Springfield Telescope in the MPAS observatory, *by Greg Walton*
See slide show of the building of the MPAS observatory
MPAS Observatory https://vimeo.com/164222541

SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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Volume XXV, No 4 (July / August) 2016

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.

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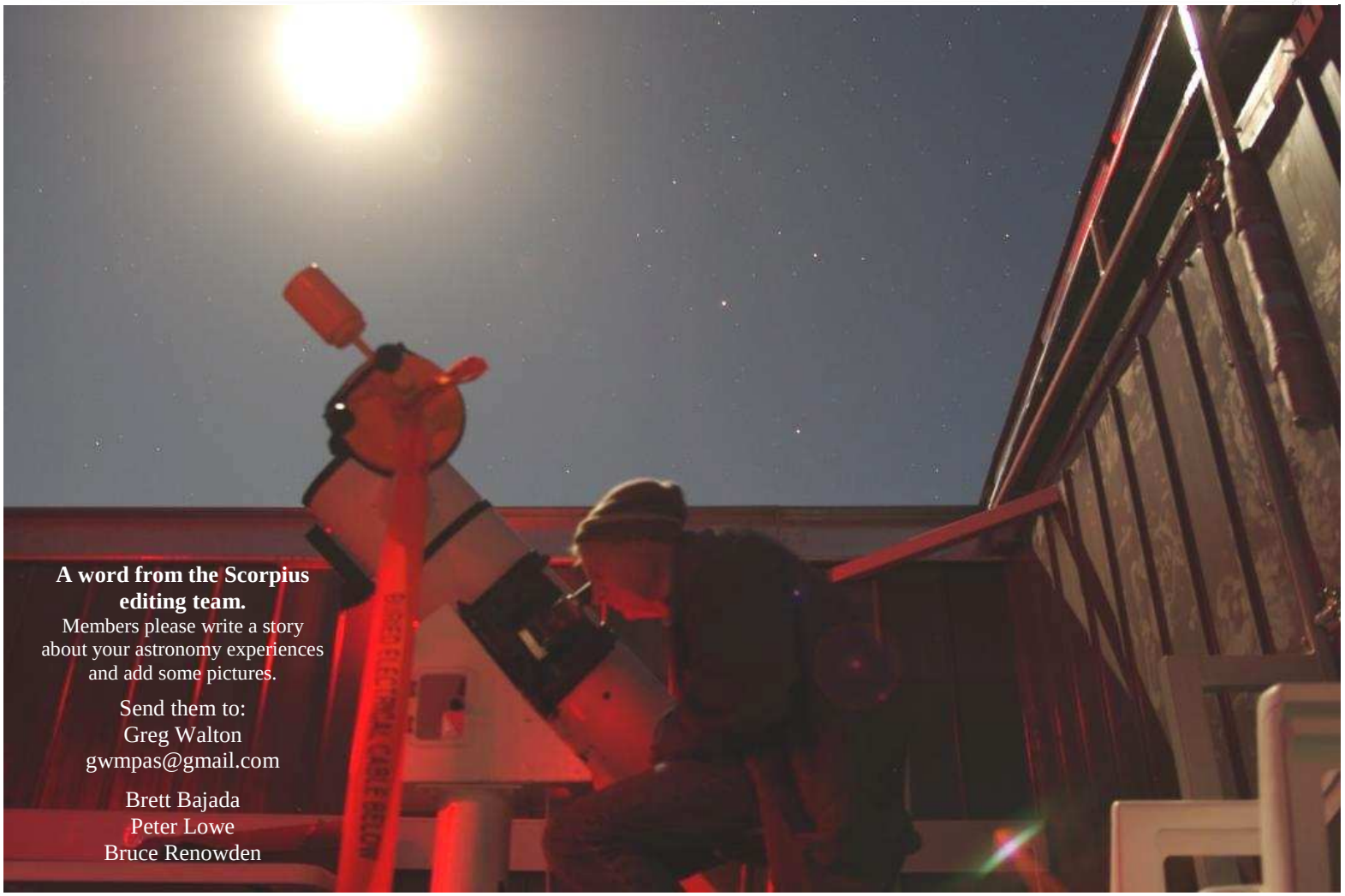


A word from the Scorpius editing team.
Members please write a story about your astronomy experiences and add some pictures.

Send them to:
Greg Walton
gwmpas@gmail.com

Brett Bajada
Peter Lowe
Bruce Renowden

SCORPIUS **The journal of the Mornington Peninsula Astronomical Society**

Newsletter Disclaimer

Society News

By Greg Walton

May public night - While I was gone we had a very successful Public Viewing night with about 120 people in attendance. The night was well supported by an excellent array of volunteers and on behalf of the committee, Dave Rolf and Paul Albers would like to give a special thanks to those volunteers – "We couldn't have done so well without you". Sorry I missed this occasion as I was at the SPSP. I was told by members it was a very busy night with many people piling through the new observatory to get a look at the planets. At one time there was no room for people to move in the observatory. Once the observatory it fully operational we will need to somehow manage the numbers. Hopefully all members of the public had a great time. *Greg Walton*

May Society Meeting - 22 members were in attendance. Dave Rolfe (President) chaired the meeting & updated members on recent events including the announcement that the society has purchased a new Meade 14inch F10 Cassegrain telescope, to go on the EQ8 mount & an Explore Science 120mm triplet refractor telescope, to go on the EQ6 mount. Dave also showed images from the South Pacific Star Party & updated members on recent space discoveries (...more than 1,200 new planets found around nearby stars). Paul Albers, talked on the up & coming astrophotography workshop & discussions he had with the Briars management about the removal of the large tree in the centre of the viewing field. We are still waiting for final decision. Our speaker of the night was Peter Lowe, talking on the history of Astronomy on the Mornington Peninsula, Part 1.... Greg Walton did "sky for the month" and showed a time lapse taken from the recent South Pacific Star Party. We held the usual one dollar raffle, after which Members chatted over coffee. *Greg Walton*

Briars History day 21st May - Starting at 10am with Briars staff taking small groups on a walk around the Briars looking at the homestead & other old buildings. This was on the same day as the MPAS members BBQ, so a small band of members opened the MPAS site to the public. About 20 people wandered around looking at the observatory & telescopes. We also had 2 solar telescopes running but the clouds limited their use. Briars https://www.facebook.com/The-Briars-1455288608065399/

May members BBQ - about 30 members in attendance. Many members showed up early to help with some jobs around the site, Roland did the mowing, while I whipper snipped around the concrete pads & trees. Heather & family re-organized the library & removed doors from the library cupboard. We thought if members can see the books they may wish to use them? Dave Rolfe & I moved the Springfield telescope 1/2 metre away from the back wall of the observatory. We also fitted a tube rotator to the 8 inch EQ telescope... This will make it easier to reach the eyepiece, which is always a problem with this type of telescope. At 5pm Greg Gibbon & Jamie Pole fired up the BBQ while others set up the tables & chairs. It was good to see so many new members using the telescopes in the observatory, Mars showed some dark patches & Saturn's cloud belt could also be seen. Jupiter looked stunning in the Springfield telescope. A very successful night ending after 11:00pm when clouds started to roll in.

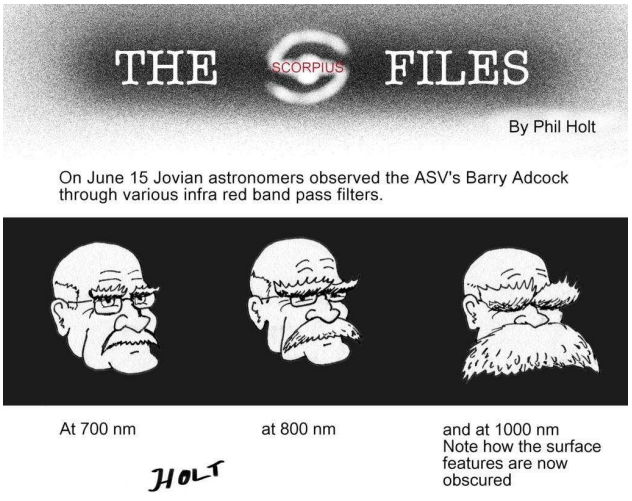
June public night - With it drizzling throughout Friday night at The Briars, the public night still had 91 stalwart visitors in attendance along about a dozen or more members. Goes to show that a bit of water in the air never dampens hope for looking through a telescope! … And meant all the chairs had to be put out. Trevor Hand gave a Saturn talk, with preamble by David Rolfe and Peter Lowe with the meteorite. The new online pre-booking/pre-payment system was tried for the first time and seems to be a success, with nearly half having booked via that mechanism this month. On the door were Christopher and Peter Skilton, and helping with other tasks were Mark Stephens, Simon Hamm, Jamie Pole, John & Marg Cleverdon, Paul Albers, Fred Crump, Greg Walton, Rod Brackenridge, Fiona Murray and possibly others who might have forgotten to sign the log book or whom I may have missed. Regards, *Peter Skilton*

Some early arrivals got to see Jupiter & Mars through holes in the clouds, but it did not last. There was a steady stream of people looking at the observatory & asking questions. It was all over by 10:30 meaning an early for us. *Greg Walton*

June 11th YMCA group - The viewing evening for the 50 or so YMCA children, mostly aged around 8-14 years old, proceeded last night at Camp Manyung. The viewing started early outside on the field, ahead of threatening weather, with the kids attending in two waves. There were large repeated holes in the cloud that was quite fast moving, enabling good views of Jupiter and four moons and a couple of dark bands, Saturn and its easily discernible rings plus Titan, Mars and of course a nearly first quarter Moon for everyone. But between the holes was light drizzle with which to content. Nevertheless, everyone had a good evening just before the drizzle really set in about 8:30pm, by which time the telescopes were packed away and the field cleared. The kids then went inside out of the cool and then drizzling conditions to hear the talk by Peter Lowe. Outside in the field with instruments set up were Mark Stephens, Jamie Pole, Peter and Chris Skilton, and Greg Walton. Regards, *Peter Skilton*

June Society Meeting - 27 members were in attendance. Dave Rolfe (President) chaired the meeting & updated members on recent events at MPAS, also showing latest space news photos & videos. Our speaker of the night was ASV member & past ASV president, Barry Adcock, talking on imaging the planets with filters. Showing many images of the planets taken with different coloured, infra red & ultra violet filters, many details on the planets can only be seen by using a particular filter. Also explaining how the focusing point changed with different filters when used with a refractor telescope. Greg Walton did "sky for the month", showed photos from Melbourne Museum, Jurassic World & Meteorite display. We held the usual one dollar raffle, after which Members chatted over coffee. *Greg Walton*

June Members BBQ - I seen only 10 members signed the attendance book. The sky was mostly cloudy with only the odd clear patch, the observatory was open & good views of the planets were obtained. One of the advantages of have an observatory, usually by the time you set up a telescope it clouds over.



MPAS received its official world record certificate from the **Guinness World Record**

The certificate is in the glass cabinet under the projection screen in the big shed.

MPAS world record on Face book https://www.facebook.com/events/1441413982829810/

Winter Astronomy Lectures.

Start Thursday June16th @8pm at the Briars Astronomy Centre. The format will be a lecture followed by discussion (Q&A) and if weather and time permits time at the telescopes. The series title is "Life, The Universe and Everything in Four Easy Lessons" This first session is called "How the Universe Works" A fascinating story, I can't wait to tell it. (NO mathematics I promise) Tea, coffee and biscuits are provided. Hope to see you there.
Cheers, *Peter Lowe*

The other sessions are
14th July "How Stars Work"
11th Aug "How Planets Work"
15th Sept "Life and the Unique Earth"

PUBLIC NIGHT THANK-YOU

Recent public viewing nights and school viewing nights have continued 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.

Under the Society regulations the Annual Society Meeting elections are to be held in November.

If you feel you would like to get involved in the society business or have a particular skill you think would be useful to the society as a whole pleases give some thought to becoming a Office Bearer or committee member.

The Annual General Meeting will be held on Wednesday, 20th of July 2016. In this edition of Scorpius there is a 'Committee Election Form' that can be used for the submission of nominations for the next committee. This can be posted to MPAS. PO Box 596, Frankston 3199. Alternatively nominations can also be submitted electronically to welcome@mpas.asn.au by stating which position on the committee you would like to nominate for.

Mornington Peninsula Astronomical Society Inc.
ANNUAL SOCIETY MEETING ELECTIONS

Nominee: _____
Proposer: _____
Seconder: _____
} Must be current financial members

Position: (tick 1 or more*)
Office Bearers: ☐ President ☐ Vice President ☐ Treasurer ☐ Secretary
Ordinaries: ☐ Ordinary Committee Member (5 of these)

Acceptance Signature of Nominee: _____

Submit 1 day prior to the Annual General Meeting. *Post to M.P.A.S., PO Box 596, Frankston, VIC. 3199.*

** Note : (1) That one person cannot nominate for multiple Office Bearer positions. (2) The committee is responsible for the development and operation of the society according to the MPAS Constitution.To support this, all committee members are expected to take responsibility for some aspect of society business*

New Members Welcome

Frank Hunnekens and family.

Phillip Milligan.

Christopher Brierley and family.

Juliette Merckens and family.

Hiromi and Joseph Edwards and family.

2016 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 2016 fees are still the same as last year's prices.
So to assist the society in maintaining the facilities and service we provide, we appreciate your prompt payment for the 2016-year ahead.
As a reminder, the following structure of the fees are:

SOCIETY FEES

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

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.

New MPAS Membership Fee Structure

We are establishing new membership and renewal guidelines for the MPAS to streamline our process. The main change will be that memberships are for the duration of the calendar year, as apposed to 12 months from the anniversary of signup. We acknowledge during 2016 some members may be disadvantaged for which we regret, but to improve our society this is unavoidable.
The new structure will be as follows;
(1) Payment before End of March, 100% category fee will be for current calendar year.
(2) Payment from 1st of April to End of September 50% fee for the remained of year. (pro-rata period)
(3) Payment after 1st of October, 100% fee will be for following calendar year.
From next year all society fees will be due at the end of the year making the renewal process more streamlined and efficient.
The 5 Year membership option will also be adjusted for the end of year date with June 30 being the cut-off.

CALENDAR July / 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31					1 **Public Night 8pm**	2 Comet Panstarrs 1 deg SE NGC6204 Aldebaran 0.4deg Moon
3	4 **New Moon**	5	6 Comet Tempel 1 0.2 deg SE Globular NGC4666	7	8 Pluto at opposition	9 Jupiter 1deg North of the Moon
10	11	12 **First Quarter**	13 ASV Meeting Moon 404,269km	**Astro Class** 14 Mars right of the Moon	15 Mars above the Moon	16 Saturn above Moon
17 **Mercury 1deg M44**	18	19	20 AGM Society Meeting 8pm **Full Moon**	21	22	23 Members Night BBQ 6pm Neptune 1deg S of Moon
24	25	26 **Uranus 3degs N of Moon**	27 Committee Meeting 8pm **Last Quarter**	28	29 Aldebaran 0.3 deg from the Moon	30

Monthly Events & High Lights. - **Red Days** indicates School Holidays
Public nights 1st, 8pm start - **Society Meeting** at 8pm on 20th @ the Peninsula School
Members Night BBQ 6pm at the Briars 23rd - **Astro Class** at 8pm @ the Briars 14th *by Peter Lowe*
Evening - Comet Panstarrs 1 deg SE NGC6204 on the 2nd
Evening - Comet Tempel 1 0.2 deg SE Globular NGC4666 on the 6th

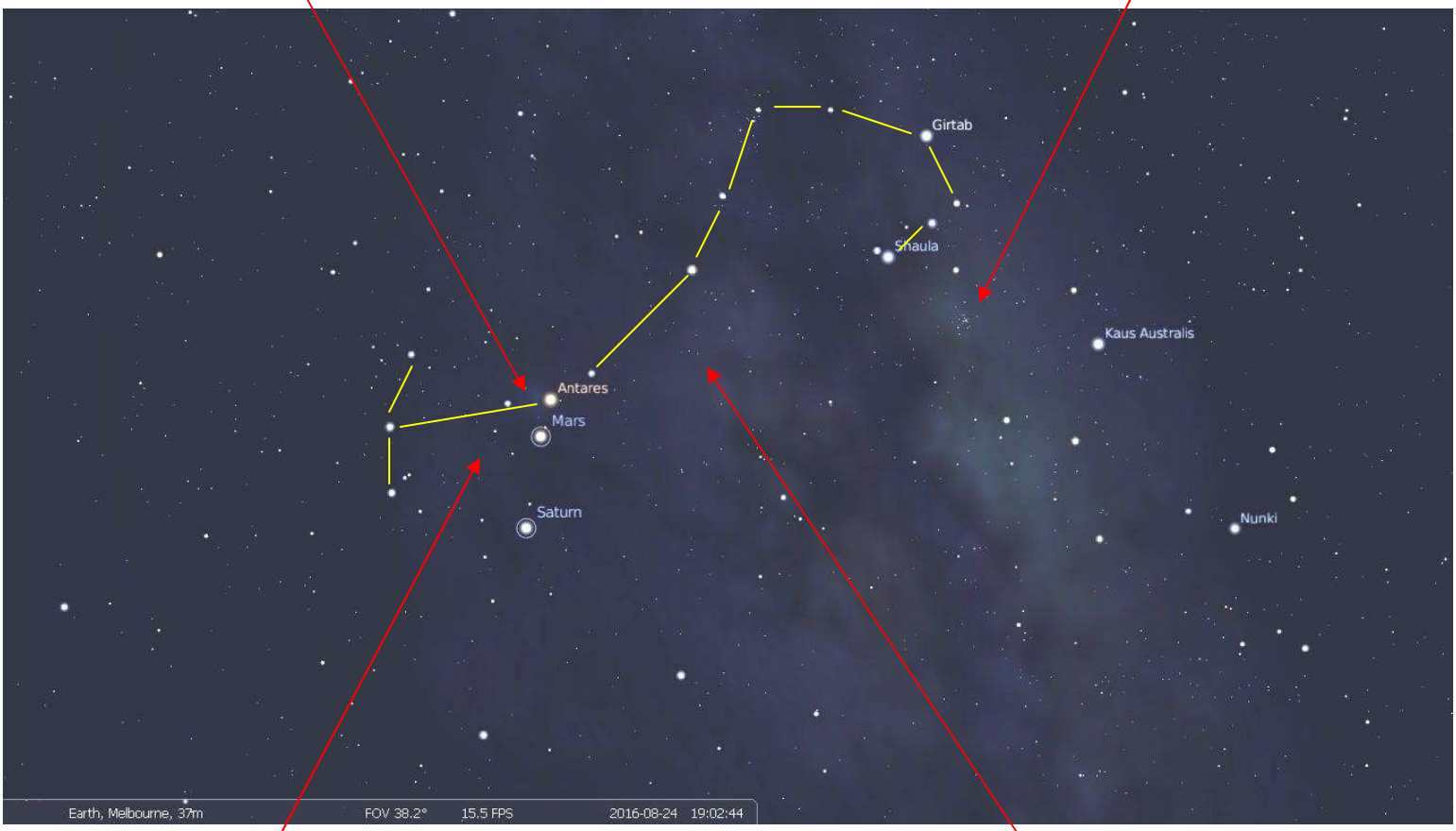
CALENDAR August / 2016

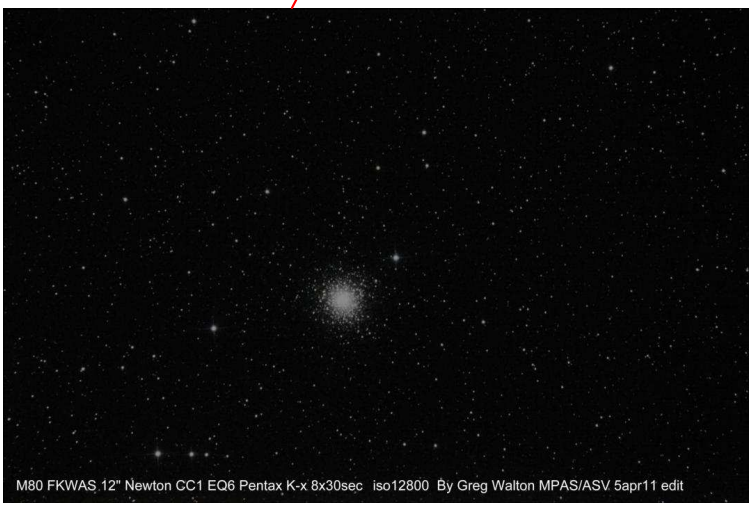
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 **New Moon**	4 Venus below the Moon	**Public Night** 5 **8pm** Mercury below the Moon	6 Jupiter below the Moon
7	8	9	10 ASV Meeting	**Astro Class** 11 **First Quarter**	12 Saturn above the Moon	13
14	15	16 Comet Wild-2 0.8 deg's NE of Jupiter	17 Society Meeting 8pm	18 **Full Moon**	19 Neptune 1deg South of the Moon	20 Members Night BBQ 6pm
21 **Scorpius Deadline**	22 Uranus 3 degs N of the Moon	23	24 Committee Meeting 8pm Mars 1.8 deg from Antares also Saturn below	25 **Last Quarter**	26 Saturn & Mars 4 deg's apart	27 Jupiter, Venus & Mercury close
28 Jupiter & Venus 0.07 deg's apart Mercury close by	29	30	31 Mercury above Regulus			

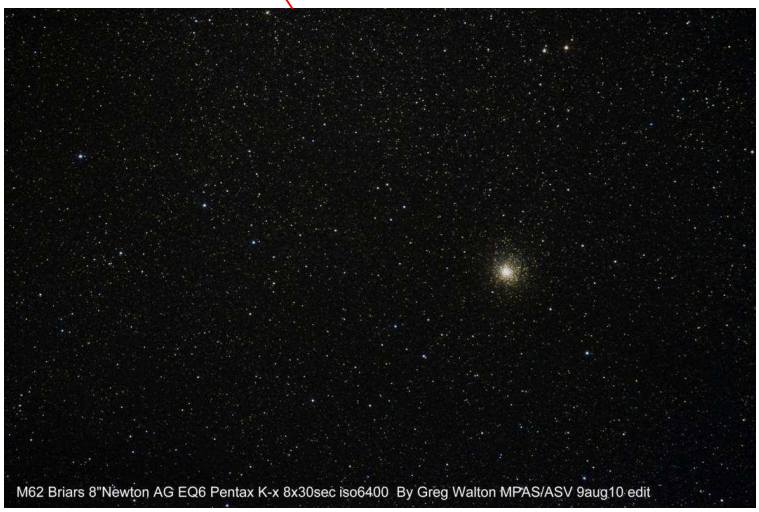
Monthly Events & High Lights. - **Watch out for Auroras**
Public nights 5th 8pm start - **Society Meeting** at 8pm on 17th @ the Peninsula School
Members Night BBQ 6pm at the Briars 20th - **Astro Class** at 8pm @ the Briars 11th *by Peter Lowe*
Evening - Comet Wild 2 0.8 deg's NE of Jupiter
Evening - Jupiter & Venus 0.07 deg's apart Mercury close by on the 28th

Note: This year 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.

Sky for July/August we will look at Scorpius, as around the 25th of August - Antares, Mars & Saturn will be in a line. The star Antares has an orange colour & sometimes can by mistaken for Mars. This is the best time to view Scorpius as it's directly overhead & there are many easy to find messier objects. You can use the chart below to help guide you to the location of these objects, M4 globular cluster, M7 open cluster, M80 globular cluster & M62 globular cluster.





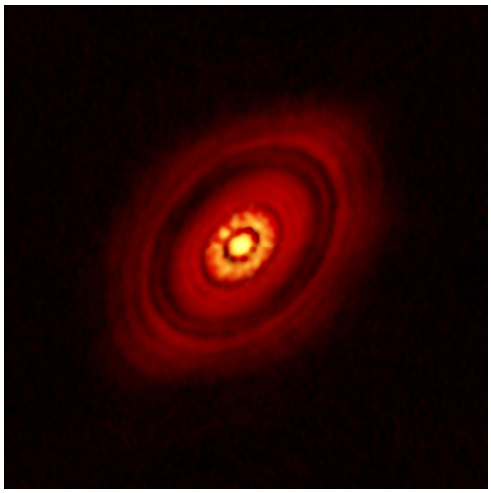


Produced on Stellarium *by Greg Walton* You can download Stellarium for free @ http://www.stellarium.org/

ASTRO NEWS

By Peter Lowe

VLA/ALMA shows Earliest Stages of Planet Formation



Using the Atacama Large Millimeter/submillimeter Array (ALMA) astronomers have observed in unprecedented detail the inner portion of a dusty disc surrounding the star, some 450 light-years from Earth. The images of the young star reveal what scientists think may be the very earliest stages in the formation of planets. The array has produced what astronomers believe is the best image ever of planet formation in progress. The ALMA image showed gaps in the disc, presumably caused by planet-like bodies sweeping out the dust along their orbits confirming what theorists had long proposed. The gaps are surprising because the star, called HL Tau, is only about a million years old - very young by stellar standards and planet formation was not expected on such a short time scale. The ALMA image showed details of the system in the outer portions of the disc, but in the inner region nearest to the young star, the thicker dust is opaque to the short radio wavelengths so astronomers turned to the VLA, which receives longer wavelengths. Their VLA images show a distinct clump of dust in the inner region of the disc. The clumps contain roughly 3 to 8 times the mass of the Earth and are believed to represent the earliest stage in the formation of protoplanets. Analysis of the VLA data indicates the inner region of the disc contains grains as large as one centimetre in diameter. This region is presumably where rocky planets would form, as clumps of dust grow by pulling in material from their surroundings. Eventually the clumps would gather enough mass to form solid bodies that would continue to grow into planets.

Pluto Not a Dusty Environment

A student built instrument designed to count dust particle impacts as the New Horizons spacecraft flew past Pluto last July is helping scientists better understand the evolution of the solar system. The instrument riding on the spacecraft found only a handful of dust grains as it transited the Plutoian system. Data indicates the environment around Pluto and its moons contained only about five dust particles per cubic kilometre, essentially empty space. Planetary processes have long since removed any debris produced when Pluto's moons were captured or created during impacts. The instrument logged thousands of dust grain hits over the spacecraft's nine-year journey to Pluto while the other instruments slept. There appears to be a slow but steady increase in the impact rate of larger particles, possibly suggesting the spacecraft has already entered the inner edge of the Kuiper Belt. The CU-Boulder dust counter is a thin film resting on a honeycombed aluminium structure the size of a small cake mounted on the spacecraft's exterior. Electronics assess each individual dust particle strike allowing the students to infer the mass of each particle. These are the first direct measurements within the Kuiper Zone.

Repeating Mysterious Cosmic Radio Bursts found

Using the 305-m Arecibo radio telescope astronomers for the first time have detected repeating short bursts of radio waves from a source likely located well beyond our Milky Way galaxy. The findings indicate that these "fast radio bursts" come from an extremely powerful object, which occasionally produces multiple bursts in less than a minute. Prior to this discovery all previously detected fast radio bursts (FRBs) appeared to be one-off events and most theories about their origin have involved cataclysmic events destroying their source - a star exploding in a supernova, for example, or a neutron star collapsing into a black hole. The new findings show that at least some FRBs have other origins. FRBs, which last just a few thousandths of a second, have puzzled scientists since they were first reported nearly a decade ago. Despite extensive follow-up efforts, astronomers until now have searched in vain for repeat bursts. The new data,

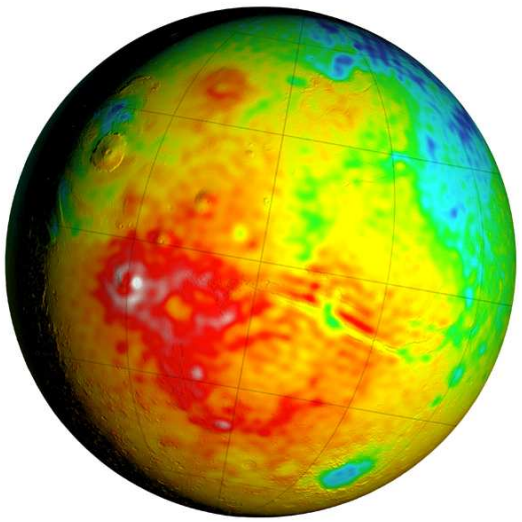
gathered in May and June then run through a supercomputer at the McGill High Performance Computing Centre showed several bursts with properties consistent with those of an FRB detected in 2012.

In all 10 new bursts were detected. The finding suggests that these bursts must have come from a very exotic object, such as a rotating neutron star having unprecedented power enabling the emission of extremely bright pulses or possibly represent the first discovery of a sub-class of the cosmic fast-radio-burst population. Scientists believe the pulses originate from distant galaxies, based on the measurement of an effect known as plasma dispersion. Pulses that travel through the cosmos are distinguished from man-made interference by the influence of interstellar electrons, which cause radio waves to travel more slowly at lower radio frequencies. The 10 newly discovered bursts have three times the maximum dispersion measure than would be expected from a source within the Milky Way. Work is continuing to identify the originating galaxy using radio interferometry.

Monster Martian Volcanoes

Early Mars had a problem. Like the other rocky planets its origin was a baptism by fire created by incessant meteor bombardment and planetary heating as its core differentiated. This made Mars a very volcanic place but Mars is a small planet, which means in proportion to its size it has gigantic volcanoes. The largest volcanoes known in the solar system are on Mars. One volcano on Mars, half the size of France, spewed so much lava 3.5 billion years ago that the weight displaced the Red Planet's outer layers, according to a study of the planet. Mars' original north and south poles are no longer where they once were. The findings explain the unexpected location of dry riverbeds and underground reservoirs of water ice, as well as other Martian mysteries that have long perplexed scientists. The volcanic upheaval, which lasted a couple of hundred million years, tilted the surface of Mars 20 to 25 degrees, according to the study. The lava flow created a plateau called the Tharsis dome more than 5,000 square kilometres wide and 12 km thick on a planet half the diameter of Earth. This outcropping upward of a billion, billion tonnes in weight was so huge it caused Mars' top two layers, the crust and the mantle, to swivel around, like the skin and flesh on a cherry shifting in relation to its pip. A 2010 theoretical study showed that if the Tharsis dome were removed from Mars, the planet would shift on its axis. Mars shifted it poles to a new equilibrium position such that the Tharsis dome is situated on the “new” equator. The geology and hydrology of Martian history is partly explained by this shift but other mysteries are still to be explained.

New Martian Gravity Map



As satellites orbit the planet their orbital path undergoes slight perturbations due to the gravitations tugs of underground mass variations. By monitoring these perturbations scientists are able to map the internal mass distributions of the planet. A new map of Mars’ surface gravity made with three NASA spacecraft has provided the most detailed glimpse to date into the red planet’s hidden interior. The Mars map shows variations in thickness of the planet's crust, the relatively thin surface layer overlying the mantle of the planet. The improved resolution of the new gravity map suggests a new explanation for how some features formed across the boundary that divides the relatively smooth northern lowlands from heavily cratered southern highlands. It also confirms that Mars has a liquid outer core of molten rock. Finally, by observing how Mars’ gravity changed over the period of an entire cycle of solar activity (11 years) the mass of carbon dioxide that freezes out of the atmosphere during the Martian winter has been inferred. When one hemisphere experiences winter, approximately 3 to 4 trillion tons of carbon dioxide freezes out of the atmosphere onto the northern and southern polar caps, respectively. This is about 12 to 16 percent of the mass of the entire Martian atmosphere. NASA’s Viking missions first observed this massive seasonal precipitation of carbon dioxide. The gravity field was recovered using about 16 years of data continuously collected from satellites orbiting Mars. The new map shows gravity anomalies as small as 100 kilometres across, and the crustal thickness of Mars with a resolution of almost 120km

The MPAS Briars site is still a reasonably dark site when looking at the image below.

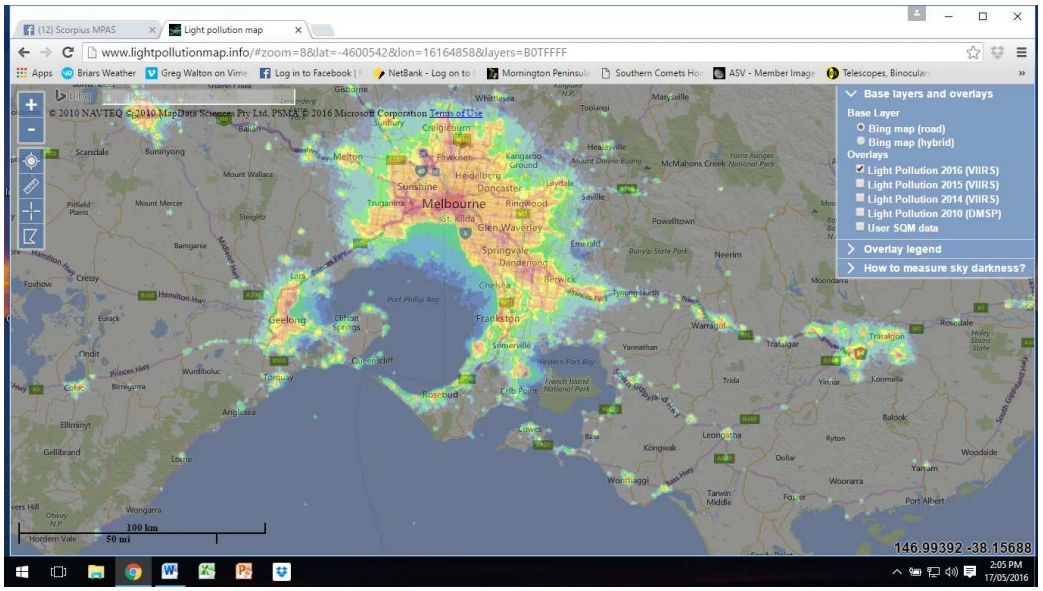
You can check your viewing condition at this web site below, just click on the link below

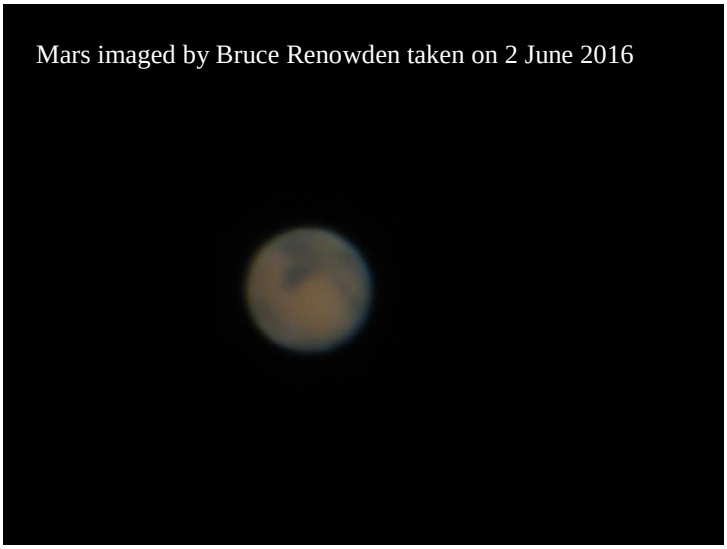
Light Pollution Map http://www.lightpollutionmap.info/#zoom=8&lat=-4600542&lon=16164858&layers=B0TFFFF

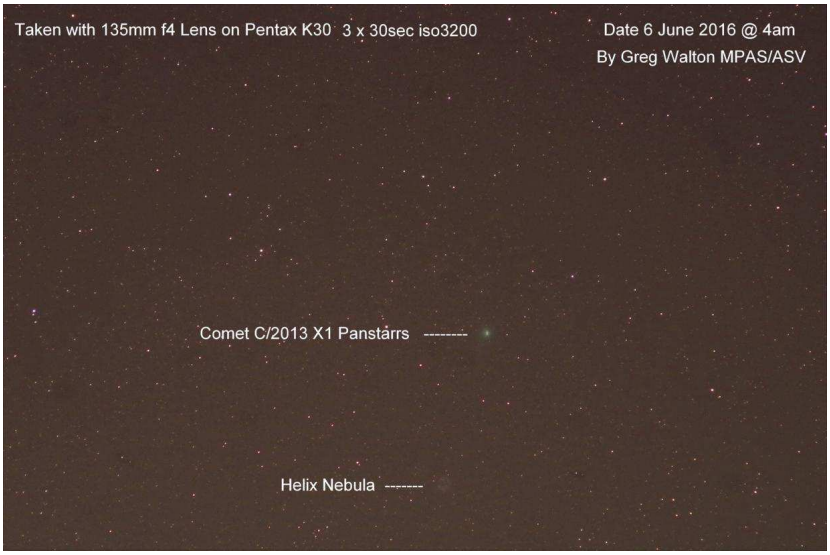
Mars drawn on 2 June 2016 By Greg Walton

Drawing above is the orientation as seen in the eyepiece in my 12 inch Dobsonian. The seeing aloud me to use 200 times magnification. By Greg Walton

Below - image of Mars on the same night by Bruce Renowden







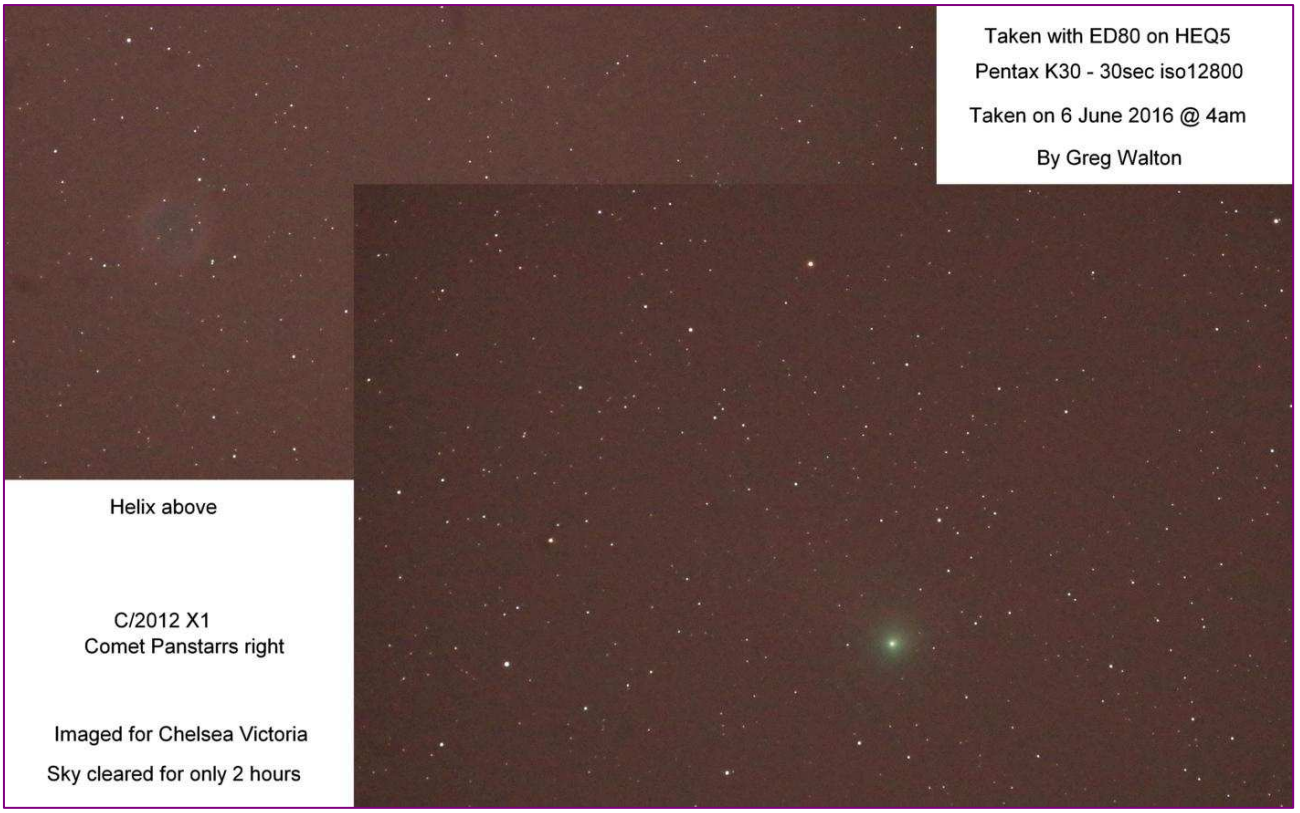
Images of Comet Panstarrs & Helix nebula. These images were taken the day after when there were to be at they closest, as the night before was totally clouded out.

Right - I had to join 2 images from the ED80 telescope to show how close they were.

Right centre - taken with 135mm lens

Not bad considering these images were taken from my light polluted back yard in Chelsea. Also it only came clear for 2 hours that night & the comet was visible in my 7 x 50mm binoculars.

By *Greg Walton*



A long time ago on a hill in a distant paddock, lays a mound of rubbish, a meeting place for star worshipers & people looking for answers & the beginning of the MPAS observatory.

Yes the photo below is the MPAS Briars site before we moved in & made it our home. The photo was taken from about were the new observatory is being built. The old buildings in the photo were moved to the left & recycled into the Briars camp. The tree in the centre of the photo is where the big shed is now. The dead tree at left was removed by the council 15 years ago. The small tree with the bent trunk is still there in the middle of the MPAS site & has grown more than double in size. The healthy tree left of the tree with bent trunk was struck by lightning & died 15 years ago. Its rotten trunk fell over last year & MPAS members had a working bee to clean the mess up. Also you will notice there is no Eco house or Council Nursery in sight.

Photo *by Peter Lowe*

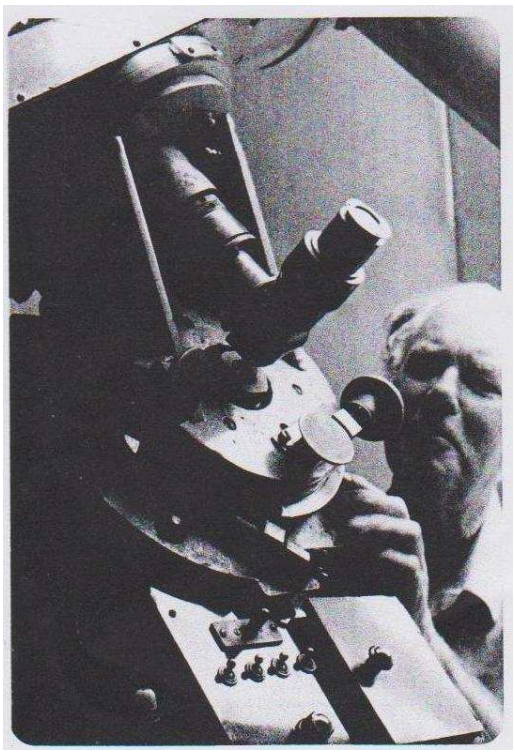
Photo *by Greg Walton*

Above - A recent photo taken from the same spot as the photo at top of the page. It all looks very different now, the trees on the other side of the fence at left are 3 times as high & the trees that members planted 15 years ago are 5 meters tall. The grass has turned into lawn with the monthly mowing. MPAS has certainly come along way in the last 20 plus years.
It will be interesting the see MPAS in the next 20 years & hopefully see the same level of commitment be MPAS members.

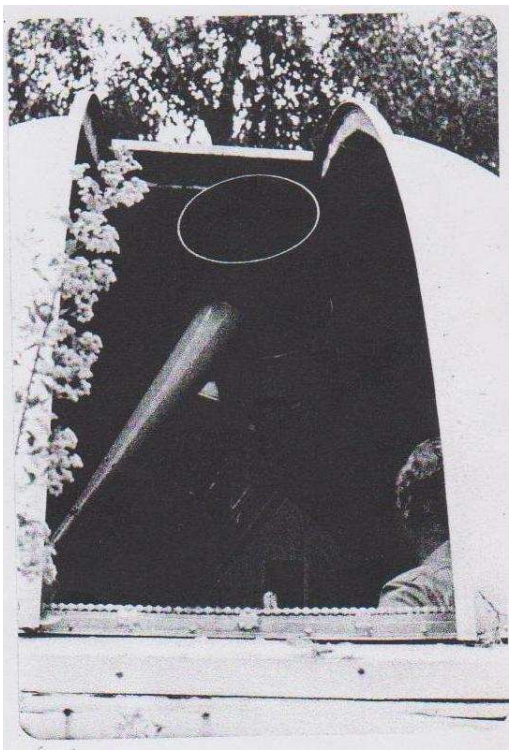
Photo Below Left - from May 2005... Yes, a bit of a mess! This muddy hole is where the big shed sits now.

Photo Below right - Past observatory built by the Astronomical Society of Frankston, at the Peninsula School in 1986

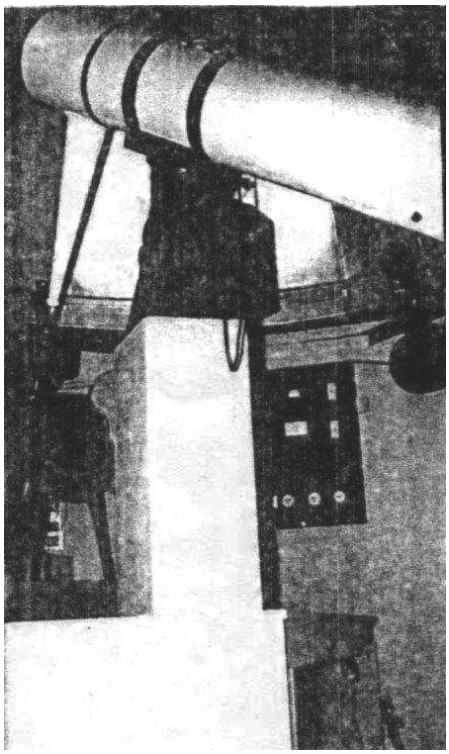
Arthur Higginson Springfield Telescope Up & Running, *by Greg Walton*



Arthur at the controls of the Springfield

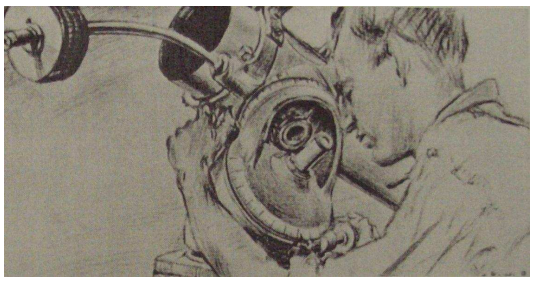


Arthur's Springfield in it's old dome

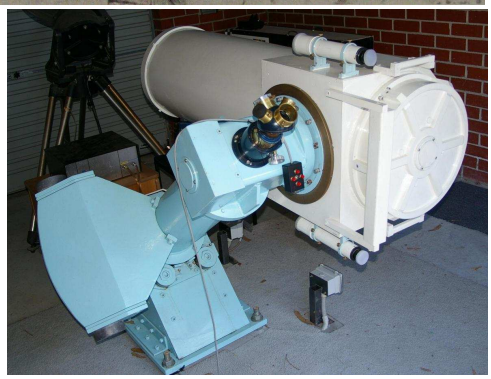


Arthur's Springfield on it's concrete pier

A brief history of the Springfield telescope & mount

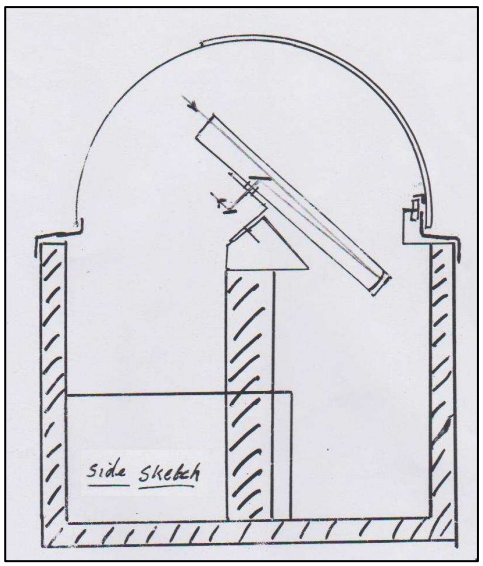


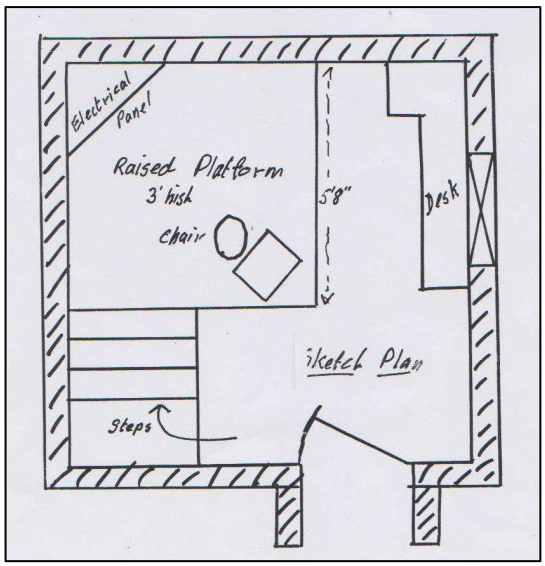
The Springfield was one of the turret type telescopes, where the observer is put at the centre of the system; meaning that the eyepiece stands still & the telescope moves around the eyepiece & operator. The Springfield is named after a town in Vermont, where astronomers would gather each year to discuss & build telescopes of various designs. (Springfield Telescope Makers and Stellafane). Russell Porter, one of the more prolific designers, had constructed more then one of this type of telescope & went on to help design the horse shoe mount on the 200 inch telescope at Palomar, USA.
At right is a sketch by Russell Porter showing the Springfield concept.
Some enterprising people from the Springfield Telescope Makers and Stellafane, made patents & went on to cast the major parts in bronze for sale. Today, as a result, there are many Springfield mount type telescopes around the world.

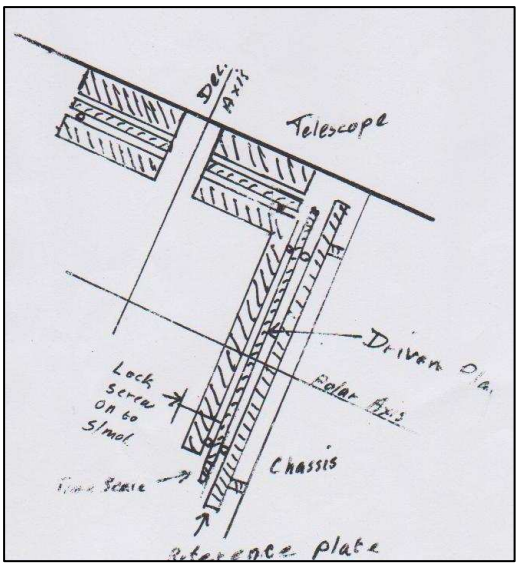


Arthurs Springfield's is the only one I have seen of its kind in all my years in astronomy within Australia. The only other telescope I have seen with a simular concept, is the 14 inch federation telescope at the Ballarat observatory built by Barry Adcock & completed in 2003, which is of an improved design, with a lower eyepiece mainly designed for people in wheel chairs.

3 sketches below by Arthur Higginson, at left show the path of the light through the Springfield







The Higginson Springfield Telescope

No doubt you are all aware that Mrs Higginson has kindly donated to the society her late husband Arthur's springfield mounted Newtonian telescope. It is hope that subject to agreement from The Briars management committee, we will be able to mount the instrument there in an observatory.

The Hamewith Observatory where the instrument has been house, (see photo right) was built by Arthur in the early days of the society and is a concrete brick structure with a sheet metal dome about 3 metres across. The dome is electrically driven using a bike chain and motorised gearbox. Mrs Higginson has decided to retain the observatory building which she hope to convert to some other function.

The instrument itself is a 250mm Newtonian mounted on a Springfield type drive. (see lower photo right) The Springfield mount is an unusual telescope configuration with the advantage that the eyepiece is at a fixed location. An observer can thus view any part of the sky without needing to move from his or her observing chair. (see bottom diagram from Amateur Telescope Making Book Two) While the optical train for this type of telescope is more complex than the normal Newtonian and certainly places more stringent tolerances upon the optical performance of each component, this is offset by the advantages of a fixed observing position.

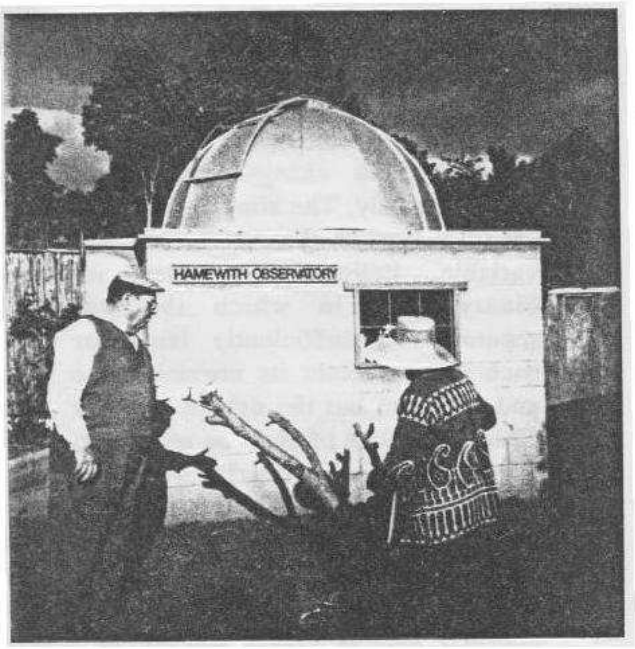
Such a mount is ideal for public viewing because it eliminates the problems and dangers of people hanging off telescopes.

While we are not yet sure of the final form of observatory required for this instrument, it is hoped The Briars will allow us to mount the instrument in a temporary building for this summers observing.

Above this story is from the ASF (Astronomical Society of Frankston) News Letter in 1993 Number 4 (Yes 23 years ago)

Right - This insert is from the ASF (Astronomical Society of Frankston) News Letter in November 1986 (Almost 30 years ago) Would be interesting to see the television documentary, also find out more about Norm Jones & if he was the maker of the telescope.

Below - Old Photos from inside the observatory



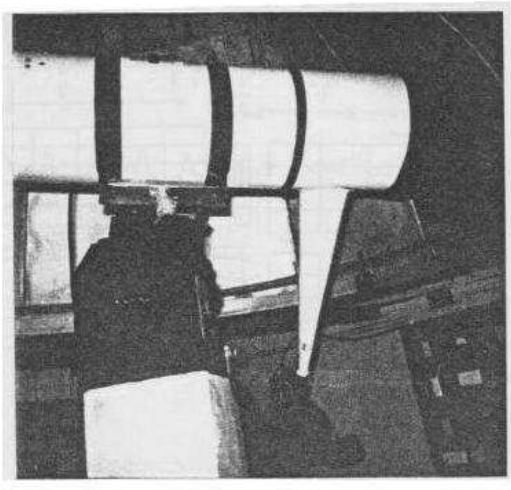
ASTRONOMICAL SOCIETY OF FRANKSTON, INC.

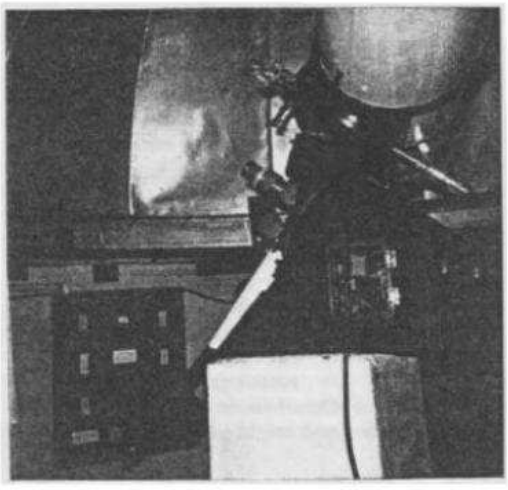
P.O. BOX 596, FRANKSTON, 3199

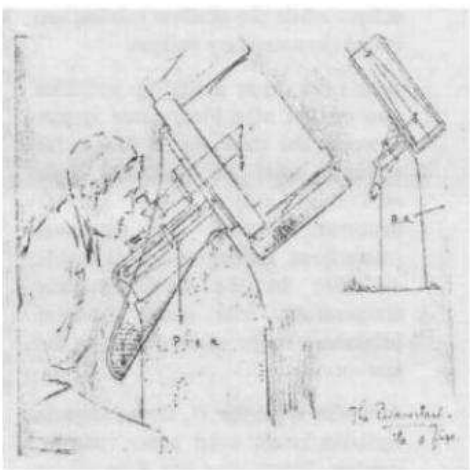
NEWSLETTER, NOVEMBER 1986

Arthur Higginson's home in Mt. Eliza, where Arthur's Observatory with its Springfield mounted reflector telescope was the focus of interest. Arthur's telescope and Observatory were acquired a few years ago from Norm Jones of ASV, who was present for the occasion and addressed the group on the history of the Observatory and telescope, which at one time, in the 1950s, were the subject of a television documentary.

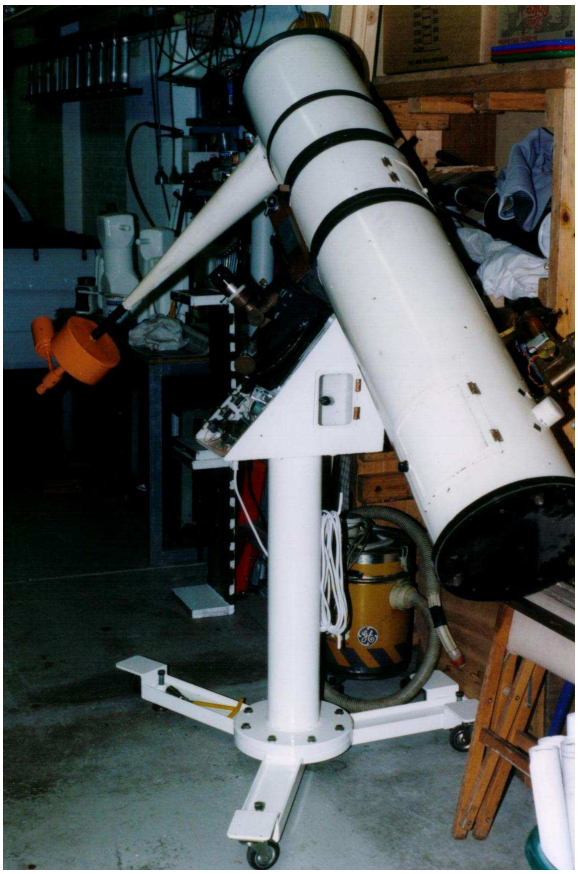
After inspection of the Observatory, the group settled down to enjoy a Barbeque in the attractive grounds of Arthur's house, and were soon pleased to see the cloud cover lifting and stars appearing in the twilight sky. A number of portable telescopes brought along by our own members and ASV members were set up and observations made of Saturn, Mars and Jupiter and a variety of deep sky objects. The most popular instrument for the group, however, was Arthur's Springfield mounted telescope where the observer is able, at all times, to view from the same position, seated within the cover of the Observatory, and a persistent line of observers queued to view the planets and deep sky objects in this novel fashion.







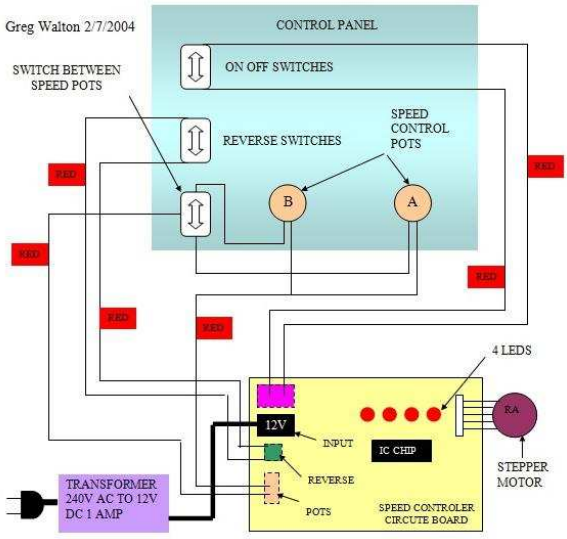
What happened to the Springfield next?



After the Springfield telescope sat around for more than 10 years, it ended up in my work shop in 2004. The first thing I noticed was it is very heavy. The orange weight is solid lead & the boom it was mounted on had cracked where it attached to the telescope tube. It had been welded with bronze. I clean & re welded it with steel. Originally the telescope was mounted on a concrete pier, which is still in the observatory whence it came. Mrs Higginson sold her house about 10 years ago to a young couple, who joint MPAS about 7 years ago. The young couple said, they were interested in buying a telescope for an observatory in there back yard, which was there when they bought the property. I told the young couple, we have the telescope that was in that observatory. I showed them the Springfield telescope & explained how it works. I could see they were very interested in the story of the old **HAMEWITH OBSERVATORY**.

The next job was to build a steel pier making certain to get the height correct so the telescope tube clears the floor. I also made a 3 legged base for the pier with wheels so we could move the telescope around. The mount had a motor drive which I could not get to work (some sort of DC motor connected to a rheostats - old radio tuner). I thought it easier to just replace it all with something new. So I bought a stepper motor & stepper motor controller kit. Kit means you have to assemble it yourself like something from IKEA. Luckily I have assembled a few of these before & I'm always delighted and surprised when they actually work! These stepper motors work best at one revolution per second & have a maximum of 3 revs/second, so I had to make a gear with 100 teeth to go between the existing gears & the new stepper motor, which has a gear with 10 teeth. Giving us a 10 to 1 reduction, so achieving the 1 rev/sec needed. I wired up the motor controller with 2 speed control knobs, one with a fixed speed for tracking & the other to help centre an object in the eyepiece. I also fitted a forward/reverse switch & an on/off switch.
See wiring diagram below
The telescope had a lot of wire running over the tube to run heaters & fans which I removed. *I was told Arthur had a suit with heating wire inside it to keep him warm, which he plugged into the Springfield mount!* I modified the eyepiece holder to suit the modern 1 1/4 inch eyepiece, as it had the old English thread in eyepieces, which shows the age of the telescope. I repainted the tube & then dismantled the telescope, then took it to the Briars with another member to help with the assembling of telescope. I put the telescope in the ute with the help of a crane, so getting the telescope out of the ute was no easy task. We almost dropped the telescope on the back of the ute when it over balanced : (This would have been interesting, putting in a claim on insurance. “I was run into in the back by a fast moving telescope!!” We finally got the Springfield telescope assembled & rolled it in to the lower shed where it has sat for the last 12 years, only coming out maybe 3 times, when MPAS hoisted Vastroc & NACAA conferences. See centre right

WIRING DIAGRAM FOR 10' SPINGFEILD TELESCOPE STEPPER MOTOR CONTROL



We now move forward to today!

We now have a newly finished observatory. I always hoped the Springfield telescope could be housed in this new observatory. But things change & members expectation also change. Today we live in the digital age & if it has not got a silicon chip inside, then it needs to go to the tip. The young newer members are all into imaging the hell out of everything, with there digital cameras & then plastering it all over the internet (I being one of them). So I was reluctant to move the Springfield into the observatory. When long time member Mark Hillen said, can we move the Springfield into the observatory. I thought this will be interesting, knowing how heavy the telescope is. I said to Mark, we need to inspect the mirrors & a crane to pick it up. The mirrors looked ok, so we arranged to meet the next week & I brought my portable crane. We started by moving the telescope into position & assembled the crane next to it. We placed a chain around the mount & carefully lifted it off the floor. We then unbolted the base & moved it to one side. Slowly we lowered the telescope & aligned it with south. We then drilled 8 holes in the concrete floor & Dina bolted it down. We felt like we had just launched the Titanic. Some days later we had a clear night so a small group of members, came to the Briars to use the Springfield telescope. Jupiter was our first port of call & it was crystal sharp, we were very happy. I switched on the tracking motor & Jupiter sat rock solid dead centre. The brass finder scope which most likely dates from the second world war, has illuminated cross hairs & was a pleasure to use. Next stop was Omega Centauri; it looked great. By using the 2 brass knobs - the slow motion controls, we brought the object into the centre of the field of view. I felt like I had gone back in time, to a simpler age with no complications. A most memorable night under the stars. I hope we can have many more nights with the old Springfield.

How does it work???

1. First open the door on the tube at the mirror end of the telescope.

2. Remove spring loaded clamp, then remove the brass cover in front of the mirror, be carefully on to touch the mirror. Now close the door.

3. Remove green cover from front end of telescope tube.

4. Turn on Telrad finder.

5. Turn power on at wall switch.

6. Turn Right Ascension slow motion control knob till it's in the centre of its travel.

7. Important - Loosen Right Ascension Lock.

8. Now you can point the telescope at the desired object using the Telrad to centre the object; then relock **Right Ascension.**

9. Tilt the eyepiece to the desired angle. Then rotate focuser till object is sharp.

10. While looking in the eyepiece, use the Declination & Right Ascension Slow motion control to centre the object.

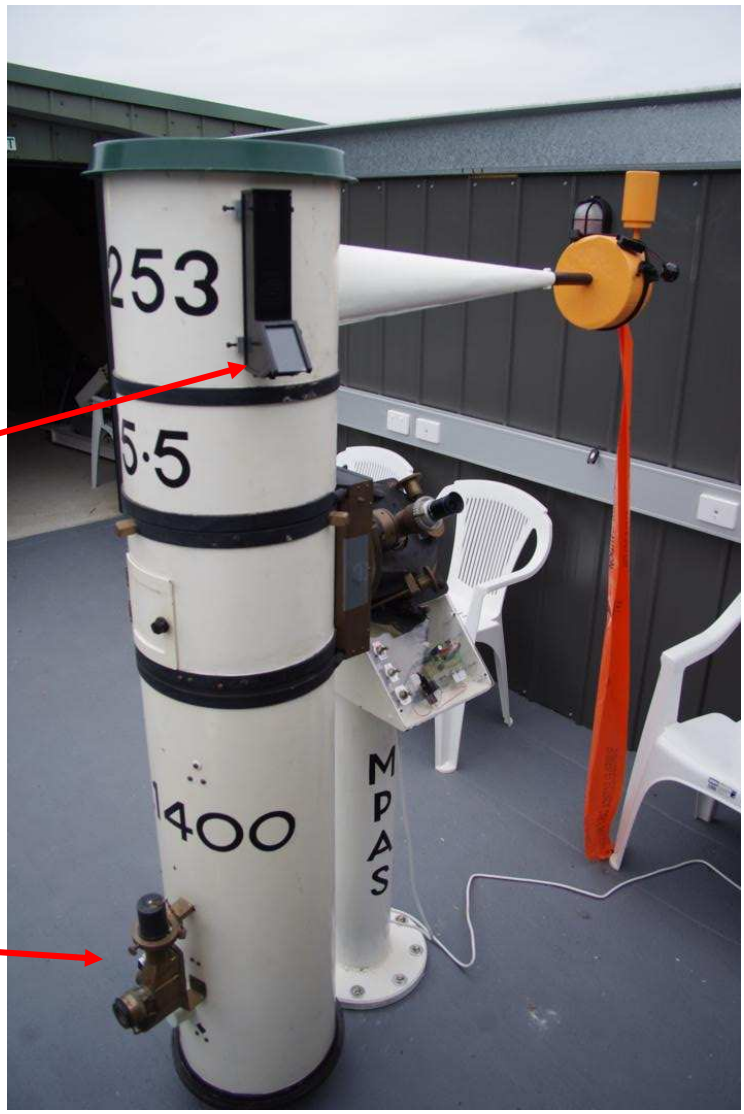
11. Turn on RA motor using the ON / OFF switch

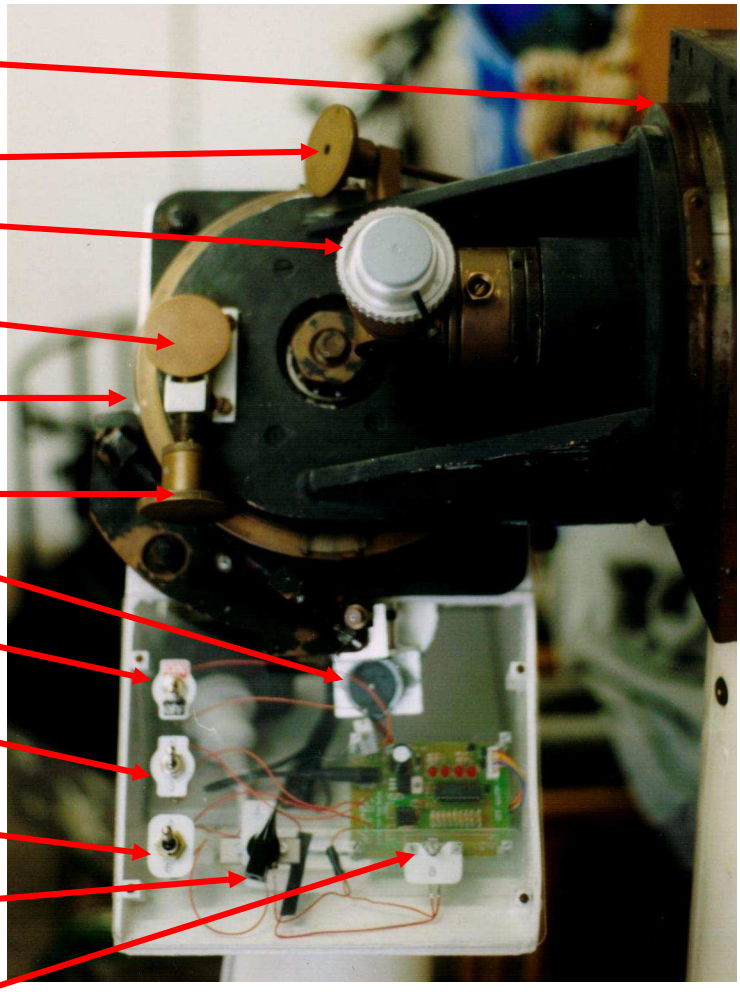
12. You can adjust tracking speed with the speed control knob.

13. Illuminated finder scope

14. Using the setting circles - Point the telescope at the star Sirius & set right ascension to 6 hours 45 minutes. Now using a star chart you should be able to find the fainter objects.

Once you have finished using the telescope please restore to the way you found it.





14. Declination Setting circle

10. Declination Slow motion control

9. Rotating focuser & 1 1/4" eyepiece holder

7. Right Ascension Lock

14. Right Ascension Setting circle

6 & 10. Right Ascension Slow motion control

Stepper Motor 12 volt

11. RA motor ON / OFF switch

N/S Forward / Reverse switch

Switch between A & B speed controls

12. Tracking speed adjusting knob (Switch to B)

Fixed tracking speed adjusting screw (Switch to A)

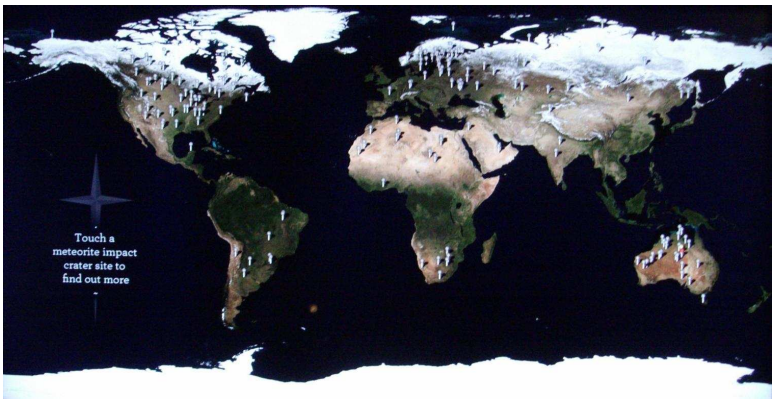
Jurassic World @ Melbourne Museum

https://museumvictoria.com.au/melbournemuseum/

I have not been to the Melbourne museum for any years, so when I heard about a dinosaur display, I thought it's time to visit. We bought our tickets online for about $34.00 each, a little bit pricey for my likes, but it did include entry to the museum & a discount on parking fee. We arrived at 10am to find long cues to get into the museum & Jurassic World. Luckily for us getting the tickets on line meant we could just walk straight into the museum.

In the past I was always disappointed with the museums lack of great displays, but this time I was very happy to see lots of new displays. In the centre was a very impressive collection of dinosaur skeletons & a new rock section including lots of meteorites. I knew Melbourne museum had a large piece of the Cranbourne meteorite, but every time I had visited the museum in the past, it was not on display. So I was very happy to see it on display this time. I had to get my photo taken with the Cranbourne meteorite. (see below) There were also many other meteorites from around Australia & the world and an interactive world map of major impacted sites. I was surprised too see so many impact sites in Australia. Other items on display was a piece of the Moon & a past history of our planet Earth.

Jurassic World display will continue till October at Melbourne museum, if you wish to see life size robotic dinosaurs moving. I think it was worthwhile, but I would go midweek to avoid the crowds! *By Greg Walton*



Above - Map of world wide meteorite impacts

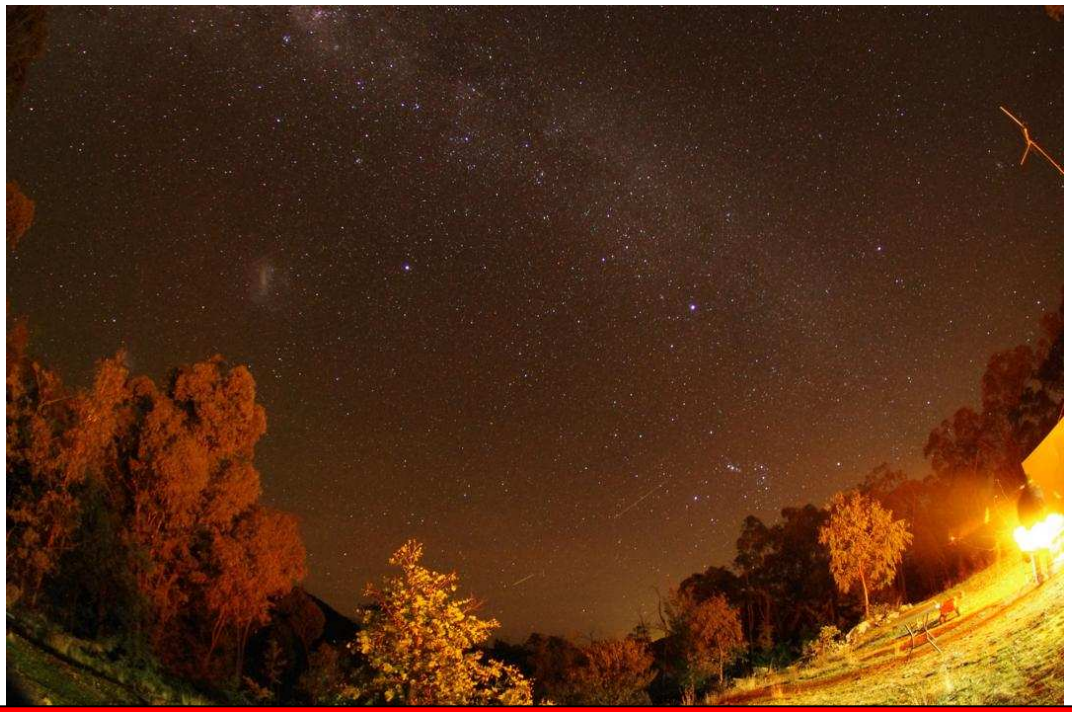
Right - Piece of the Moon

Below - Meteorites on display

Below - One of the Cranbourne Meteorites

Trip to FKWAS 2016, *by Dave Rolfe*

Well, as a stop over to the South Pacific Star Party Greg, Pia, Kevin, Jamie and I ventured to my rural hideaway where the skies are dark and the wild animals roam. My property is located in the top end of the Vic high country near Shelley, which is between Wodonga and Corryong just south of the border. It is a leisurely 5 hours drive from Melbourne until we hit the turn in from the highway, but luckily the Graders had been through recently preparing for the 5 year burn. With Greg and Kevin's vehicle we ventured into the 4WD country until we came to my gate. On arrival we had time to get the fire going and setup camp before dark come in. Greg setup a time-lapse and I setup my portable Custom Scientific ED80 for a night of viewing. From dusk until our 11PM bedtime the sky was dark and provided crisp viewing conditions of the planets and DSO objects. Apparently according to the time-lapse it clouded just after we went to bed. I find it strange there as there is no light pollution and the clouds can roll in with the only hint being the stars disappearing. On my block I have a shed and a shipping container that converted into accommodation. Kev, Jamie and Myself camped there and Greg and Pia in there mobile annex. There would have been a constant tone coming from the container with harmonic addition of the snoring. I am actually quite surprised Greg got any sleep being only 30m away. I have also set up tank water, septic flush toilet and a shower with Hot water. All the mod-cons including the kitchen sink. In the morning a bit of breakfast and on our way back to the SPSP. We just had to get the cars back onto the blacktop and the guys did a fabulous job with the slippery hills. Kevin shaved the road with his from bumper and Greg finished it of with the exhaust so the road is ready again for another mission. As for the name for my block in the title, well, Greg named it on the way in a few years ago in the dark. Be sure to ask him for the acronym definition.



FKWAS 2016 time lapse
https://vimeo.com/166903738

Photos *By Greg Walton*

MPAS road trip to the 2016 South Pacific Star Party, *by Greg Walton*

The South Pacific Star Party is hosted by the Astronomical Society of News South Wales at Wiruna 2 hours drive west of Sydney. We arrived on the Thursday about 4pm, the sky was clear & it was a mad scurry to set up camp, then set up all the telescopes & cameras. We knew the weather was not going to last, so we needed to make the most of this clear night. The sky darkened very quickly. I broke out in the sweat trying to set everything up before the light faded. I imaged many of the brighter deep sky objects with an old 200mm lens on the Polarie tracker. I also had my ED80 refractor imaging the bigger galaxies for most of the night. My 2 time-lapse cameras clicked away all night & in the morning while checking the images I noticed 2 meteor that had left smoke trails, I thought there would be more as the Eta-Aquarids meteor shower was be at its height around this time. Sydney created a yellow glow on the eastern horizon & seemed to be brighter this year, possibly due to thin high level cloud. See image below & time lapse at SPSP 2016 https://vimeo.com/167664637

Friday was spent mostly resting & down loading all the images from the cameras to the computer. While Dave set up his antenna with Jamie & Kevin helping, Dave was hoping to make contact with the Texas Star Party. We also walked around the field looking at all the different telescopes & collected our name tags at the registration deck. Lucky we all had resisted on line, as this year it was limited to 350 people on site & all who just turned up would be turned away. The weather looked like it would be good for only one more night.

As night fell & the temperature dropped, the sky looked better than the night before. All the telescopes & cameras were already set up from the night before, making it an easier time for us to get imaging. We just needed to hit the start button & select our objects. Kevin's telescope showed one of the best views of Jupiter I have ever seen, with the red spot looking redder than it has been for many years. We also saw a black spot which was a shadow transit of one of Jupiter's moons. At this time of year the Milky Way swings across the whole sky, making it the ideal time to do an all sky time lapse. I bombed out half way through the night & went to bed leaving most of my equipment running.

Saturday morning we could see the clouds starting to build & the forecast was for 100% cloud & possible rain, so we all spent the morning packing up our gear. Then we went to look at the astronomy gear on sale. After which we had hamburgers for lunch cooked by the local scouts group. Sometime I think we just come here for the burgers :) We voted on the astrophotography competition & listened to some of the talks in the meeting hall (shed). Then it was time to announce the door prize winners, telescope making awards & astrophotography winners.
The deep sky winner was Mike Sidonio for his image of NGC5128... (he also won last year). Door prizes were Dobsonian & Goto telescopes, camera, eyepiece, books, magazines & too many other prizes to mention. I picked up a hand sketch of the sun by Alex Massey. See below

Later, we assembled for the group photo & waited for the roast dinner. As night fell the clouds thinned & we got to see through some of telescopes, though at about 8pm heavy clouds moved in & put an end to the night. Sky tours were put on by Alex Massey. I was impressed with his level of knowledge & found it very interesting. Something new this year was the Star Wars happy hour; see bottom right. Dave, Jamie & Kevin headed for home while Pia & I headed to Sydney to look at the Sydney observatory. (which I will write about soon)

More photos from SPSP

Right - Dobsonian built by Alex Massey

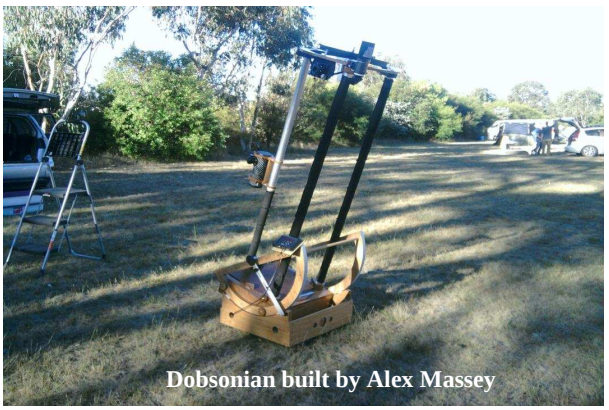
Below Left - Prize winning weight 14 inch Newtonian (bicycle wheel upper cage)

Centre Left - One of my image from SPSP M66

Right - Telescopes on the viewing field

Bottom - Some of the permanent observatory on site

Photos - *by Greg Walton*



Dobsonian built by Alex Massey

Home made light weight 14 inch Newtonian on EQ6

M66 SPSP ED80 EQ6 Pentax K30 25x30sec iso12800 By Greg Walton MPAS/ASV 5may16

MPAS Gallery - by Dave Rolfe - images taken from the 24th South Pacific Star Party 2016

M16, the Eagle Nebula. A Mixture of frames from over 4 years from both the Vixen VC200L and FLT132.
Total image time is would be over 16 hours using Ha, L, R, G, B filters *by Dave Rolfe*

IC2944 - The Running Chicken Nebula. LRGB image with 20x10m Luminance frames and 10x2m each RGB. *by Dave Rolfe*

SOCIETY INFORMATION

Dave Rolfe

Paul Albers

Peter Skilton

Jamie Pole

Trevor Hand

Stewart Gangell

Peter Lowe

Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

President: David Rolfe
Vice President: Paul Albers
Committee: Trevor Hand, Fiona Murray, Peter Lowe, Stewart Gangell, Greg Walton
Phone Contact: Peter Skilton - 0419 253 252

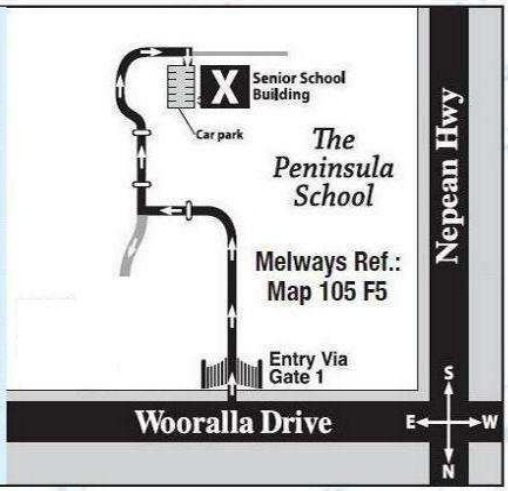
Secretary: Peter Skilton
Treasurer: Jamie Pole
Web Master: Steven Mohr
Scorpius Editor: Greg Walton
Library: Fiona Murray

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

Phone: 0419 253 252
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.



Fiona Murray

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.

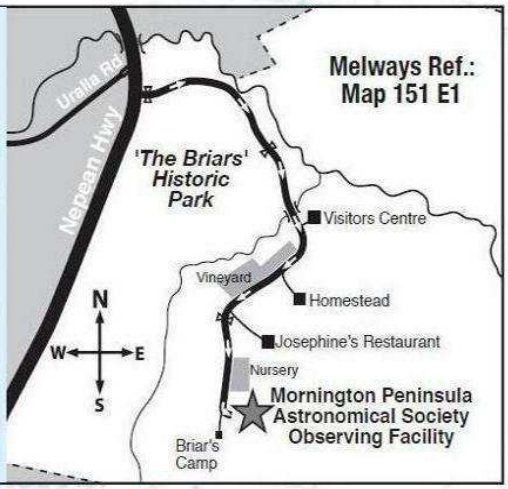
To join, go to: http://groups.com/group/e-scorpius and sign up to Yahoo groups - *You require to sign up to Yahoo groups to join E-Scorpius*. Once you have signed up at Yahoo groups, email welcome@mpas.asn.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list.

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

Phone: 0419 253 252
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.



Members please write a story about your astronomy experiences and add some pictures.
Send them to: Greg Walton gwmpas@gmail.com