

AUTORA



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The Royal Astronomical Society of Canada - Windsor Centre

May 2016

Science Rendezvous 2016 (continued on back page)



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Calendar of Events

Our next meeting...

Tuesday June 21, 2016

7:30 p.m.

at

Ojibway Park Nature Centre

5200 Matchette Road

Main Speaker...

Nancy Ng

Topic...

The Chinese Constellations

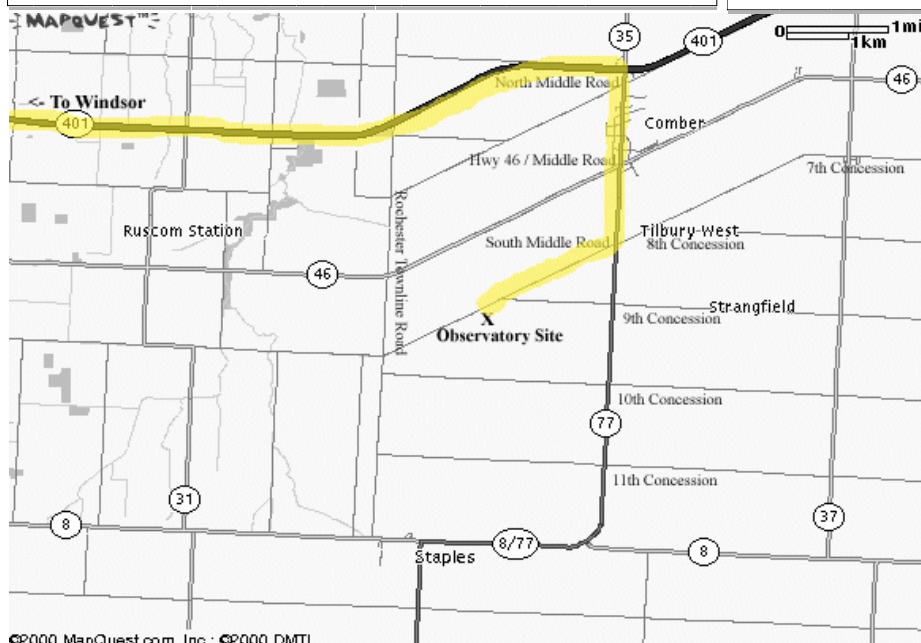
Activities...

Mars and Saturn Opposition: On Sunday May 22nd Mars reaches opposition and on Friday June 3rd Saturn will also be at opposition making both planets visible all night.

CREW Winery: On Saturday May 28th starting at 6:00 p.m. we will be hosting a night under the stars at CREW Winery. More information can be found on our website.

Open House Night at Hallam: The next open house night at Hallam is on Saturday June 11th at 9:45 p.m..

June Picnic: Our annual picnic will also be held on Saturday June 11th at Hallam Observatory. The picnic will be "Pot Luck" style with the Centre providing BBQ'd hot dogs and hamburgers. We ask that you bring a side dish or dessert and something to drink - a reminder alcohol is not permitted at Hallam Observatory.



Hallam Observatory Site

Directions: The map at left shows the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory.

The most direct route from Windsor is "highlighted" on the map which is to take Highway 401 East to Highway 77 South to South Middle Road. Turn right onto South Middle Road and go about 1 kilometer and just after the point where Concession 9 joins it (it is hard to see this intersection) you will find the observatory site on the South side (left) of the road. 3989 South Middle Road.

If you hit the Rochester Townline Road (you come to a stop sign) you have gone too far.

Submissions

Aurora is published monthly except for July, August and December. The September, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, February, April and June issues are short flyers (2 pages).

Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month.

Editor: Steve Mastellotto Email: mmastellotto@cogeco.ca

Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, a subscription to SkyNews magazine and access to the Centre's library and telescopes. Optionally the RASC Journal is available in print form—online version free.

Annual Membership Fees: Please see the RASC website at www.rasc.ca for current rates.

Contact Greg Mockler at (519) 326-7255 or visit our website at: <http://www.rascwindsor.com> for more information.

April 2016 Meeting Minutes by Dan Perissinotti

The monthly meeting of the Royal Astronomical Society of Canada - Windsor Center was held at the Ojibway Park Nature Centre on Tuesday April 19, 2016.

Windsor Centre **President, Randy Groundwater**, chaired the meeting and called the meeting to order at 7:35 p.m. and welcomed members and guests to the Ojibway Nature Centre. Randy invited the members to review the minutes of the March 15, 2016 meeting which were printed in the March newsletter.

A motion to accept the minutes of the March 15, 2016 membership meeting was made by Steve Mastellotto, seconded by Susan Sawyer-Beaulieu. **MOTION CARRIED.**

Main Presentation

Randy Groundwater gave a brief rundown of the night's agenda and then introduced **Dr. Dale L. Partin**, past president of the Warren Astronomical Society, member of the Ford Astronomy Club. Dr. Partin's talk for the was the *Search for Extraterrestrial Intelligence*.

Dr. Partin discussed life in the Solar System, Exoplanet Discoveries, Searching for Extraterrestrial Intelligence, Principle of Mediocrity and the Anthropic Principle, and finally the Drake and Seager Equations.

His talk started by discussing selected passages of a paper from the **Sunbury American Journal**, dated February 11, 1843. Discrepancies as to what was then known as fact and modern science of the time, regarding other worldly beings, is now widely known to be false and inaccurate at best. Within our own solar system it was theorized that intelligent life existed on Mars. The interesting idea that Martian life may have been found, only hear on Earth, in the form of meteorites and possibly that we are the result of this cross pollination process were discussed. 132 meteorites have been found so far containing microscopic life from Mars. Other possibilities within our solar system may include Callisto and Europa, orbiting Jupiter, as well as Enceladus orbiting Saturn. All moons show signs of containing underground water or a frozen water-ice surface.

Methods in which we can deduce intelligence include Exoplanet Discovery methods such as the **Kepler** and **Spitzer** missions using exoplanet transits. Current data gathered suggests that most stars host planetary bodies. Assuming this, odds are that some stars may host intelligent life of some of the plants.

Some principals to take into consideration on deciding whether life exists elsewhere:

- **The Principle of Mediocrity:** There is nothing special about mankind.
- **The Anthropic Principle:** the universe seems to be finely tuned for intelligent life, and especially, for life on Earth.

Randy thanked Dr. Partin for his thought provoking talk.

Break and 50/50 draw: \$8.00 was won by **Brian Thomas** who donated the money back to the Centre.

Prior to the D of O report, Steve Mastellotto introduced a mock-up of a calendar which was created as a template for a 2017 Windsor Centre Astrophotography calendar. The calendar will be created using Windsor Centre member's astrophotos and will be used for fundraising. Steve asked members to consider sending him their astrophotos from now through the end of Summer since the calendar will go to print in September.

Director of Observing Report, Steve Mastellotto. Randy welcomed Steve to the floor, to present the D of O Report. Since the last meeting **Jupiter** has been putting on a great show. Many were commenting on some **Jupiter, Mars, and Saturn** observing over the past few weeks. **Mercury** has also been visible in the evening sky for a short while before setting.

In addition to handing out the April Sky at a Glance calendar Steve projected an image of the evening sky for May 1st where many of the winter constellations are low in the West. This is a good time for viewing of galaxies as **Leo, Virgo and Coma Berenices** as well as **Ursa Major** are well placed in our sky. Vega is now rising in the East kicking off the summer sky viewing period later in the night.

Steve also discussed a couple of meteor showers - the **Lyrids** which will have a lot of interference from the Moon and the **Eta Aquarids** which should put on a good show in dark skies.

Concentrating on the **Mercury transit** on May 9th as a day time event. First contact with the Sun's disk starts at 7:13 a.m. on the Eastern limb and ends at 2:41p.m. on the Southwest limb of the Sun. Since this event lasts over 7 hours there is plenty of opportunity to witness or photograph this unique event.

Some deep sky observing to consider over the next few weeks include, the Virgo area and its galaxies, one particular area known as the **Markarian chain** was discussed. Anchored by **M84 and M86**, both being elliptical galaxies themselves. In total about 20 galaxies make up this chain, and it is quite easy for binocular observers to see the brightest members of this group. A telescope or astrophoto reveals many more galaxies including interesting structure in **NGC 4438 and NGC 4388**.

Randy thanked everyone for coming out to the meeting and reminded everyone that the **next regular membership meeting** would take place **Tuesday, May 17th, 2016 at 7:30 p.m.**

Randy **adjourned the meeting at 10:05 p.m..**

At The Eyepiece: Aperture Fever by Mike Ethier

It's finally Spring, and many of you will be dusting off the telescope and getting it ready for the warmer nights that will soon be upon us. A few of you might even have brand new scopes ready to receive first light. And some of you may be thinking it's time to upgrade to a bigger scope. The quest for more aperture is as old as astronomy itself, and when we think of the 100" and 200" telescopes that dominated our fixation with large telescope as teen observers in the 1970s, and now realize that those instruments just aren't really so big after all, we might wonder what our next step will be in telescope aperture.

I began with a toy 3" reflector, quickly upgrading to the Cadillac of its day (in more ways than one), the Tasco Lunagrosso 4 1/2" reflector. Who would ever need more aperture than that? That was 1971, and that scope lasted me till 1978. Along came the Edmund 8" reflector. I was in aperture heaven! I could see further and fainter than ever before. Who would ever need more aperture than that? Not me! That scope lasted me until 2012, when along came my Orion 12" Dobsonian reflector. I am beyond pleased with it, and have been successfully tackling the northern NGC list for the past four years. Who could possibly need more aperture than that for amateur viewing?

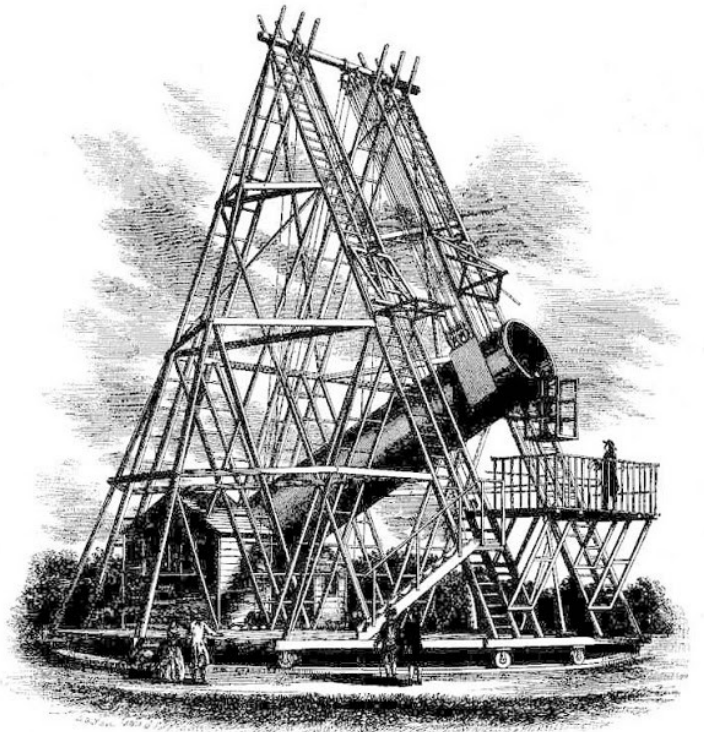
Readers of this newsletter will remember that my most recent telescope, purchased last autumn, was the smallest one I have ever owned. 2" Space Eye cannot be considered as part of my desire for more aperture. Why, then, did I purchase it? I am still quite delighted with this instrument, and have been enjoying good views of Jupiter and its moons this Spring, along with outstanding lunar work. It has brought me back to my earlier days of astronomy, when finding anything resembling a Messier object was a night time adventure of the first rank. Last night (April 12th) I located M 44 (The Beehive Cluster) with it, despite a 5.5 day old moon nearby in the sky. What a kick!

Someday, when I have a place where I don't have to transport a scope for 45 minutes from my home and back each time I want a dark sky, I would certainly consider upgrading to an 18". I know I would never want a bigger scope than that (ha ha)!

Okay, enough about me. Let's talk about two famous astronomers and their aperture fever. William Herschel, a German musician who became an astronomy fanatic, first built himself a 6" reflector. His metal alloy mirror, which he designed and improved over previous ones in existence, had the ability to reflect about 60% of the light it received. That's about equal to a good 4" mirror today. Next he built a 9" mirror, which gets us up to about a 6" scope of today. However, that scope was ten feet long (three meters), since curving the mirror was not possible in those days to the extent it is today. In fact, his scopes did not use secondary mirrors. So his scope was an f/13 reflector! Next came his most famous scope, his 18" mirror. However, it was twenty feet long. It was similar in his day to a good quality 12" mirror of today.

Was he satisfied then? Of course not. Finally came his 48" mirror, with forty feet of tubing (see illustration)! Though valuable for observing dim objects, preparing it for a night of observing was so cumbersome that it was used only seldom. Herschel

mostly used his 18" scope for his deep sky work. He built his scopes between 1781 and 1789.



Herschel's famous 40 foot reflector, with 48" mirror
https://upload.wikimedia.org/wikipedia/commons/6/62/Herschel_40_foot.jpg

We now jump to the middle of the 1800s, when Lord Rosse of Ireland was struck hard with his version of aperture fever. Herschel did not leave any notes behind about his mirror making process, so Lord Rosse had to start from scratch. He made a 15" reflector, a 24" reflector, and then a 36" version! These scopes took him seventeen years to build. However, barely was the 36" mirror set into a Newtonian mount than Lord Rosse decided he wanted to build the world's largest telescope. Imagine trying to do that today? It wasn't much easier back then, either. He began work on a 72" mirror, which took him five tries before he finally got one that would work. Then it took three years to build the mount. To see through the scope he had to sit on a chair fifty feet in the air. Despite all his hard work, the scope was rarely used. For one thing, it could barely move side to side, though up and down was not a problem. Thus he could not see very far in right ascension. The other problem was the damp, cloudy weather in Ireland, and terrible distortion caused by the atmospheric changes. The mirror never had time to acclimatize properly before the next weather front moved in. Two good things came out of this disaster; from then on, sites for large telescopes were much more carefully chosen with climate in mind. This telescope has been restored recently and can be visited at its original location in Ireland! Also, Lord Rosse was able to see and draw spiral structure in Messier 51, something that spurred discussion on what these nebula might actually be.



Lord Rosse's 72" reflector, nicknamed the "Leviathan."

<http://amazingspace.org/resources/explorations/groundup/lesson/scopes/rosse/scope.php>

Hopefully your aperture fever, when it strikes, will not be as extreme as either of these two gentlemen. However, if it is, kindly keep us informed about your progress. Clear skies.



Pete Barbaro captured this image of Jupiter with his Celestron 8 scope and DMK video camera. Image processed use AutoStakert 2. Well done Pete!



Lunt Solar Systems has introduced a pair of 8 x 32 white light solar binoculars they call SUNoculars that retail for \$129 US

Similar in size to a pair of birding binoculars they allow you to safely view Eclipses, Planetary Transits, and Sun Spot activity. They have a front mounted fully dense white light glass filters making Solar observation 100% safe. These front filters are precision polished to ensure the highest level of viewing quality and reduced the Sun's light to a comfortable $1 \times 10^{-5}\%$ transmission and all ultra-violet and infrared components are completely and safely blocked.

In use they are very ergonomically designed with a reddish orange rubber feel that is easy to grip. The objective lens caps are friction fitted and flip off the objective lenses and are retained by a ring on the binocular tube. The eyepieces have a single "spring" designed cap that works with any interocular spacing set on the binoculars. The eyepieces have integrated eyecups that "pop" out with a simple twist and a diopter adjustment for correcting for differences between your eyes. Focus is achieved by a center focusing knob.

First light was back in March and I have to say I was a bit surprised by how difficult it was to point these binoculars. The typical point and search technique is made more difficult when the field is absolutely black until the Sun enters the field. Also, the usual process of looking at the object and then bringing the binoculars up into your field of view is not possible when targeting the Sun. With a little practice it gets easier but is still a little frustrating.

Since you are looking at the Sun the rather small aperture of 32mm is a moot point since most of the light gets filtered out anyway so you do not need to worry about light gathering power. The 8x magnification is sufficient to see most activity on the Sun. For example the current (May 16) huge sunspot AR 2546 is obvious as is the smaller AR 2544. You could mount the binoculars which would steady the view but is not necessary for how these binoculars have been designed. Since I had to work on the day of the Mercury transit I brought these SUNoculars to work with me and although I could easily see the sunspot group I could not detect Mercury.

Anyone familiar with solar observing knows that reflections in your eyepiece are the bane of this type of observing. Since by definition everything around you is lit up in bright sunlight your eyeball and the sky reflect brightly in the eyepiece. The eyecups on these binoculars help but the best solution is to wear a light shroud over your head. Since I have one for my other solar observing I noticed a considerable improvement using it with the SUNoculars.

This is definitely a special purpose item that cannot be used for anything but viewing the Sun but they are very handy and will be a welcome addition to my solar observing kit and for next year's total eclipse.

Science Rendezvous 2016 and Mercury Transit



2016 Science Rendezvous: was another great success. Steve Pellarin coordinated our efforts by making sure we had plenty of volunteers and materials at our table including a couple of monitors. Unfortunately the skies did not cooperate for solar observing. A special thank you to the volunteers: Steve Pellarin, Randy Groundwater, Dan Perissinotti and Mahayarrahh-Starr Livingstone and anyone I may have left out. The photos on the cover and on this page were provided by Steve Pellarin and Mahayarrahh-Starr Livingstone.

Transit of Mercury: On Monday May 9th from 7:13 a.m. - 2:41 p.m. the Windsor area enjoyed relatively clear skies for this event. Many members have shared visual reports and photos of the event. The photo at top right is from Brian Simpson using a Celestron 8" f/11 with Baader AstroSolar film taken at ISO 1000, 1/1000sec, with a Nikon D610. The second shot is from Pete Parbaro using his C8 at f/6.3, 1/1600th sec using his Nikon D5100.

