

Nova Notes

The Newsletter of the Halifax Centre of the Royal Astronomical Society of Canada

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Comet Lovejoy arrives and the Halifax Centre members capture its splendour. P 4-5

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St. Croix Observatory

Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix, N.S.. The site has grown over the last few years and includes a roll-off roof observatory with electrical outlets, use of the Centre's new Go-To 400-mm Dobsonian telescope and 100-mm binoculars, a warm-room, and washroom facilities.

Enjoy dark pristine skies far away from city lights, and the company of like minded observers searching out those faint "fuzzies" in the night. Observing nights (Fridays close to the New Moon or Saturday backup) are open to both members and their guests. If you are not a key holder and would like to become one, or need more information, please contact the SCO Manager, Alex LeCreux (for contact info, see below).

Upcoming Observing Nights:

May 15th backup 16th

June 12th backup 13th

July 17th backup 18th

Meetings begin at 7:30 p.m. at Saint Mary's

University in Room AT 101.

April 17th, 2015, 7:30 p.m. to 9:00 p.m.

NOTE: The meeting is in the Sobeys Building SB265

**The 5 W's of the 2015 RASC General Assembly
Quinn Smith, Patrick Kelly and Paul Gray**

May 15, 2015

Agenda TBA

June 19, 2015

This meeting will take place at the St. Croix Observatory (SCO), agenda TBA

All meeting location and contents subject to change

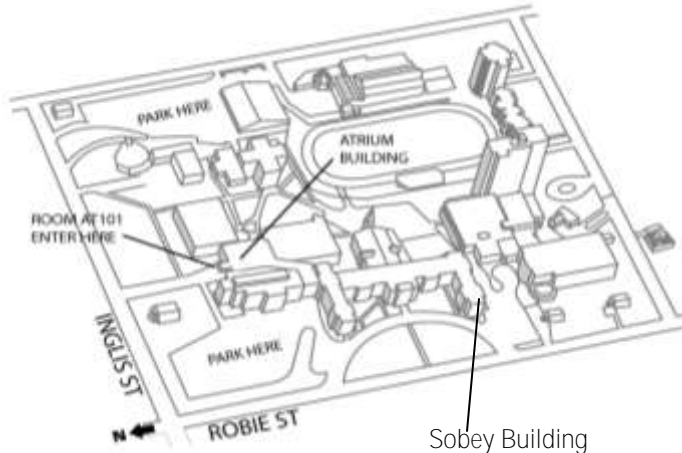
Meeting Location:

Saint Mary's University

Atrium Building (AT)
Room AT 101

NOTE: The April meeting is in the Sobeys Building SB265

The Atrium is located in front of the Patrick Power Library, between the Burke Building and Science Building.



Meetings are usually held on the third Friday of the month, except for the months of July and August, when there are no meetings.

Executive meetings begin at 6:30 p.m., usually in room AT 306, and all members are welcome.

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From the editor *Tony Schellinck*

My goal as editor is to utilize the talent within the Halifax RASC members to provide interesting content in Nova Notes. I plan to have one major story each issue. This issue I have featured photos taken of Comet Lovejoy and presented the accompanying commentary each member provided with their photo to capture the breadth of talent being developed in astrophotography within our membership. As well, I am very pleased to say that three of our members have agreed to contribute a regular column covering their area of interest. I welcome Dave Chapman's column "*Lunatic Ramblings*", Art Cole "*Starlight and Semiconductors*", and Matt Paine's introduction to "*The Universe's Symphony of Sounds*". I suggested that each of these writers present a personal journey about the subject so the first articles start with some background information relating how they became interested in that aspect of astronomy. I have approached others to provide us with articles on their interests and hopefully they will be able to become columnists in future issues. If you are interested in having a column in Nova Notes, or you wish to contribute a main story for an issue, please let me know.

Keji Dark Sky Weekend 2015

Dave XVII Chapman

This year's Keji Dark Sky Weekend will take place on the weekend of August 7-9 (the weekend before Nova East, as usual). This event will be the fifth anniversary of the designation of the Keji Dark Sky Preserve in 2010. Events kick off on Friday night with public observing at the Sky Circle. Saturday's amphitheatre presenter is RASC's Dave Chapman, speaking on "This Marvellous Sky." This will be followed by a sky tour at the Sky Circle and more public observing.

Sunday is open, and there will be unstructured observing on Sunday night only if the weather cooperates. Other programs will be announced as plans materialize. Camping for the weekend books up quickly. The campsite reservation website opens Thursday, April 16 at 8:00 a.m.

ADT. <https://reservation.pc.gc.ca/>

We are looking forward to see-

ing the many Halifax Centre members who enjoy not only a wonderful park but also magnificent skies. Join us with your telescopes in the Sky Circle field (there is a cart to help move gear in and out).



Viewing dark skies at the Sky Circle (photo: Chris Green)

Nova Notes: The Newsletter of the Halifax Centre of the RASC

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Nova Notes is published 5 times a year, in February, April, June/July, September/October, and December.

The deadline for the next edition is June 21st, 2015

The opinions expressed herein are not necessarily those of the Halifax Centre.

Articles on any aspect of Astronomy and Allied Sciences will be considered for publication.

Comet Lovejoy Album



◀ Comet
Lovejoy and
Pleiades Jan20
1849AST-SW
6s-unguided1,
Canon T3i,
50mm, f/1.8,
ISO-3200
(Photo: Sherman Williams)

▼ Comet Lovejoy, January 10, 2015, Canon 60Da , ISO 1600, 46 minutes (69 X 40 seconds) , 200mm SkyWatcher f/5 Newtonian reflector with Paracorr for a total focal length of 1150 mm. Calibration done in Images Plus without darks using the hot / cold pixel correction capability of the software. The image was then stacked twice, once using a median combine stacked on the comet and the second time using the standard auto processing with a median combine. The first stack suppresses the stars and the second the comet. Next, the comet only image was stretched using a masked stretching technique to bring out the tail from the light pollution. Next the feature mask was used to completely remove the comet from the star image. Finally the two images were recombined using a lighten blend mode with the star layer on the top of the stack. *(Photo: Blair MacDonald)*



Comet Lovejoy Album



◀ Comet Lovejoy, 24x90s@ISO1600. Look to the bottom on the Comet Nucleus, see the brown color? That's the secondary dust tail! My FOV is too narrow to see the rest. Shot with my Orion F4 8" Newtonian 50mm mini guidescope, guided on the Comet. Stacked in DSS. Flats taken at 27000ADU processed in Pix-Insight. (Photo: Jeff Donaldson)

▼ This photo was taken on Jan 21, 2015 at 8:30 Ppm AST with a Canon 6D, an Astronomic UHC-E filter to increase contrast and a 200mm f2.8mm lens at f2.8. I used a Vixen Polerie Tracker and a 7 minute exposure with tungsten white balance and 1600 ISO. I further increased contrast in the program used to reduce the image size which unfortunately also resulted in increasing the contrast in the vignetting. I had photographed the comet on previous nights and recorded pinpoint stars however on this night the atmosphere had a foggy hazy appearance resulting in diffusion of the stars with the brighter ones being more noticeably affected. (Photo: Barry Burgess)



Lunatic Ramblings 1

Dave XVII Chapman

I am not just a lunar observer—I observe everything—but the Moon provided “first light” for my first telescope, a 60-mm refractor my parents presented me on my 10th birthday. My first serious astronomy book (a companion present) was written by Patrick Moore, a dedicated lunar observer—he is likely to blame for the observing log I started on that day and maintained (with some lapses) for over 50 years. No wonder I believe that lunar observing is a great way to begin:

- the Moon is easy to find,
- you don't need a dark-sky site (your own front or back yard is great—with all the comforts of home),
- you can see a lot of details with even a small telescope,
- you can learn how to operate your telescope on an easy object that provides rewarding views, and
- the Moon is our nearest celestial neighbour—why not explore it?

But before you even set up your telescope, let's begin at the beginning. Learn where and when to look for the Moon in the sky. Anticipate it, take joy in finding it, and feel disappointed when it is cloudy. Once you find the Moon, watch its westward hour-to-hour motion as the Earth spins underneath it, and follow its eastward night-to-night motion as it orbits the Earth. Both the *Observer's Handbook* (a RASC member benefit) and *Observer's Calendar* (great value for money) have a wealth of information about the Moon's appearance and circumstances, including phase, rise and set times, eclipses, conjunctions, and occultations. None of these re-

quire a telescope!

I am hoping you will read this column by the New Moon of April 18, 2015. The next evening (with clear skies, a low horizon, and luck) look for a young crescent Moon low in the west, next to Mars and Mercury. It will be a bit of a challenge, but go for it! If not that night, then a night or two later, you should spot a lovely crescent Moon.



Young Moon, 2015 February 19 (Photo: Dave Chapman)

Don't miss Tuesday, April 21, when the crescent Moon joins Venus—this pairing never fails to please. By observing the Moon this way, and by following its eastward journey of 12.2° every night, you will connect with all those who use the Moon to mark the passage of time—this is a long-standing and worldwide calendrical tradition! The Jewish, Hindu, and Chinese months begin with the New Moon, and the Muslim month begins with the sighting of the first crescent. Closer to home, almost all First Nations traditional calendars use the actual moon cycle to mark time, each moontime having a distinctive

name. Even though the months of the civil calendar no longer follow the lunar cycle, the date of Easter is still determined (in an ecclesiastical way) as the Sunday following the first Full Moon on or after the day of the Spring Equinox.

Casual viewers of the Moon are most familiar seeing the Moon in the evening sky, as it waxes from crescent through First

Quarter to Full Moon. After that, the Moon is more evident in the sky after midnight, waning from Full Moon through Last Quarter to a crescent rising just before the Sun; however, fewer people look for it at those times and some are even surprised to see the Moon in the morning twilight or in a bluer sky during the first few hours of the day.

That's enough for now—in my next column, we'll start looking at some cool lunar observing projects. Email if you have questions or comments!

dave.chapman@ns.sympatico.ca

Starlight and Semiconductors

Art Cole

Back in the eighties, before the days of digital cameras (or even one-hour photo shops!), I borrowed my uncle's SLR camera, loaded it up with film, and pointed it at the night sky. I had great expectations, but a week later when I picked up my photos at the drugstore, I was very disappointed. I had dreams of taking great astrophotos like those in my field guide, but my photos looked nothing like those photos. Mine were terrible, and they cost me a bundle. But it didn't really matter - to a 14-year-old boy with a young, active imagination, the sky was mysterious and full of wonder, and maybe even a little scary. It was meant to be looked at through a telescope. And although my telescope was small and rickety, the views I used to get through it were immensely satisfying, and I felt pure joy from finding objects by hopping from star to star.

Over the years, my telescope and I drifted apart, although I always maintained an interest in astronomy-related stories. It was in my forties that I really got back



◀ My first ever photograph of Jupiter, a 2011 iPhone snapshot taken through my 8" SCT. (photo: Art Cole)

into it. But things had changed a lot - most of the youthful awe I used to have for the sky was gone, and

things that used to be fun because of the challenges involved were now much easier. I no longer had to star hop for 30 minutes to find an object - now I could just punch its name into the mount and let the mount do the work. My finder scope became an afterthought. And after looking at thirty years' worth of spectacular images from earth- and space-based telescopes, I wanted to see more than what my telescope could show me.

Luckily for me, I made an amazing discovery shortly thereafter. While looking at the Moon through my telescope, I came up with the idea of simply holding my smartphone up to the eyepiece and snapping a shot. I was shocked to see that it not only worked, it worked well. Jupiter was up that same night, so I tried it with Jupiter, too. The resulting image was quite bad, admit-

tedly, but it was enough to get me hooked on astrophotography. Since then, I've incrementally built up my equipment inventory, while at the same time working on techniques used at both the telescope and the computer. The advent of digital technology has revolutionized my hobby in ways I never would have predicted.

I think you could call me an astrophotography junkie. I love it, and when I haven't imaged in a while, I start to miss it. For me, it fills in the void that was left when I got back into astronomy as an adult, and it draws upon much of the technical and scientific knowledge I've picked up over the years. It's both a creative outlet and a technical pursuit, and it lets me see things that I could never see through the eyepiece. The glorious objects that pop up on my computer screen after a few minutes of processing are simply amazing. And the challenges never cease - there is always something new to learn.

I hope that through this column I can encourage others to pick up their cameras and enjoy this exciting and rewarding aspect of amateur astronomy. You don't need much to get started (just a DSLR camera and a



◀ A 2015 DSLR image of Jupiter created with the same telescope, but processed using video techniques. (Photo: Art Cole)

tripod), and from there you can make your astrophotography as complex or as simple as you'd like.

So why should YOU try astrophotography?

You can see things you could never observe visually, such as minute planetary details, faint structure in nebulae, and colours in deep sky objects.

You can share your hobby with people in ways that would otherwise be impossible. People love to look at astro-images and ask questions, and they don't need to be with you at the telescope to see them.

It is a creative outlet. There is no mathematical formula for getting visually-striking compositions.

You can enjoy astronomy on cloudy nights, too! Why be a slave to our fickle Nova Scotian skies? Image on good nights and process on bad nights!

Your camera captures moments in time. Not all things in astronomy are static - for example, there are eclipses,

Starlight and Semiconductors continued

conjunctions, and comets, and your astrophotographs can save these events for posterity. It can be a great technical challenge if you want it to be, blending knowledge and experience of optics, electronics, computers, and mathematics. It's a journey, not a destination. There is always so much to learn, no matter what your skill level is. You can specialize. Just as with visual observing, astro-

photographers can specialize in particular areas, such as solar, lunar, planetary, or deep-sky imaging. So why not give it a try? Just remember to keep it fun. If it's not, you're probably doing it wrong! For a little inspiration (or perhaps for a chuckle) I've included that original shot of Jupiter from four years ago, along with my most recent shot. Remember, if you have any imaging questions, my email door is always open at art.cole@gmail.com.

Did you know that your astro-images are actually three-dimensional? In the next Nova Notes I'll explain...

The Universe's Symphony of Sound

Matt Paine

Can you hear me now? That's what the Milky Way said to Karl Jansky in 1931 when he discovered radio waves being emitted from the center of our Milky Way Galaxy. And so was born the field of Radio Astronomy that would go on to make discoveries that would reshape our perception of the Universe around us

Having been an amateur astronomer since high school, I was lucky, as my high school was the largest high school by size and student population in the United States (1994) but had a 75 seat planetarium within its walls. I decided to take astronomy as my high school core science requirement and spent many hours staring up at the stars, constellations and planets whenever the teacher would run the planetarium. Then later that year in July, I was able to witness Comet Shoemaker-Levy 9 slam into Jupiter. I will never forget seeing the black spots on Jupiter's surface and realizing at the moment I had a passion for amateur astronomy.

Fast forward to 2005 when after a visit to the National Radio Astronomy Observatory

(NRAO) Green Bank Science Center in West Virginia, I saw for the first time a copy of Karl Jansky's antenna

used to make his famous discovery. That same year in February, I had earned my Amateur Radio License in the United States after passing a United States Federal Communication Commission exam. I had always been interested in radio and the fact that I could now talk to the world with a simple radio transceiver and some wire for an antenna, was fascinating. Plus, being an amateur radio operator has had the added benefit of being able to communicate with someone, if needed, when I was observing under dark skies in remote areas like the White Mountains of New Hampshire, Mount Carleton, or even parts of Keji.

Now in 2015 having spent the better part of twenty years as an amateur astronomer enjoying the amazing beauty of the night sky and ten years as an amateur radio operator, I said to myself: Could amateur astronomy and amateur radio be explored together at the same time? The answer is yes. A simple search of the internet revealed a host of simple radio astronomy activities from listening to the Aurora Borealis or hearing

the exotic sounds of the Sun or Jupiter. No you don't need a big antenna like Arecibo in Puerto Rico or the Socorro Array New Mexico. Just an open mind to realize there is more than one way to explore the universe other than a telescope or your eyes. The universe in all its vastness can speak to one's ears like a Brahms symphony and Bach concerto. No the universe is not quiet, but speaks out for mankind's attention to listen to all its wonders.

I look forward to writing future columns for Nova Notes in the coming months. Sharing my radio universe adventures with my fellow RASC members. These include a possible visit to a Radio Astronomy Observatory, trying out some radio meteor scatter communications, listening/recording the Sun, and building a small portable light weight radio telescope for easy deployment in the field with a notebook computer. So next time you step outside and look up at the night sky, remember, our universe is not as quiet as you think.

Matt Paine

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 Nova Notes Columnist
 RASC Halifax Centre

February Meeting Report
Tony Schellinck

Paul Gray opened the meeting and introduced the evening's invited speaker, James Edgar. James is National President of the RASC, production manager of the Society's bi-

His talk was on the *Synthesis of Elements*, a walk through the periodic table and a discussion on how elements are formed within stars. He held the attention of all attendees as he explained that the heavy elements are those beyond Hydrogen, Helium and Lithium, but that the nuclear

fusion in stars can only create elements up to iron. He then explained how heavier elements are created during supernova explosions.

Following the talk Paul described to the audience a new approach to presenting the monthly "What's Up" talk. From now on, a different member will present

"What's Up" each month, putting their own twist on the topic. Roy Bishop was this month's speaker and he set a high standard for the



RASC National President James Edgar. (Photo: Tony Schellinck)

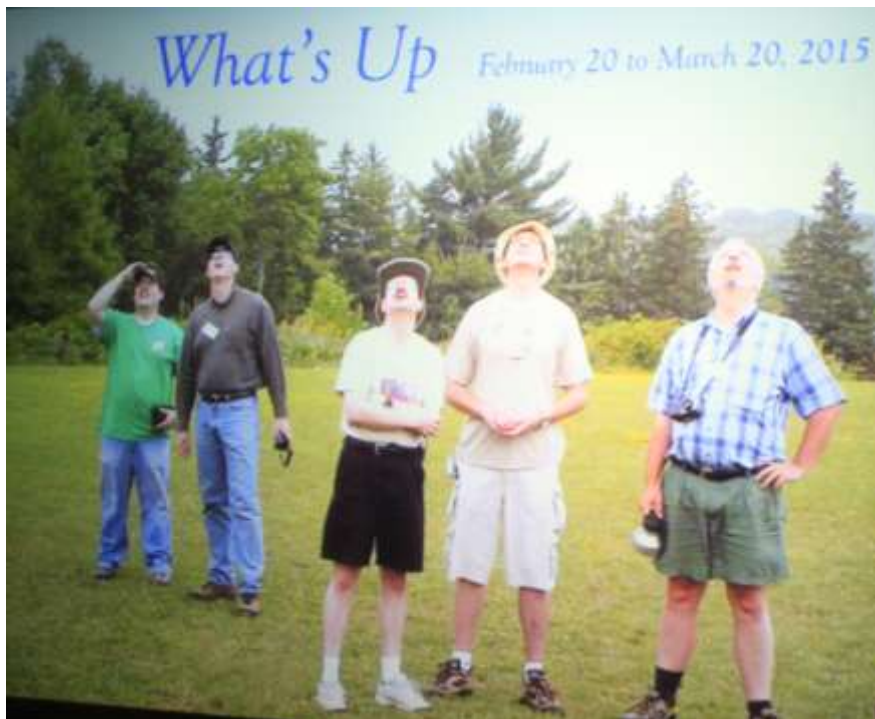
monthly Journal, and assistant editor of the RASC Observer's Handbook.



Mary Lou Whitehorne received a RASC Fellowship, aka "FRASC", presented to her by RASC National President James Edgar.. (Photo: Tony Schellinck)

rest of the membership to follow when they volunteer to do this. Using over a dozen slides Roy presented sky maps, and details on which planets to observe, explained Perigean-Spring-Equinoctial-Declination tides (that occur every 18 years or so), the phases of the moon, conjunctions, occultations, the anti-Super Moon Apogee, and reminded us there would be a total solar eclipse in March that we could see if we happened to be in Greenland.

Next on the agenda was the presentation of a RASC Fellowship, aka "FRASC", to Mary Lou Whitehorne presented to her by our guest, RASC National President James Edgar. The evening ended with food, beverages and conversations about astronomy.



Roy's first slide set the tone for what was an informative and entertaining "What's Up" presentation..

March Meeting Report

Chris Young

The RASC meeting on March 20th was attended by approximately 28 members. Paul introduced the evening's speaker Dr. David Turner who provided the evening's presentation "The Eyes are Still Good Detectors!" Dr. Turner believes strongly that there are good reasons to continue using visual observers, in addition to CCD or photoelectric observations, in collecting brightness data on variable stars.

The systematic observa-



Dr. David Turner (Photo: Chris Young)

tions of variable stars over a time period, consistent with their brightness cycle, can provide a variety of information on both these target stars as well as a valuable reference for adjacent stars. Information on the magnitude, date and time are collected with each observation. The magnitude is estimated by comparison to the known brightness of adjacent stars, both brighter and fainter. Dr Turner stated that a practiced eye can detect differences as small as 0.07 magnitude using averted vision at

the limit of detectability. For his visual observations Dr. Turner's instruments of choice are his eyes, a pair of "Zoomies" (2 power glasses) and binoculars – in that order. Like all skills there are practices which provide the most accurate and consistent judgements of brightness. For example, the transmittance of light through air varies with wavelength/colour so observing the target star as high in the sky as possible reduces the column of air the light must travel through and minimizes this atmospheric extinction effect. Defocused images are easier to judge than focused images as the light is spread out and becomes fainter making it easier to compare to the reference stars. Higher magnifications provide a darker background providing greater contrast and permitting fainter stars to be detected.

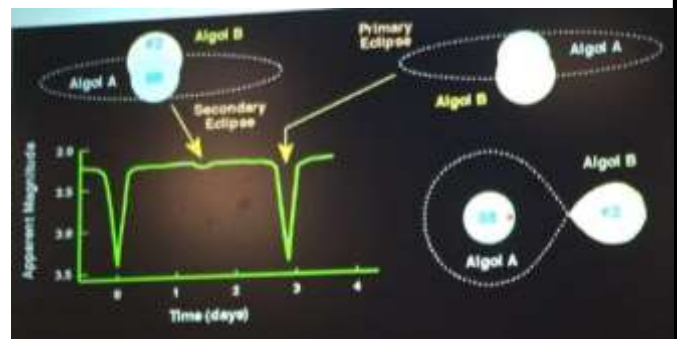
It is important to be aware that the eye's luminance sensitivity at low light levels varies with wavelength and shifts toward the blue end of the color spectrum. This can affect brightness estimates of variable stars when using comparison stars of different colors, especially if one of the stars is red. This varying wavelength sensitivity is known as the Purkinje effect. This biological "weakness" is also true of CCD and photoelectric sensors so, as always, know your tools!

Dr. Turner provided comparison of older and more current brightness plots of variable stars. He noted that the observers of past generations had more finely judged results, although this may be that current ob-

servations by AAVSO appear to include all observations with little screening of the more extreme recordings. Similarly the results from CCDs and other sensors were shown to have similar weaknesses in providing results.

While this talk was quite technical at times, the audience was able to take away an increased understanding of the variability of our vision and how light is altered passing through the atmosphere. These are both valuable lessons for the observer. Judging the visual magnitudes of stars seems straightforward (with practice!) and useful.

Paul Gray followed this talk with What's Up which included an invitation to participate in observing the changing brightness of the eclipsing binary star Algol located in Perseus. Paul has charts showing the brightness of nearby stars and will identify the dates when Algol is eclipsed by its companion. Several members can collect observations and we can plot the results. Contact Paul at snpgray@gmail.com for more information. David Levy's book



Paul Gray Explains Algol Binary (Photo: Chris Young)

"Observing Variable Stars" was recommended for reference.

The evening then turned to refreshments and good discussion amongst the members and guests.

The Halifax Centre is hosting the 2015 RASC General Assembly (GA) at Saint Mary's University. The event, whose slogan is "*Stars by the Sea*", will be held from July 1st to July 5th 2015. For those of you who have not had the opportunity to attend a GA this will be a unique opportunity to meet with RASC members from across the country without leaving home!

The GA is an annual event where members of the RASC, the National Advisory Council, and the Board of Directors meet to discuss RASC business and to plan for the coming year. Although there are several "business" meetings (including the Annual General Meeting on Sunday) a host of social events, tours, lectures and talks, will make the GA an interesting and fun event. The last time Halifax hosted a GA was in 1993, so this is a rare opportunity to mix with, and socialise with members of the RASC from across the country. Please go to <https://www.rasc.ca/events/home> and click on the "*Stars by the Sea*" icon (upper right) for more info.

In order to participate in many of the GA activities including tours, social events ("Pub Night", BBQ and Banquet), lectures and paper sessions, members will have to register for the GA (early bird pricing of \$125); however, the Ruth Northcott lecture (Saturday evening) is open to everyone.

We will, of course, be looking for volunteers to help out with the event, and whatever help any member can give will be appreciated. Volunteers do not have to register for the GA (if they don't

intend to participate in the GA events), but any volunteer that offers more than 5 hours of volunteer work will get a 50% registration rebate, as well as a volunteer T-shirt, and some unique gifts. This will be a fun event and we hope that many members of the Halifax Centre will participate.

We will be looking for volunteers in several principal areas.

Drivers – to ferry registrants from (and to) the airport. We will cover gas expenses in the order of \$25 per return trip from the airport to Saint Mary's. Paul Heath is organising this part of the GA.

Registration desk – this desk (in Loyola) will be staffed most of Wednesday, Thursday and Friday. There will always be a knowledgeable person working at this desk, so no one will be left alone! Chris Young is looking after registration.

Audio / Visual – we are planning to record most of the papers and lectures presented at the GA as well as many of the social events. Martin Hellmich is our A/V lead.

General volunteer – there are lots of non specific volunteer jobs to do at the GA. If you can just give an hour of two, or are prepared to help direct registrants to the various parts of the University, please feel free to participate as a volunteer.

Please contact Pat Kelly (Patrick.kelly@dal.ca) or myself (quinnjem@yahoo.com) and we will give you all the info you need.

As I mentioned the GA is a five day event, and I thought I would give you a quick overview of what to expect. Please go to <http://www.rasc.ca> and click on the "*Stars by the Sea*" icon (upper right) for more info. It is necessary to register for the GA to attend most of the GA events, but remember volunteers get a 50% rebate on their registration fee!

Wednesday July 1st We have no specific events planned for this day, but this is when most "working" members of the RASC will arrive, and hopefully have a chance to visit the Halifax nightlife or just socialise at SMU.

Thursday July 2nd This the primary work day for the GA. The National Council, and Board of Directors, will spend the day in meetings and be entertained at Dave Lane's at a small BBQ in the evening.

Friday July 3rd The real fun begins. This is tour day, where registrants can either take our primary "*Wine and Tides*" tour to the Annapolis Valley, or explore the Halifax area. In the evening we will formally open the GA with a "Pub Night" hosted at the Gorsebrook Lounge at SMU. There will be food, drinks, live music from the Saunders Brothers, and our traditional East v West RASC challenge.

Saturday July 4th Saturday is set aside for the GA Paper Sessions. These are short talks (typically 15 minutes long), given by RASC members from across the country, on various astronomical and RASC related topics.

2015 RASC General Assembly

Continued

After the paper sessions we will be hosting a BBQ at the Gorsebrook lounge. In the evening the GA will host the Ruth Northcott lecture (which is open to anyone, including the public). This year, Professor Rob Thacker (from SMU) will talk about Galactic Archeology. He is a great speaker, and this is a not to be missed opportunity to listen to a great speaker on a very interesting subject.

Sunday July 5th

This is the last day of the GA. The morning opens with the

Annual General Meeting of the RASC. After lunch there are two lectures. The first is the Plaskett Lecture given this year by Anne Archibald. The Plaskett Award is given each year jointly by the CASCA and RASC and the recipient is given the opportunity to speak to either organisation. This year Anne has chosen to speak at our GA. Following the Plaskett Lecture, Dr. Dave Turner and RASC historian Randall Rosenfeld will talk about the restoration of the church ceiling in Lunenburg and the astronomical discoveries they have made.

In the evening we have the closing event of the GA, the Awards Banquet. This year the Banquet will

be opened by the "Women of the Shore" and first Nation's drumming group. During the Banquet there will be awards, great dining, and a talk by Cathy LeBlanc and Dave Chapman who will discuss their collaboration in merging western astronomy and first Nations tradition "*One Moon, Two Eyes*".

The closing ceremony will end the GA at the end of the Banquet.

See you there!

Quinn Smith – Pat Kelly
GA 2015 Planning Committee
Co-Chairs

National Advisory Council Report

Patrick Kelly

An on-line meeting was held on March 21. Here are the highlights in the order in which they were discussed.

Charlottetown Centre: This Centre has been officially disbanded due to a combination volunteer burnout and its small membership. That drops the number of Centres to 28.

2017 Solar Eclipse: The Society will be producing a guide to this event. Start planning now!

Fee Increase: To offset increased costs for procuring and mailing *SkyNews*, the national portion of the membership fees will increase effective July 1 of this year. All Regular memberships increase by \$3.00; Youth memberships by \$2.00, Family Base memberships by \$3.00, Family Additional Adult by \$1.00, and Family Additional Youth by \$0.50. These only apply to Canadian members as the drop in the Canadian dollar

relative to the U.S. dollar has made up for this increase.

New Handbook Editor: James Edgar will be the new handbook editor once Dave Chapman finishes his five-year term. James' first handbook will be the 2017 edition. Having worked with him as an assistant editor in the past, he is an excellent choice.

Communications: It was noted that only about 20% of the membership downloads the electronic edition of the *Journal* and members are encouraged to avail themselves of this publication in either printed or electronic form as it is a great resource and covers a wide range of astronomical interests. The Society is also looking to revitalize its logo and graphic identity along with how it communicates. This will be a major long-term effort. A Centre "operating guide" is also in the works.

Web Site Update: The information technology committee is looking at updating the underlying Drupal software that runs the web site, which will also allow an opportunity to make some major changes. Something that may also be possible is a "template" that centres can use for their own sites.