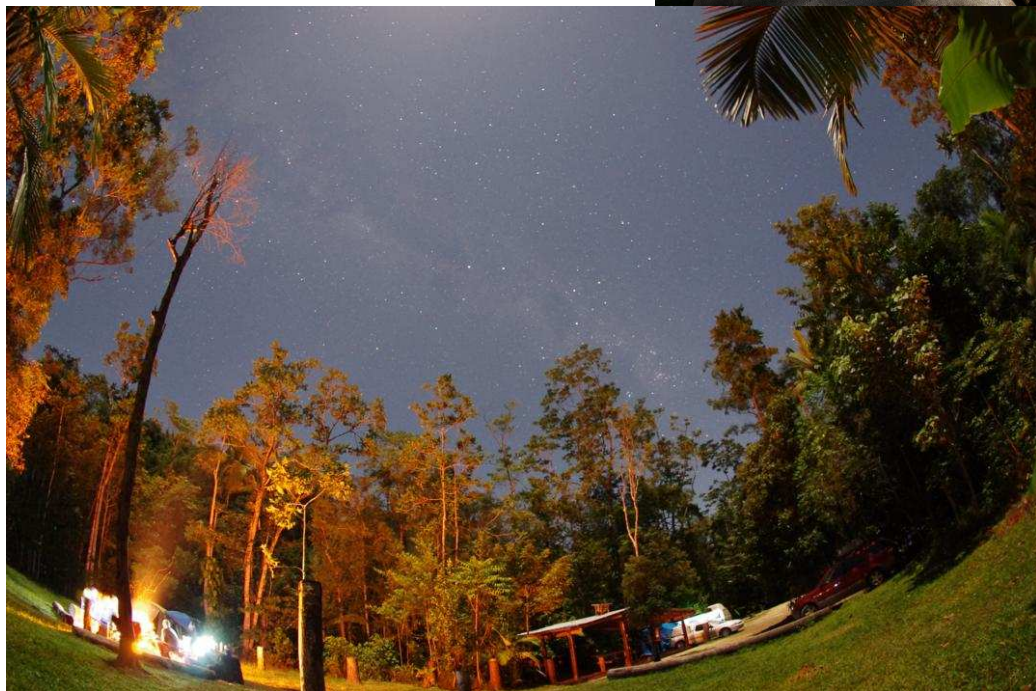
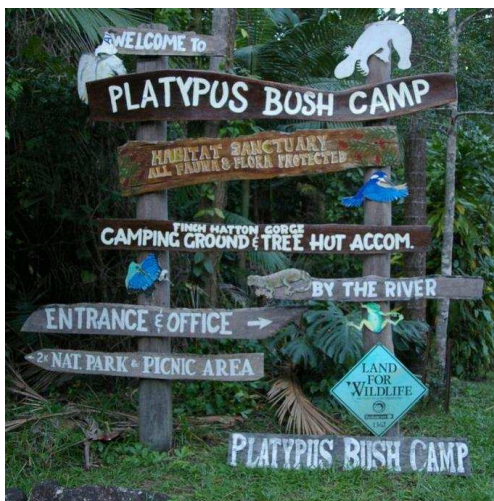
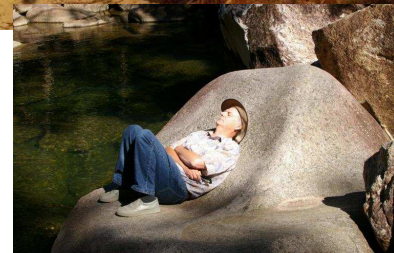


Clairview 200 km north and at last we found a sunny beach at Barra-Crab caravan park and a chance to do some time lapse photography of the night sky. I set up the camera on the beach to image the tide going out with the sky turning, the moon lit up the coconut palm till midnight and then the tide turned and started to come in once again. While this was all happening, Pia and I went to the bar at the caravan park and order the fish and chips, while listening to a local singer Keith Dunn how donates all the proceeds from the sale of his CDs to the fling doctors, he was quiet good so we bought the CD. See the time lapse Clairview 2014 <https://vimeo.com/119033927>



Then we went to Platypus Bush Camp near a place called Finch in central Queensland. There we found a small camp in the rain forest on the bank of a stony creek, where platypus swam and crystal clear water cascaded over countless water falls. All the shower had one wall missing which faced out on to the forest, not good for those who are a bit shy. The drinking water came straight from the creek and was said to be the best in all of Australia, so we filled all our water bottles.

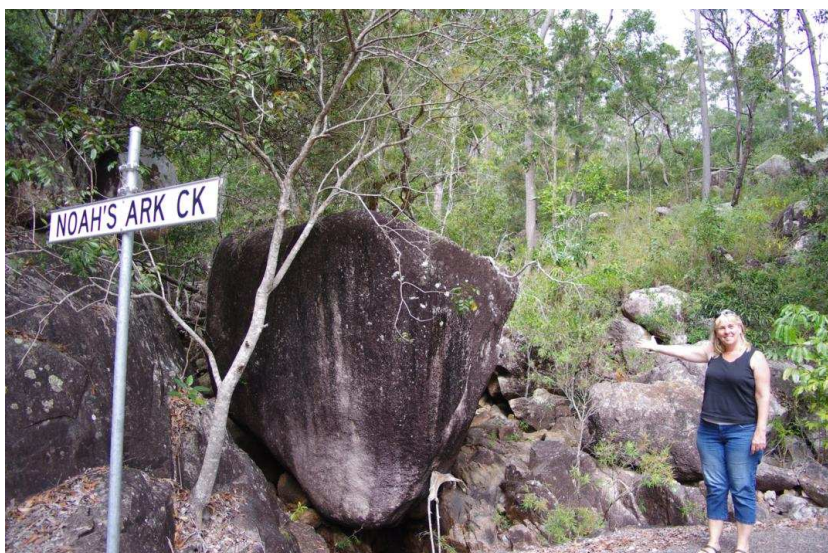
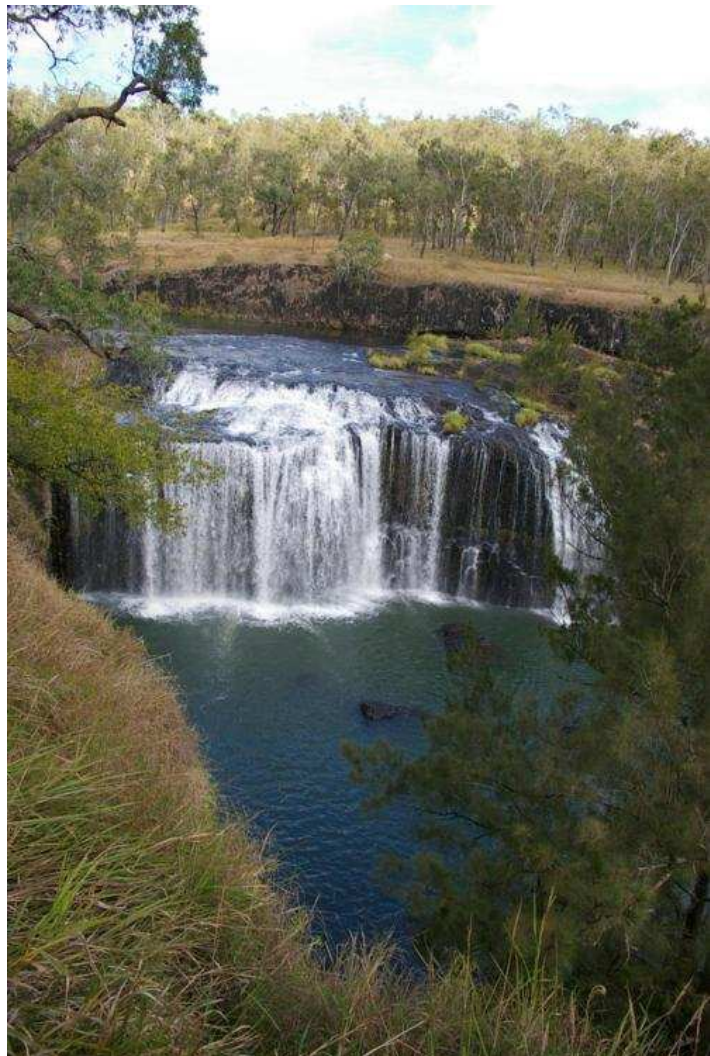
See the Video Platypus Bush Camp <https://vimeo.com/103576891>





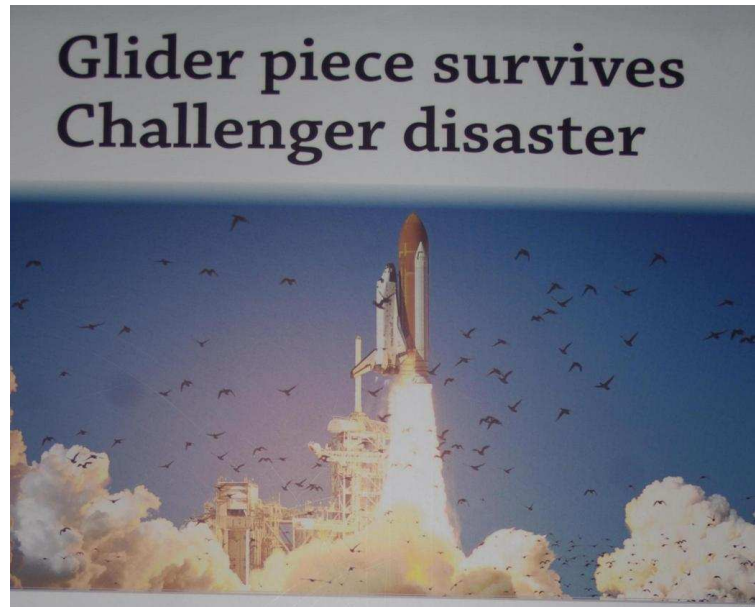


Far North Queensland coast is a very wet place, we found this sign post (top right) which showed how much rain falls there is at different place. The higher up the sign the greater the rain fall, Alice spring showed 200mm while Innisfail showed 3,500mm. When we seen a sign saying water fall, we went and investigated usually finding a water fall more impressive than the last. The Millaa Millaa Falls (above) was one of the best, along with Mill stream falls (right) There are too many interesting place too mention now, so I will save them for another time. We also passed many signs on the road, but this one (below) seemed to fit, Noah's Ark creek





While in Bundaberg we went to the rum factory and tasted there rocket fuel, then we went to the Bert Hinkler museum and found an interesting tale about a piece of wood that almost made it into space. Bert Hinkler was born in Bundaberg and as a young man had a passion for built aeroplanes, before he made a name for himself as the first person to flight his plane from England to Australia. The house he built in England now stands in front of the Bert Hinkler museum at Bundaberg along with his planes and many other artefacts. See the whole story at right.



# Glider piece survives Challenger disaster

ON 28 JANUARY 1986, the world watched in horror as the Space Shuttle "Challenger" disintegrated 73 seconds after taking off from NASA's Kennedy Space Center in Florida. News cameras, spectators and ground control staff watched in shock as debris - including the crew cabin - fell from the sky into the Atlantic Ocean. All seven astronauts on board were killed.

In the aftermath of the tragedy, search teams were sent to recover the wreckage - 15.3 tonnes of material was recovered in total. Pieces of debris were still washing up on the Florida shores eleven years later.

Miraculously, one of the items plucked from the sea was an original fragment of Bert Hinkler's 1912 glider. It was taken aloft by Commander Dick Scobee at the request of Tom Quinn, then Secretary of the Hinkler House Memorial Museum and Research Association.

Space shuttle Challenger lifts off from the Kennedy Space Centre on its ill-fated mission of 28 January 1986.

Hinkler had explored the bounds of flight and its possibilities. With NASA astronauts forging the new frontier of space, the precious fragment's trip into space was a fitting way to salute Bert's achievements.

The glider part was stowed in a plastic bag in Scobee's personal locker but somehow it escaped damage from the blast. The following year Dick Scobee's widow, Dr June Scobee, came to Bundaberg. On behalf of NASA she presented the mounted fragment to the citizens of Bundaberg.

It is on display here in the Hinkler Hall of Aviation as a proud, yet sad reminder of the risks taken by the pioneers of powered flight.

## Bert's spirit lives on

Widow of astronaut Dick Scobee, Dr June Scobee founded the Challenger Center for Space Science Education in memory of those who died in the Challenger. A classroom teacher and university professor, Dr Scobee promotes partnerships between schools and museums. She is a strong advocate for science and maths education with a particular emphasis on the role that flight and space play in our lives. Dr Scobee recognised that the spirit of Bert Hinkler lives on in the quest for space flight.



Dr June Scobee, when she visited Bundaberg in May 1987 to present the mounted fragment of the challenger to the local community.



The crew of Space Shuttle mission STS-51-L pose for their official portrait on November 15, 1985. In the back row from left to right: Ellison S. Onizuka, Sharon Christa McAuliffe, Greg Jarvis and Judy Resnik. In the front row from left to right: Michael J. Smith, Dick Scobee, and Ron McNair. Commander Scobee carried a fragment of Bert Hinkler's 1912 glider on board the Challenger.



# How to use a DSLR for **Time Lapse** Astrophotography in brief, *by Greg Walton*

**Camera Features** - High iso12800, Live-view, Interval timer or Continues shot mode, CMOS sensor, High definition video and 240v power supply.  
(2/3 sensor = a lighter camera & cheaper Lens with less coma)

**Camera settings** – Adjust view finder to suit your eyes, Switch to manual focus, High Quality Maximum, Highest mega-pixel setting, Noise reduction **ON** or Auto, Slow Shutter Speed Noise Reduction **Low Kx**. Image stabilization **OFF**, Extended iso mode **ON**, Reduce screen brightness to minimum, Turn screen off to save power & White balance set to **Cloud**.

**Seeing Red** - Most cameras have a built in Infrared Filter (IR), which will reduce the amount of red in your shots. This can be removed at a cost but invalidates warranty. (Pentax & some cheap Nikons have only a slight IR filter, which I would not remove.)

**Dew control will be needed on most nights** - Dew shields. Heat pack. Hair drier can work too. Dew strap heaters (\$50.00) & temperature controller (\$150.00) attached to a 12 volt car battery or 240 volt power supply (\$20.00)

**Find Focus** in the day light, Switch to Auto Focus and point the camera at a distance object. Push the shot button, once the camera has found focus, make a note of the position of the 00 marks or use white sticky tape to mark position. Switch on Live-view & zoom in on a star then adjust the focus ring till the star is small a possible.

**Powering the camera** - Best is to power the camera with a 240 volt power supply \$150.00 Second best is to power the camera with a 240 volt power supply, plugged into a 12 volt inverter attached to a car battery, which can also power the dew straps & second camera. But will only last 1 night. Third best is to use lithium Batteries like energizers, these are not affected by the cool & one set will run all night. Forth is the standard batteries that come with your cameras, but they will not keep the camera running all night, maybe only 2 or 3 hours. You will need to change the batteries maybe 4 times on a cool night and if you do not do it quickly you will have a jump in your time lapse movie.

**Which Lens** - Standard 18mm to 55mm F3.5 to F5.6 operates at higher iso meaning more noise & because it has a zoom function the star will be distorted in the corners.

**10mm Sigma** fish eye F2.8 is reliable easy to use, operates at lower iso setting meaning less noise. This lens also has a great deep a field & costs about \$600.00

**20mm Sigma** rector linear F1.7 works best at F2.8 not easy to focus, operates at lower iso meaning less noise. Once focus is achieved you can lock it & costs about \$600.00

**50mm Pentax** F1.7 works best at F2.2 at 3200 iso. Any lens longer than 50mm really needs to be mounted on some sort of tracking device.

**135mm Pentax** F3.5 can be used at a maximum exposure time is 5 seconds at iso 6400 before stars start to trail. This is a good lens for comet hunting.



Maximum exposure times without tracking	
Lens length	Seconds
10 to 20	30
50	15
100	7

Settings - NO Moon & NO city Lights		
F 1.7	1600 iso	30 sec
F 2.8	3200 iso	30 sec
F 4.5	6400 iso	30 sec

Settings - Full Moon or city Lights		
F 1.7	400 iso	30 sec
F 2.8	800 iso	30 sec
F 4.5	1600 iso	30 sec

Also see - Step by step DSLR for **Time Lapse** Astrophotography

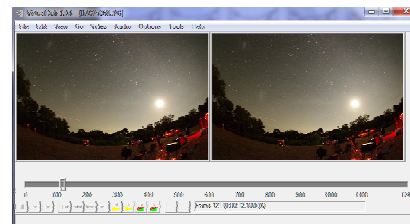


Step by step DSLR for **Time Lapse** Astrophotography, *Greg Walton*

1. Adjust view finder to suit your eyes
2. Set up camera & Lens on a tripod
3. Plug in 240 volt power supply
4. Plug in a remote shooting cable
5. Turn mode dial to **M** manual
6. Switch shake reduction to **OFF**
7. Set to highest megapixels
8. Set shooting to continues
9. Set white balance to cloud
10. Set quality to high \*\*\*
11. Set High ISO NR to AUTO (NR = Noise reduction)
12. Set Slow Shutter speed NR to Low or OFF
13. Set exposure time to 30 seconds
14. Set iso to 3200 (Extended iso mode ON)
15. Set F ratio to smallest it will go or F2.8
16. Set camera to manual focus
17. Turn screen off (Save batteries & reduce Temp)
18. Set Lens to maximum field of view (18mm)
19. Point camera to the sky
20. Focus the lens on a bright star or set to 00 mark
21. Switch ON live view & zoom in on a bright star
22. Focus the lens till star is small as possible
23. Lock focus ring or mark position with tape
24. Attach dew strap (take care not to change the focus)
25. Turn on dew controller set to 50%
26. Press the shot button & wait about 1 minute



27. Check image
28. If **OK** lock remote shot cable **ON**
29. Go to bed
30. In the morning remove SD card
31. Load images on to computer
32. Make a copy of all the images
33. Run soft ware Fotosizer
34. Resize all images to 25% high & Width
35. Run soft ware Virtual Dub



36. Drag first image to virtual Dub window
37. All images should load up automatically
38. right click zoom 33% both windows
39. Click on video & set frame rate to 25
40. Click on Audio then Audio from another file
41. Select your music MP3 or Wave file
42. Click on File then Save as AVI
43. then click save & wait for your new movie
44. Run soft ware Sony Vegas (Optional)
45. resize movie to smaller size (Optional)
46. Play your new time Lapse movie with VLC
47. UP load to Vimeo web site
48. Share with your friends

Lens	2/3 sensor 22mm x 15mm		Full frame 35mm x 22mm		Length and width are in degrees.	Mount
mm	Length	Width	Length	Width	Rough guide	
10	150	100	180	120	Half the sky	Tripod
18	80	50	100	70	Many constellations	Tripod
28	45	30	60	40	Large constellation	Tripod
50	27	18	37	24	Medium constellation	Tripod
80	16	11	22	17	Small constellation	Barn
135	10	7	14	10	Very small constellation	Barn
200	7	5	10	7	Large Star clusters	Barn
300	5	3.2	7	5	Pleiades M45	Barn
400	3.5	2.5	5	3	Eta Carina nebula	EQ6
800	2.3	1.2	3	2	Orion nebula	EQ6
1000	1.5	1	2	1.5	Globular clusters	EQ6
2000	0.7	0.5	1	0.7	Full diameter of the Moon	EQ6
12000	Very small	Very small	Very small	Very small	Planets	EQ6



Saturn slipping behind the Moon on the 4th of August 2014 by Alex Cherney imaged from LMDSS Heathcote Vic

The Moon with many interesting craters defiantly out shines Saturn



3 images below - I suppose there are lots of pictures around of last night's occultation... Here are a couple I took at Honeysuckles, for what it's worth...Cheers, Bruce Renowden :) Honeysuckles Observatory (open all hours)





SOCIETY INFORMATION



Peter Lowe



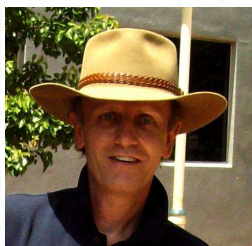
Dave Rolfe



Peter Skilton



Jamie Pole



Trevor Hand



Paula Ritchens



Clemens Unger



Greg Walton - Please send your articles & photos to [gwpmpas@gmail.com](mailto:gwpmpas@gmail.com)

## OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

**President:** Peter Lowe  
**Vice President:** David Rolfe,  
**Committee:** Trevor Hand, Fiona Murray, Greg Walton,  
 Paula Ritchens, Clemens Unger.  
**Phone Contact:** Peter Skilton - 0419 253 252

**Secretary:** Peter Skilton  
**Treasurer:** Jamie Pole  
**Web Master:** Steven Mohr  
**Scorpius Editor:** Greg Walton  
**Library:** Fiona Murray

## SOCIETY MEETINGS

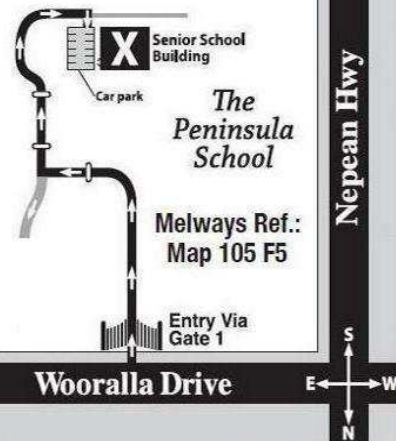
**Meeting Venue:** The Peninsula School,  
 Wooralla Drive, Mt. Eliza, (Melways ref. 105/F5)  
 in the Senior School at 8pm,  
 on the 3rd Wednesday of each month  
 (except December).  
 Entry is via the main gate, off Wooralla Drive.  
 (see map).

**For additional details:**

**Internet:** <http://www.mpas.asn.au>  
**email:** [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au)

**Phone:** 0419 253 252

**Mail:** P.O. Box 596, Frankston 3199, Victoria, Australia.



## LIBRARY

The Society also has books and videos for loan from it's library, made available on most members nights at The Briars site, contact Fiona Murray.

## E-SCORPIUS NEWSGROUP

M.P.A.S. main line of communication is the online newsgroup called E-Scorpius. Here you will be kept up to date with the latest M.P.A.S. news and event information as well as being able to join in discussions and ask questions with other members.

To join, go to: <http://groups.com/group/e-scorpius> and sign up to Yahoo groups - You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo groups, email [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au) saying that you want to join E-Scorpius and you will be added to the E-Scorpius list.

## VIEWING NIGHTS - MEMBERS ONLY

Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk.  
 Members visiting The Briars for the first time must contact Greg Walton on either **9776 2074** or **0415 172 503** if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building.

**For additional details:**

**Internet:** <http://www.mpas.asn.au>  
**email:** [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au)

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