

# AUTORA



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The Royal Astronomical Society of Canada - Windsor Centre

October 2014

## RASC - Windsor Centre Financial Statement by Treasurer, Greg Mockler

### RASC Windsor Centre

Financial Statement  
for year ending September 30, 2014

	Current	Last Year	Difference
<b>Balance Sheet</b>			
<b>Assets</b>			
Cash	4,307.32	5,267.21	- 959.89
Building & equipment	80,000.00	80,000.00	-
	<u>84,307.32</u>	<u>85,267.21</u>	- 959.89
<b>Liabilities</b>			
	-	-	-
Accumulated surplus, open	85,267.35	85,761.66	- 494.31
Earnings (loss)	(959.89)	(494.31)	- 465.58
Accumulated surplus, close	<u>84,307.46</u>	<u>85,267.35</u>	- 959.89
<b>Statement of Revenue &amp; Expenses</b>			
<b>Revenue</b>			
Revenue - Donations - receipted	250.00	500.00	- 250.00
Revenue - Donations - not receipted	431.85	567.00	- 135.15
Revenue - Gifts from other registered charities	-	-	-
Revenue - Interest	0.29	0.53	- 0.24
Revenue - Sale of property or goods and services - scopes	-	-	-
Revenue - Membership fees - National	2,006.12	1,978.52	27.60
Revenue - Membership fees - Obs fee	510.00	630.00	- 120.00
Revenue - Fundraising - meetings	154.10	170.53	- 16.43
Revenue - Fundraising - 50/50 draws	96.50	90.50	6.00
Revenue - Fundraising - garage sale	-	-	-
Revenue - Fundraising - special events	33.00	-	33.00
Revenue - Fundraising - pubs	405.00	437.50	- 32.50
Total revenue	<u>3,886.86</u>	<u>4,374.58</u>	- 487.72
<b>Expenses</b>			
Expenses - Office supplies and expenses	142.75	189.84	- 47.09
Expenses - Occupancy costs - mtg rental	717.50	700.00	17.50
Expenses - Occupancy costs - obs rent	500.00	500.00	-
Expenses - Occupancy costs - obs utilities	480.00	480.00	-
Expenses - Occupancy costs - obs other	2,313.75	2,255.55	58.20
Expenses - Adv & promo	-	-	-
Expenses - Fundraising expenses - meetings	323.36	232.52	90.84
Expenses - Fundraising expenses - pubs	322.39	403.52	- 81.13
Expenses - Social	-	-	-
Expenses - Honoraria	47.00	67.46	- 20.46
Expenses - programs	-	40.00	- 40.00
Total expenses	<u>4,846.75</u>	<u>4,868.89</u>	- 22.14
<b>Net Earnings</b>	<u>(959.89)</u>	<u>(494.31)</u>	- 465.58

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## Calendar of Events

### *Our next meeting...*

Tuesday November 18, 2014

7:30 p.m.

at

Ojibway Park Nature Centre

5200 Matchette Road

### *Main Speaker...*

Dave McCarter - RASC, London Centre

### *Topic...*

*Viewing the Night Sky with Binoculars*

### *Activities...*

**Orionid Meteors Peak:** On Tuesday October 21st.

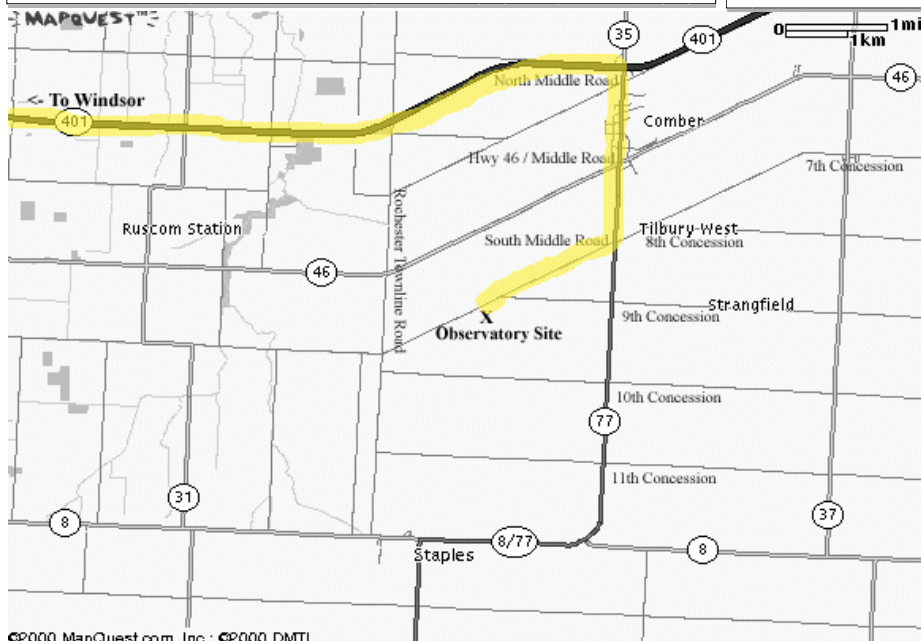
**Partial Solar Eclipse:** On Thursday October 23rd the setting Sun will have a bite taken out of the right side. It should make a nice photo opportunity and look for the large sunspot group AR2192.

**Open House Night at Hallam:** The next open house night at Hallam is on Saturday October 25 at 7:00 p.m..

**Mercury:** Look for Mercury in the morning sky in late October/early November - greatest elongation of 19 degrees is on November 1.

**Daylight Savings Time:** Ends at 2:00 a.m. on Sunday November 2nd.

**Leonid Meteors Peak:** On Monday November 17th.



### 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](mailto: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](http://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.

## September 2014 Meeting Minutes by Matt McCall

The monthly meeting of The Royal Astronomical Society of Canada - Windsor Centre was held at the Ojibway Park Nature Centre on September 16, 2014.

Windsor Centre **Past President Paul Pratt** chaired the Meeting. Paul called the meeting to order at 7:41 p.m. and welcomed members and guests to the Ojibway Nature Centre.

A motion to accept the minutes of the June 17, 2014 members meeting was made by a member of RASC Windsor, and seconded by another member, however no record was made of their name. **MOTION CARRIED.**

### Announcements

- Enjoy **Faraday's Free Admission Day** at Science City in celebration of physicist Michael Faraday's 223rd birthday on Saturday, September 27
- Dr. Bill Baylis will be giving lectures at Science City for three Thursdays in a row on October 2nd, 9th, and 16th. **'Life at the Final Frontier'** lectures each begin at 10 a.m. on these dates.
- The next **Point Pelee Dark Sky Night** begins at 7:30 p.m. on Friday, September 26th.
- The next **Hallam Observatory Open House** will be Saturday, September 27th, starting at 7:45 p.m.

**Director of Observing Report, Juliana Grigorescu:** The presentation began by Juliana asking the audience what they may have observed in the night sky over the summer months.

- Dave Panton told everyone that the previous Sunday night out at Hallam was one of the best in a very long time.
- Al DesRosiers mentioned that a bunch of members went up to Starfest in August, where there were a number of very nice nights for observing.
- Various members also spoke about the new project they had helped install out at Hallam - Dave Panton's miniature to-scale models of planets in the Solar System. Consisting of small lit-up boxes, the Sun and naked-eye visible planets all the way up to Saturn can be seen from the observatory's deck, giving visitors simulated views of our star system when clouds obscure the sky above.

Juliana explained that we are approaching the Autumnal Equinox coming up on September 22-23 with the date depending on what part of the world and in what time zone one may live in. Looking straight up into the sky for the rest of this month into October you can still see the summer triangle of Vega, Deneb and Altair. The summer constellations Scorpius and Sagittarius are slowly being lost in the thicker atmosphere of the horizon as they set earlier and earlier in the evening. Fomalhaut is still the brightest star to the south this time of year.

Another total lunar eclipse will occur on October 8th, which will begin to be visible about 5:00 a.m. as the Moon's limb slowly turns black, and then eventually to red. Nearly the entire eclipse can be viewed before moonset as the Sun is rising on the other end of the sky.

**September 16** - Jupiter is about 5.5° to the upper left of the waning crescent Moon in the early morning hours.

**September 20** - Mercury to be very close to Spica very low in the west

**September 27** - Saturn is low in the west as well, but fairly close to the slender crescent Moon.

**September 28** - Mars to be only 3° to the upper right of Antares.

Comet Jacques will soon be passing near Albireo in Cygnus, though it isn't very bright so it may take some time to locate in a telescope. A photo of the comet taken by Mitch Arsenault was shown. Another comet PanSTARRS - C/2012 K1 had been around during the spring, but will come back around to be visible in Sept/Oct. It has been a fluorescent green in colour, and has two tails - one ion, and one dust tail - could potentially be a good comet when it moves into better view.

Paul thanked Juliana for her presentation.

We then had a **Coffee Break** and held the **Fifty-fifty draw**.

### Main Talk

**Steve Pellarin, Curiosity Rover on Mars:** One of the first things Steve explained during his talk was about how so many various robotic spacecraft had been launched to study the red planet, and also that over twenty such craft had been lost during their landings or voyages to reach it.

Numerous slides describing the planet Mars, its characteristics and composition were shown, as well as the Curiosity rover's history, specifications and technical information.

'Mars Science Laboratory Mission Goals and Objectives' are to determine if life could have ever arisen on the planet; characterize the climate and geology of Mars; and also serve as a form of trail-blazer to prepare for possible future human exploration there. One of the more specific Science Laboratory objectives is to determine the nature and inventory of organic compounds beneath the dust of the surface.

Sample analysis at Mars is to study and measure organics and gases from both atmospheric and solid soil, which includes oxygen and carbon isotope ratios. The chemistry and mineralogy analysis is to identify and quantify the minerals present in rocks and soil, assess involvement of H<sub>2</sub>O in their formation, deposition, or alteration. Also, the mission profile is designed to search for potential mineral biosignatures, energy sources, and indications of past biologic activity.

Curiosity landed near Gale Crater, which is located on Mars at the latitude 5.4° S/longitude 137.4° E. The mission scientists selected this spot due to the age of the crater, believing it has experienced extremely varied weather activity in the past such as once being covered in flowing water. It may have flooded the crater interior resulting in deposition, which could show us a sort of history of what happened on Mars.

(Continued on page 5)

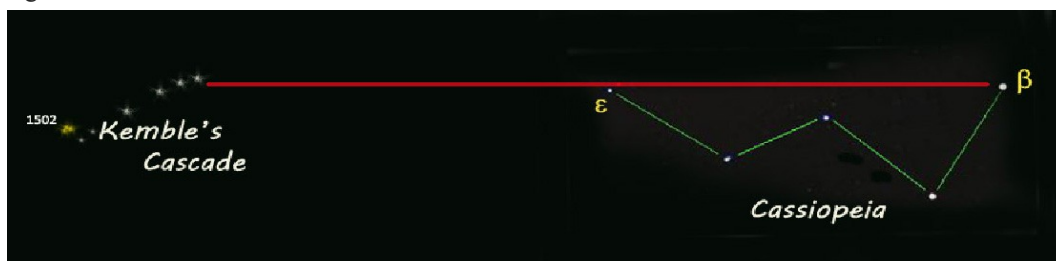
## At The Eyepiece: How The Giraffe Got It's Spots by Deb Ethier

*Once upon a time, a long time ago, a holy man gazed up into the dark, moonless sky and found some spots sprinkled across the back of the giraffe, spots that no one had noticed before.*

..and that's a true story; except that according to some constellation visualizations, the spots aren't exactly on the giraffe's back!

In 1980, Fr. Lucian Kemble, a Canadian Franciscan, wrote a letter to *Sky and Telescope*'s popular "Deep Sky Wonders" author Walter Scott Houston describing an asterism he had observed in Camelopardalis while sweeping with his 7x35 binoculars. He described it as "a beautiful cascade of faint stars tumbling from the northwest down to the open cluster NGC 1502". It was Houston who dubbed the asterism "Kemble's Cascade". Kemble himself was a very interesting person; you can read his obituary in the June, 1999 issue of the Journal of the RASC, pages 53-4 (pdf version here <https://www.rasc.ca/sites/default/files/jrasc1999-06.pdf>).

Although large, Camelopardalis itself is relatively faint, so to find the string of 5<sup>th</sup> to 9<sup>th</sup> magnitude stars in the Cascade, use the easily-identified "W" of Cassiopeia. Imagine a line from  $\beta$  Cass through to  $\epsilon$  Cass and extend this line approximately the same distance again to reach the Cascade:



(Please note that the stars in the Cascade are actually relatively fainter than shown. The Cascade can be seen naked eye with averted vision as a faint "something" on a very clear night.)

Once there, scan the cascade with binoculars or a small-aperture telescope, enjoying the pleasing 2.5° "fall"<sup>1</sup> of 15-20 stars



Photo of Kemble's Cascade and NGC1502 courtesy of John Mirtle at <http://www.astrofoto.ca/john/>

(depending on your instrument) as Fr. Lucian did, and find the surprise at the end of the Cascade – **NGC 1502**. I first came across Kemble's Cascade while working on an (ongoing) open cluster project for small reflectors, reviewing this cluster. With apparent magnitude of 5.7 and 20' in size, this is an utterly charming little cluster. Beautiful at low power in a small 'scope, it opens up wonderfully at higher magnification. The cluster lucida, a pale-yellow double ( $\Sigma 485$ ; 7/7.1 at 18"), one member of which is the short-period small-amplitude variable SZ, takes up the centre of the group, with more pairs toppling down, making it almost a mini-cascade of doubles itself! Overall, it is somewhat arrowhead-shaped. About 22 stars are apparent at 42x in a 6" reflector; up to 30 at 75x. There is another double, a pair of closer 9<sup>th</sup> magnitude stars ( $\Sigma 484$ ) just preceding the cluster.<sup>2</sup> This truly is a small open cluster gem.<sup>3</sup>

**Viewing Details:** The Cascade and 1502 are best viewed after midnight in November; optimum viewing for our location is late November.

Oh, and by the way, Kemble also has a celestial kite and an asteroid named after him, but that's another story!

1. It is almost a straight line, although I see it more like the "f" hole on a violin if you include the cluster.
2. The third star in the Cascade itself up from 1502 is also a multiple, Brd1 (AB 8.5/9.5 at 2"; AC 8.5/10.5 at 9"; AD 8.5/10 at 19") of which the AC and AD pairs will be easily visible from smaller instruments, the other component for larger 'scopes.
3. 1502 has been given the very unfortunate nickname of "Jolly Roger" even though it bears absolutely NO resemblance to the pirate flag. Astronomy Magazine's senior editor, Michael Bakich, agrees and lists it in his blog entry "10 Lamest Deep Sky Object Names" (June 20, 2014).



## September Meeting Minutes (continued)

(Continued from page 3)

Following the landing, the rover was directed to what's been named 'Yellowknife Bay' and traveled in the vicinity of this formation for about eight months due to the various strata layers discovered there. It was considered to be such an interesting location that only after investigating the region did scientists redirect the rover back the other way towards the direction of the nearby mountain.

The bottom layers of strata would be the oldest ones, and by taking a close look at the different layers, they can figure out what's happened in the past, estimating the age of the rocks based on their layers.

Steve made mention of some questions the scientific community has been asking such as 'how can a peak form in a crater that is higher than its rim?' To which he gave the explanation of the processes involved in its formation: An asteroid or comet impact first produces the crater, then the sediments are deposited in layers. These become eroded, water filling the crater floor which spreads by overflowing the outer rim of the crater.

University of California scientists claim evidence for episodic formation of lakes in Gale crater and the nearby region. Using new hi-resolution Mars Reconnaissance Orbiter topographic data, Curiosity findings and computer-generated elevation models - they have identified likely ancient shorelines, fluvial deltas and other features normally found in former lake levels.

A summary of some of Curiosity's findings at various sites reveal the detection of carbon, hydrogen, and oxygen by studying many of the rocks that would have once been submerged in water.

Martian radiation levels measured by the rover indicate that radiation levels were actually somewhat comparable to those experienced by astronauts living aboard the International Space Station over time - which would be better than originally anticipated. However, while the spacecraft was en route to Mars during its interplanetary cruise from Earth - substantially higher levels of radiation were detected.

Paul thanked Steve for his well-detailed presentation and thanked everyone for coming out to the meeting.

The Meeting was **adjourned at 10:11 p.m..**

## Proposed 2015 Council of the RASC - Windsor Centre

### Elected Officers

President	<i>Open Position</i>
1st Vice-President	Mike Mastronardi
2nd Vice-President	<i>Open Position</i>
Secretary	<i>Open Position</i>
Treasurer	Greg Mockler
National Council Rep.	Mike Mastronardi

### Councilors

Dr. Pierre Boulos	Randy Groundwater
Steve Mastellotto	Matt McCall
Steve Pellarin	Dave Panton
Paul Preney	Dr. Susan Sawyer-Beaulieu
C. Joady Ulrich	

### Appointed Officers

Honorary President	Dr. William Baylis
Past-President	Rick Marion
Librarian	<i>Open Position</i>
Recording Secretary	<i>Open Position</i>
Public Education Director	Randy Groundwater
Public Relations Director	<i>2nd Vice-President</i>
Directors of Observing	Juliana Grigorescu
	Steve Mastellotto
	Steve Pellarin
Light Pollution Abatement Dir.	<i>Open Position</i>
Hallam Observatory Director	John Marn
Aurora Editor	Steve Mastellotto
Webmaster	Steve Mastellotto

## Hallam Happenings

A reminder that the Hallam Observatory annual access/key fee is now due (October 1st). At the recent Council Meeting it was decided that this fee will be increases to \$60 per year. Please see our Treasurer Greg Mockler at the October meeting to pay for your key. If you no longer wish to have your own access to the observatory please turn in your key to Steve Mastellotto.

## Calendars

Our Treasurer, Greg Mockler is taking orders for the 2015 RASC Calendar. Price will be \$17.50 including S&H and HST if he gets over 10 orders - this is the same price as last year and is substantially less than ordering directly from National. Please see Greg at the September meeting.

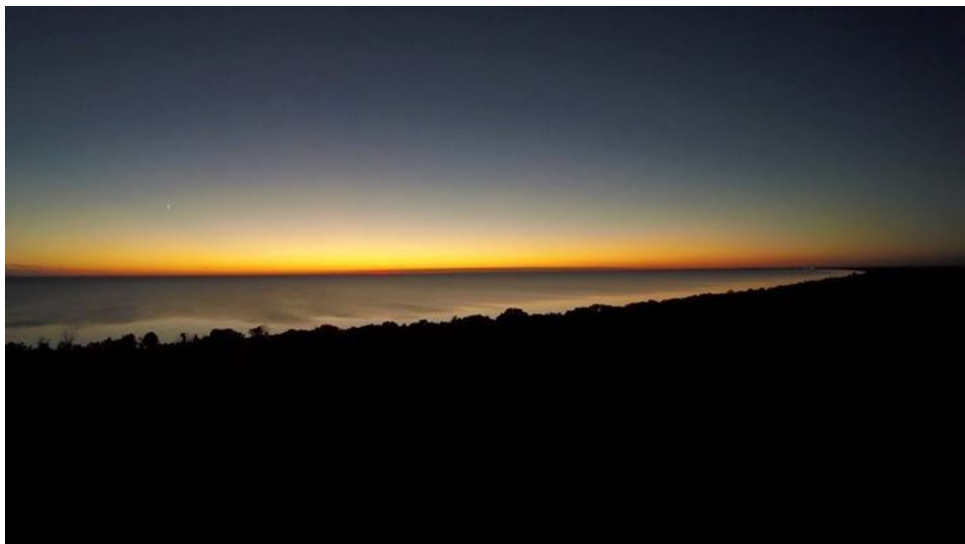
## Member Astrophotos



**Above:** NGC7331 and Stephan's Quintet by Pete Barbaro. Image captured through ORION110ED with Nikon D5100 and no Light Pollution Filter. Image is a combination of 12 x 150 second exposures.

**Above Left:** Eastern/Western Veil Nebula and Pickering's Triangle by Steve Mastelotto. Image is a combination of 33 x 2 minute subs using Hutech Modified Canon 6D at ISO 1600, Canon 400mm f/5.6 L lens shot wide open piggybacked on top of the C-14 at Hallam. No darks, flats or bias images captured for calibration and all processing was done in ImagesPlus 6.0.

**Middle Left:** Messier 8 by Pete Barbaro. Image captured through ORION110ED with Nikon D5100 and no Light Pollution Filter. Image is a combination of 37 x 150 second exposures.



**Bottom Left:** Moonset during the Point Pelee Dark Sky Night of September 26th. Single video frame captured by Rick Marion using GoPro camera and his DJI f450 drone from around 400ft above the park.