

# Nova Notes

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



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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, NS. The site has expanded 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, John MacPhee

Meetings usually begin at 1:00 p.m. at Saint Mary's University in Room 101 of the Atrium Building (AT).

*All meeting locations and presentations subject to change*

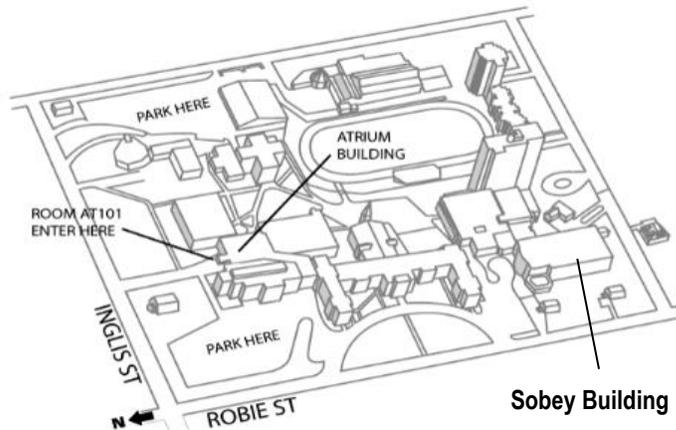
## Meeting Dates for 2019

Saturday, 6th April  
Saturday, 4th May

### Meeting Location: Saint Mary's University

#### Atrium Building (AT) Room AT 101

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



Meetings are usually held on the first Saturday of the month, except for the months of July and August.

Executive meetings begin at 11:00 a.m., usually in room AT306, and all members are welcome.

### Halifax RASC Board of Directors, 2019:

Honorary President : Mary Lou Whitehorn	(Appointed)
President:	(Vacant)
Vice-President: Charles White	(Elected)
Secretary: Judy Black	(Elected)
Treasurer: Gregg Dill	(Elected)
National Council Rep: Patrick Kelly	(Elected)
Director: Paul Grey	(Elected)
Director: Peter Hurley	(Elected)
Director: Paul Heath	(Elected)
Director: John Read	(Elected)
Director: Tom Crosman	(Elected)
Librarians: John Read	(Appointed)
SCO Manager: John MacPhee	(Appointed)
Observing Chair: Sean Dzafovic	(Appointed)
Outreach Chair: Paul Heath	(Appointed)
Nova Notes Editor : Charles White	(Appointed)

Cover Photo By:

### Dave Chapman "Star Party"

Photo taken at the Star Party that was recently held at Atlantic Photo Supply.

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**From the Editor** — At the members meeting in February, during the “What’s Up?” portion of the meeting, there were two challenges given out for the Centre to try, and to send in both visual sketches and astrophotography. These challenges are brought up in the bit more detail in the February meeting notes, but it is the challenges themselves that I want to talk about in the column.

I’ve been a part of the RASC Halifax Centre for a few years now, and it’s been a fantastic time. But for myself observing has to have a goal or at the very least, a reason to set everything up. It’s one of the reasons I love all the observing programs that are available. I started with the *Explore the Universe*, and now I am on to *Explore the Moon* and the *Messier List*. These lists however, are for the most part done by a single observer and can be a somewhat lonely process. Now, going back to these challenges that were given out. I’m not sure what the total number of submissions were for each object but it gave me the idea that maybe our Centre might look at doing more of these observing challenges, or, again as a Centre, start doing observing projects throughout the year where the results could be posted in Nova Notes along with giving observers of various levels of experience to learn from each other and sink their teeth into a project and work together to complete a goal, regardless of where an individual is at in the province.

I encourage all the members reading this to send their thoughts or even ideas on such a proposal to me. It would be fantastic to publish updates and reports on our projects in these pages, as well as to National the work that we as a Centre as doing out here on the East Coast.

## Astronomy Nova Scotia

Through the hard work and effort of Halifax Centre members Dave Chapman and Dave Lane, there is a fresh new Astronomy Nova Scotia website. There is great information posted there about upcoming events, and lots of other things to look at while you’re there. Be sure to check it out!

<http://astronomynovascotia.ca/index.php>

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

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

**The deadline for the next edition is 25th April 2019.**

The opinions expressed herein are not necessarily those of the Halifax Centre.  
Articles on any aspect of astronomy and related activities will be considered for publication.



**Royal Astronomical Society of Canada -  
Halifax Centre  
Annual General Meeting (AGM)  
Friday, December 7, 2018**

**Welcome and Opening Remarks**

President Paul Grey welcomed the 29 members and 6 guests to the meeting and thanked them for coming out despite the storm. He then provided opening remarks.

**Approval of 2018 Agenda**

***071218AGM-Mot01:***

It was moved by Paul Heath and seconded by May Lou Whitehorne to approve the 2018 AGM agenda as circulated.  
CARRIED.

**Approval of 2018 AGM Minutes**

The minutes of the 2017 AGM had been pre-circulated to members.

***071218AGM-Mot02:***

It was moved by Patrick Kelly and seconded by David Lane to approve the minutes of the 2017 AGM as circulated.  
CARRIED.

**Appointment of a New Auditor**

Paul Gray stated that Jim Millar had agreed to stand as auditor for 2018-2019.

***071218AGM-Mot03:***

It was moved by David Chapman and seconded by Judy Black to appoint Jim Millar as Auditor for 2018- 2019.  
CARRIED unanimously.

**Board Executive & Financial Reports**

**President's Report** – Paul Gray noted the past year was very busy and successful. Nova East was again successful. The Members' meeting had good speakers, and there was lots of outreach in large part due to the efforts of Paul Heath and Tony Schellinck. He congratulated Charles on a job well done as new editor. There is movement at SCO regarding upgrades; John McPhee is obtaining pricing for a new propane tank and heater. A major change will be moving the meeting time to Saturday afternoon from Friday night, starting in January 2019

**Vice-President's Report** – Judy Black presented the report on behalf of Melody Hamilton. Thanks to collaborative work with Judy Black and Dave Chapman, Melody developed a communications strategy for the Centre that involved identifying the social media used, for whom it was intended and who within the Centre was acting as the administrator. A form was also developed that facilitated the organization of the information required and sending it out electronically to the social media administrators. It was noted that Melody was not re-offering to be on the Board due to travel time and distance.

**Secretary's Report** – Judy Black stated there were 10 Board of Directors meetings and 9 Members' meetings in 2017-2018, including the informal members' BBQ at SCO. Members were notified at least twice about each of the meetings. There were numerous motions made by Council such as funds required for additional funds for Nova East, purchase of banners for displays, appointment of Gregg Dill as Treasurer and of Dave Lane as Auditor for 2017-2018, and approval of several policies, position descriptions and terms of reference. She thanked the Centre's and fellow Board members for the support she continued to receive in the past year.

**Auditor's Report** – Dave Lane read his Auditor's letter as Gregg Dill could not attend the meeting. Dave noted that despite the learning curve during Gregg's first year as Treasurer, the Centre had been served well in the past year. He thanked Jim Millar for continuing his role as Treasurer until March 2018, and for his continued assistance. There were two recommendations:

- 1) Before the books are put to rest, printouts of all the revenue, expense, and balance sheet transactions should be included in the records binder.
- 2) Cheques for expenses should not be released until receipts (or photos/scans of them) are received by the Treasurer.

**071218AGM-Mot04:**

It was moved by Paul Heath and seconded by Patrick Kelly to approve the Auditors Report. CARRIED.

**Treasurer's Report** - Jim Millar provided highlights of the Treasurer's report in the absence of Gregg Dill. Revenue was \$5,792.41 with expenses at \$6,676.12. This meant a deficit of \$883.71 for the year, but the Centre continues to be successful and solvent. He explained the increased income was due to the Public Speaker Program (PSP) that reimbursed the Centre for most of the guest speaker expenses, and for the monies obtained for licensing of the usage of the Halifax Centre-produced video regarding use of a star finder. He then explained the assets of \$32,725.95, the liabilities of \$1,240.42., and a slight increase in capital. Nova East netted a profit of \$1,279.29 due to reimbursement through the RASC Public Speaker Program. Jim also notified the membership he is stepping down from the treasurer's role.

**071218AGM-Mot05:**

It was moved by Jim Millar and seconded by Chris Young to approve the Financial Report. CARRIED.

**Appointed Position & Committee Reports**

Members agreed to approve all reports at the end of the reports in lieu of approving each individually. Time was allotted after each report for questions and clarifications.

**National Council Representative Report –**

Pat Kelly reported the National Council determined a new structure to make meetings more efficient. A more consistent reporting schedule for committees also allows for questions to be raised from committee reports, and plans being made by the Board to devolve the responsibility for some committees to the National Council. In October, the Board decide to replace two existing committees (Education and Public Outreach, and Membership and Development) with four new ones: Education, K-12, Marketing and Public Relations, and Communications. Terms of Reference are being drafted and members sought for the committees. He encouraged everyone to log into the members' section of the Society website and look at the reports of the various committees.

**Observing Chair Report –**

In the absence of Sean Dzafovic, Judy Black presented highlights from Sean's report. Four members received RASC certificates in the past year for Explore the Universe

– Judy Black, Ronnie Reid, Heidi Verheul and Charles White. It was also noted that three members received recognition in SkyNews for Photo of the Week – Barry Burgess, Jerry Black and Dave Chapman. Barry Burgess also won first place in the annual round-up in the Tripod Mounted or Sky Tracker category.

**St. Croix Observatory (SCO) Report** – Judy Black presented highlights from a compiled report. The annual SCO BBQ was another success this past year with new and returning members in attendance. Thanks to Chris Yong, Sean Dzafovic, Pat Kelly and Paul Grey for organizing the BBQ. We had the highest number in attendance for the BBQ this year. She also encouraged members that even if they are alone at SCO, they should make an entry into the log book on the table; this would provide a better understanding as to the frequency of use of the observatory. SCO continues to fulfill a worthwhile function for the Centre membership and thanked everyone who contributed to SCO operations.

**Nova Notes Report** – Judy Black reported on behalf of Charles White. Five editions of Nova Notes were published, starting with his inaugural 2017 AGM reports. Thanks to Paul Heath (*Food for the Soul*) and Dave Chapman (*Lunatic Ramblings*) for their recurring articles. Thanks also to Blair MacDonald, Melody Hamilton, Chris Young, Judy Black, Michael Boschat, Michael Gatto and John McPhee for their contributions throughout the year. Thank you as well for contributors to the cover photos – Dr. Roy Bishop, Dave Chapman, Dave Hoskin and Michael Boschat. An average of 12 copies per issue were mailed. Slight changes have been made to the format and there is a new section dedicated to observing, sketching and astrophotography. Charles also has a "From the Editor" section where he shares his views. Thank you, Charles, for a job well done.

**Nova East Report** – Judy Black, as Chair of the 32<sup>nd</sup> Nova East, reported another successful event thanks to the work of her team members – Dr. Roy Bishop (consultant), Melody Hamilton, Chris Young, Paul Gray, Gregg Dill, Dave Chapman, John Read, Liz Greenough and Pat Kelly. There were four new items added to the Nova East agenda: the much-enjoyed Astronomers' Lounge and the Astrophotography People's Choice Award as suggested by Melody Hamilton, Telescope Medics as recommended from 2017 Nova East attendees, and a first aid station suggested by Judy Black. She noted that Kathy Walker had won both the Astrophotography contest and the People's Choice Award for her M13 photo.

New to pass on to the planning committee for Nova East 2019: Outcome of the review of the astrophotography contest rules and judging criteria; Summary of recommendations regarding recurring events, health and safety, inventory lists and an action list; and a revised Nova East Task Chart with revised tasks and timelines required for planning Nova East.

**Librarian Report** – Judy Black reported on behalf of John Read who had been newly appointed as Librarian. She noted that although the library cart had not been rolled out in the past year, John was planning how to revitalize usage of the Halifax Centre library, including discussions of book recommendations at each Members' meeting.

**Outreach Report** – Paul Heath provided an overview of his report. He thanked everyone who helped throughout the year. He various events such as HalCon that provide visibility for RASC and Halifax Centre. He thanked:

Tony Schellinck for his phenomenal work in outreach using binoculars, through community based presentations and through SCANS; Melody for her work in the Digby-Valley area; and Dave Chapman for his work with Kejimkujik Dark-Sky Weekend.

Dave Chapman asked whether or not someone was recording outreach reports with RASC. Judy Black reported that a concerted effort by the Board had not been made and that it basically was up to each member to report their activities with RASC. Paul Heath and Judy Black stated they included numbers in their respective biannual and annual reports. Paul Gray suggested a question for National Council might be to determine how many Centres report outreach events, and to determine relevance to RASC for determining dissemination of educational and promotional materials to the Centres.

Dave Lane asked if our outreach efforts meant to increase our exposure, particularly at exhibitions and conventions, result in increased membership. The answer could not be ascertained but it was generally thought that our efforts helped maintain the membership we have. The Board of Directors should investigate further.

**071218AGM-Mot06:**

It was moved by Chris Young and seconded by Mary Lou Whitehorne to accept the Reports as presented.  
CARRIED.

## Matters to be Determined by Special Resolution

**Bylaw #1 Amendment** – Judy Black and Paul Gray presented the amendment proposed for members consideration. It was explained that from time to time business arose between regularly scheduled meetings of the Board that required Board approval, such as decisions impacting fiscal responsibilities. The need is there for a member-approved mechanism whereby the Board could choose to conduct business via electronic media. The addition of the following statement to Section 6.5 Voting at Board of Directors meetings was proposed:

*6.5.3 From time to time, the Board of Directors may choose to conduct business via electronic media according to procedure determined by the Board. Such procedure shall set out rules for making, seconding, discussing, and voting on motions. The Secretary shall record successful motions made in this manner, and the results shall be read into the minutes of the next following Board of Directors meeting.*

Members were then presented with the following Special Resolution:

Whereas, it is recognized that from time to time urgent business arises that requires Board of Director approval between meetings and that a mechanism to do so is required,

Be it resolved as a **Special Resolution of Members** that: RASC Halifax Centre Bylaw # 1 addition of 6.5.3 to 6.5 Voting at Board of Director Meetings as presented be approved;

RASC Halifax Centre Bylaw #1 with the aforesaid amendment be forwarded to the Registry of Joint Stock Companies for approval prior to enactment.

**071218AGM-Mot07:**

It was moved by Jim Millar and seconded by Patrick Kelly to adopt the Special Resolution related to adoption of the modified RASC Halifax Centre voting at Board of Directors meetings.  
CARRIED UNANIMOUSLY.

Two amendments to the addition were suggested: There was a redundancy in using the phrase "next following." It was suggested that "following be deleted."

A more definitive method of reporting the outcome of the vote should be provided, such as replacing "read onto the minutes" with "reported at"; in this way, the vote would be noted in the minutes of meeting accordingly.

Both Jim Millar and Patrick Kelly agreed to the amendments. The addition being forwarded to the Registry of Joint Stock Companies (RJSC) will read as follows:

*6.5.3 From time to time, the Board of Directors may choose to conduct business via electronic media according to procedure determined by the Board. Such procedure shall set out rules for making, seconding, discussing, and voting on motions. The Secretary shall record successful motions made in this manner, and the results shall be reported at the next Board of Directors meeting.*

### **Call for Nominations and Election of 2019 Board of Directors**

Paul Gray explained that according to Bylaw #1 (2017) now enacted, there could be no less than five and no more than 10 on the Board. He noted that Sean Dzafovic, Andrew Frank and Melody Hamilton are stepping down from the Board. However, Sean Dzafovic agreed to be re-appointed as Observing Chair and Melody agreed to serve as Nova East Registrar. Paul was stepping down as President after 4 years in that capacity but he was agreeable to be elected as a Director.

There was a call for nominations from the floor for the 2019 Board of Directors. The slate of nominees for the 2019 Board of Directors was presented as follows and included one new member:

#### **Executive Committee**

**President** – vacant

**Vice-President** – Charles White

**Recording Secretary** – Judy Black (agreed to re-offer as Recording Secretary)

**Treasurer** – Gregg Dill (agreed to re-offer as Treasurer)

#### **Directors**

Pat Kelly – also agreed to be re-appointed as the National Representative

John Read – also agreed to be appointed Librarian

Paul Heath – also agreed to be re-appointed as Outreach Chair

Charles White – also agreed to be re-appointed as Editor, Nova Notes

Paul Gray – agreed to be appointed as Meeting Coordinator

Tom Crosman

#### ***071218AGM-Mot08***

It was moved by Jim Millar and seconded by Dave Lane to close nominations.  
CARRIED.

There being no further nominations, the 2019 Board of Directors positions were approved by acclamation. A President will be actively sought.

Paul Gray stated that Dr. Roy Bishop was resigning his position as Honorary President as of December 31, 2018. Paul pointed out Roy's observation that all previous Honorary Presidents had died while in the role, and he preferred to leave while still alive. To that end, the Board sought a replacement and had subsequently appointed Mary Lou Whitehorne as the Honorary President commencing January 1, 2019. Members applauded the appointment.

#### ***071218AGM-Mot09***

It was moved by Pat Kelly to adjourn the AGM.

### **December Members Meeting**

**What's Up?** – Paul Gray provided the *What's up?* in Sean's absence.

#### **Presentations:**

##### ***San Pedro de Atacama 4K HDR (Video)*** –

Jerry Black explained this was a repeat viewing of the video but that it was now viewable in 4K format and that the music had been changed, thanks to the approval of pianist composer Rachel Lafond. Members applauded the video at its conclusion.

***Roar of the Dragon!*** – Paul Gray presented his observations of the Draconid Meteor shower. He explained that each year, Earth encounters a stream of meteoroids left behind by comet 21P/Giacobini-Zinner. On several occasions in the last century, there have been outburst with ZHR's in the 100s to 1000s of meteors seen visually. Visual and radio observations were explained.

**Refreshments:** Members were invited to socialize and enjoy the Christmas treats provided.

**Date of Next Members' Meeting:** January 5, 2019: 1:00 – 4: 30 PM in AT101

Adjournment at 10:30 PM.

## January Members Meeting

Board of Director member Paul Gray welcomed 44 members to the meeting at 1 PM, noting this was the first one under the new format for Saturday afternoon. He invited members to join him for dinner at Kempsters following the meeting. He also noted there was a need for a Nominating Committee Chair and two Directors (one of which is the position of President).

Paul Heath, as Outreach Chair, requested assistance for an event in Mahone Bay. He then donated a copy of his book *Food for the Soul* to the Halifax Centre Library; John Read accepted the donation on behalf of the Centre. Paul then read his poem *Wait the Dragon* that related to December's Draconid meteor shower. He also requested a slight change in reporting outreach activities on the Centre's discussion list:

1. When you are reporting an Outreach event you held:  
As in the past, please have the subject of your email include the words "Outreach Report".
2. When you require assistance in responding to an outreach request or need assistance at one you are organizing:  
Please have the subject of your email include the words "Outreach Request".

Dave Chapman (producing, writer), Halley Davies (videographer, editing) and John Read (presenter, writer) then introduced the first of three YouTube videos to explain and promote RASC observing certificate programs that were funded by RASC. They discussed the introductory Explore the Universe and the Explore the Moon certificates. Members were delighted to see this segment on the large screen and congratulated them on a job well done. The second video would discuss intermediate programs (Messier Catalogue, the Finest NGC Objects, Isabel Williamson Lunar Observing Program) and the third instalment would describe advanced programs (Deep-Sky Gems and Deep-Sky Challenge). The videos are to be used by any member from any Centre to promote observing programs. They hoped it would excite members to complete an observing certificate. The videos can be found on the RASC website and on the Halifax Centre YouTube ([https://www.youtube.com/channel/UC0eaHd9ZkSOW-7I\\_cFMdbyw](https://www.youtube.com/channel/UC0eaHd9ZkSOW-7I_cFMdbyw)).

Dave Chapman then presented *What's Up with the Moon?* He briefly explained the Chang'e-4 Lunar Lander and rover that had the first soft landing on the far side of the Moon near the crater Von Karman. Satellite communications were required as the Moon is blocking any direct communication with the rover and lander.

John Read, Halifax Centre Librarian, had an improvised check-out list for members who wished to take out books at this meeting. New to the agenda is a segment in which he will highlight 3 books in the library. This evening they were Paul Heath's *Food for the Soul*, John Read's *50 Things to See On the Moon*, and Antonin Rukl's *Atlas of the Moon*. Members briefly discussed the



Top: Paul Heath leads the demonstration during the Youth Activity portion of the meeting with Isaac Read standing in for the Earth.

Below: Dave Chapman, John Read, and Halley Davies are the three creators behind the RASC promo videos for various observing programs. The first one was unveiled at the January meeting.



possibility of Board funding to replenish and replace books in the Library.

Kathryn Gray, a SMU astrophysics student, presented four significant events as part of her presentation on *Astronomy News*:

**New Horizons:** While traveling through the Kuiper Belt it took several photos of the comet Ultima Thule.

**InSight:** The lander placed its first instruments on Mars to measure "Marsquakes".

**Big Bang Fossil:** An observatory atop Mauna Kea recently discovered a rare fossil in deep space — a relic cloud of gas, orphaned after the Big Bang that offers new information about how the first galaxies in the universe were formed.

**NASA Juno Mission:** The solar-powered spacecraft is at the halfway point in its prime mission to probe beneath the planet's obscuring cloud cover and to study Jupiter's auroras to learn more about the planet's origins, interior structure, atmosphere and magnetosphere.

Paul Heath then provided a demonstration to the children in attendance while explaining how to conduct this presentation to the adults. He used a smiley face yellow ball half covered in black tape and smaller Styrofoam balls on sticks, with young and old assisting him.

Pat Kelly noted that most authors who want people to read their books provide lots of white space and pictures. This was not the case with the Observer's Handbook and newcomers to astronomers might consequently find it daunting to even begin reading it. He announced that beginning with the February 2019 meeting, a 10 to 15 minute presentation would be given on a portion of the Observer's Handbook. Pat, John Read and Judy Black will rotate responsibility for the segment. Be prepared to be inspired to read the Handbook!

While waiting for the guest speaker to set up, members enjoyed beverages and treats during a 30-minute social period.

Paul Gray presented his topic, *Dark Nebulae in New Light*. He began by providing a brief autobiography of E.E. Bernard who had the last visual discovery of a moon in our solar system, discovered 16 comets (1881-1892), discovered the fast-proper motion (10 arc seconds/year) of a 9.5 magnitude star Munich 15040 (now known as Bernard's Star), and who wrote an atlas of dark nebulae. The Atlas is in SMU's archives. It has hand-drawn star maps, photo plates of sections of the sky, charts, and vivid descriptors of each nebula. He showed Bernard's plates depicting the Snake Nebula (Bernard 72) and Bernard's lizard nebula. Paul explained that he had started photographing the dark nebula years ago and was just now getting back to

complete the list. He provided a comparison of his photos to those taken by E.E. Bernard — very well done!

He listed what was required to photograph dark nebula:

Start with easy targets

Dark skies!!

Choose nights with above average transparency

Be dark adapted and well rested

Observe the object when it is on the meridian (less air mass to look through)

Use the proper field of view (FOV) for the size of the object

Use Light Pollution filters (LPR), if applicable

Use clean and well collimated optics!

Use good charts and Images!

Take your time! Let the brain work (to identify dark patterns among the stars)

Paul also showed how he built his observatory. The rationale for building it was that his telescope was already set up to allow him to begin observing and taking photos much quicker, and there was space for storage space. The number of observing sessions almost tripled since its construction (17 nights in 2016, 44 nights in 2018). It allowed him to do projects as well as produce "pretty pictures". Paul concluded that he was hoping to encourage others to observe "nothing", to completely image Bernard's Dark Nebula list and to perhaps write a journal article and to perhaps expand the RASC Handbook section regarding nebula in a future edition; no plans to produce his own dark nebula atlas.

Meeting closed at 4 PM.

Respectfully submitted,

Judy Black

## February Members' Meeting

Paul Gray opened the February Members meeting by introducing himself and welcoming all those who were in attendance.

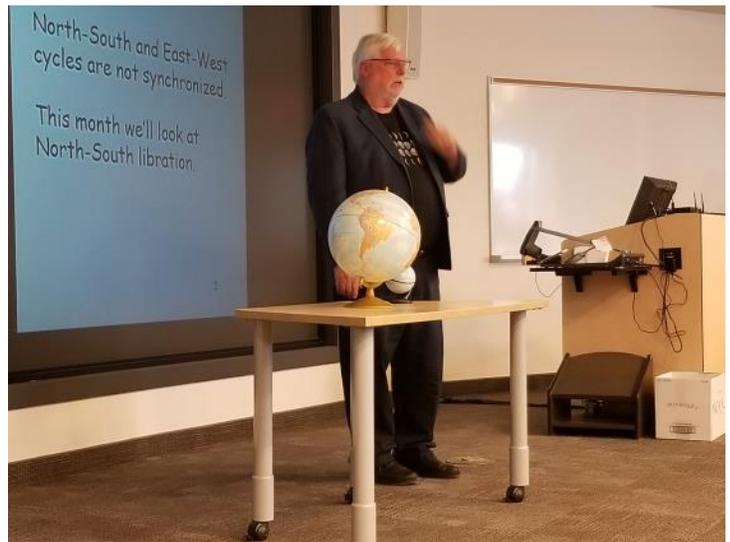
Paul Heath, then delivered his monthly installment of "*Food for the Soul.*" This month's poem was dedicated to Tim Doucette of the Deep Sky Eye Observatory.

Despite the inclement weather system that was due to bear down on us that day, Tim arrived from Yarmouth County to give his presentation on the Deep Sky Eye. He shared with us a great presentation that had a lot of highlights, like why it was called the Deep Sky Eye, his own experiences, and a fantastic new initiative that they'll be rolling out that allows the use of smart phones to provide an augmented reality tour of the night sky.



Above: Tim Doucette gives his presentation on the Deep Sky Eye. His observatory is in Yarmouth County.

Snacks and refreshments were then provided by Pat Kelly, and as members mingled they were able to try out the headset Tim brought with him that holds the smart phone for the A.R. tour which drew a fair amount of attention.

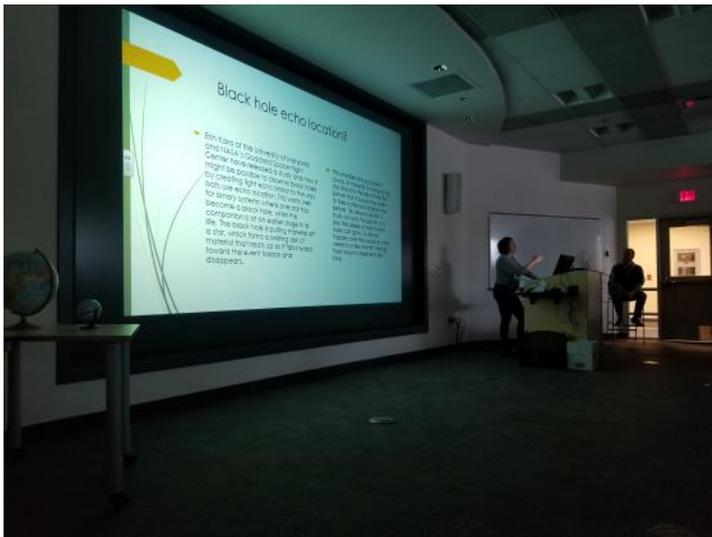


Above: Dave Chapman explains lunar libration in part one of a two part talk.

After the refreshments, Dave Chapman showed to the membership the second of the three RASC observing videos that have been produced. These can be found on YouTube, and it covers the Messier, NGC and the Isabel Williamson observing certificate programs. Dave then went on into his talk and demonstration with the "What's up with the Moon" segment. This "What's up" focus was on the North-South movement of lunar libration. The meeting in March will cover the East-West movement.

Keeping in the "What's up" category, Paul Gray gave an overview of what to look for and expect in the coming month. He also presented two challenges to the membership, the first being for sketching and drawing and that was to find and record M44, known the Beehive Cluster. The second was for the astrophotographers and their challenge was to capture M67. Both of the challenges given were of open clusters.

Kathryn Gray then presented and discussed what was new in world of astronomy and astrophysics. Topics ranged from "plants on the Moon," to finding blackholes using a kind of "light echolocation."



Kathryn Gray discusses what is new in the world of astronomy and astrophysics.

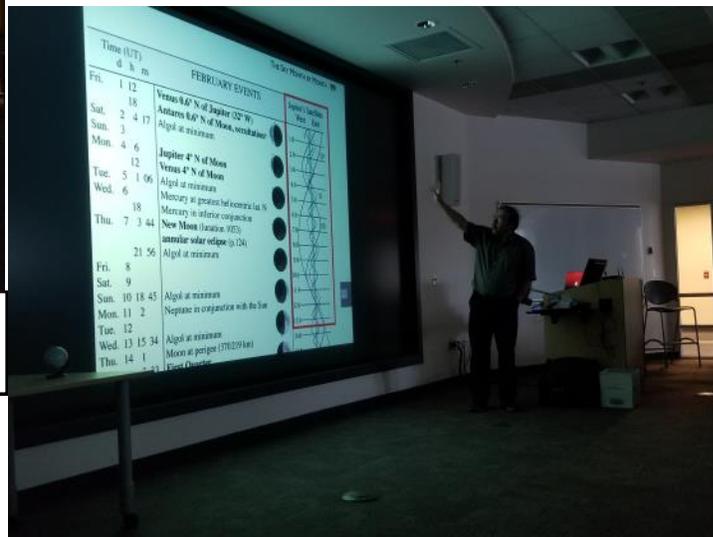
Paul Heath then took the floor again for his youth activity and while there were no young ones present, there were certainly enough “young at heart” to make up for it.

Paul’s activity this month was how far is the Moon from Earth. Using paper cut outs of the Earth he unfolded them side by side, recruiting “astronauts” along the way until after nearly crossing the whole of the meeting room. We arrived at the Moon.



Paul Gray and his “CSA astronauts” demonstrate how far away the moon actually is from the Earth.

The last presentation at the meeting was from Pat Kelly. He delivered a talk on Jupiter’s moons and the information that you can find about them in the *Observers Handbook* as well as how to use the diagram showing their orbital motion throughout the course of 30 days.



Pat Kelly talks about the information on the moon of Jupiter in the *Observers Handbook*

Following this presentation, the February meeting was adjourned by Paul Gray.

## **Food For the Soul**

(January meeting 2019)

### ***Wake the Dragon***

Dragon restless lays, His sparkling scales,  
In darkest cave the faintest of light.  
Curled about his task,  
Restless the watch imposed.  
The trickster's victim, in silent restless repose.  
Slow spins the deepest night  
The guiding light encircled.  
His endless task eternally imposed.  
But as the cycles turn,  
A memory of the sword, his exile forced  
A restless stirring.  
Oh, so fleeting a protest radiates,  
To briefly light his darkened cave.  
Yet memories of caging simmer  
And now the sword does pass anew.  
Anger bursts from memories cage,  
Released are fires, boundless in seeking  
freedom,  
Streak full across the deepest night.  
Yet so brief his anger spent,  
Then restless, again to watch imposed.  
Until a future time,  
That sword, once more the Dragon wakes.

By Paul Heath

## ***SIGHTLESS EYES***

(February meeting 2019)

Sight was said undone  
Vision withheld from the young  
Until,  
A mere reflection on the glass.  
Wonders Hidden in the glare  
Darkness closes out the skies  
Until,  
A mere reflection on the glass.  
Never expected or even dreamed  
Wonders hung in darkness unseen  
Until,  
A mere reflection on the glass.  
Glittering starlight all concealed  
Ghostly images only from a dream  
Until,  
A mere reflection on the glass.  
One glance stripped off the veil  
And sightless eyes the dream revealed  
For now,  
A mere reflection on the glass  
Held all the wonders, lost in the past.

By Paul Heath

## 50 Things to See on the Moon

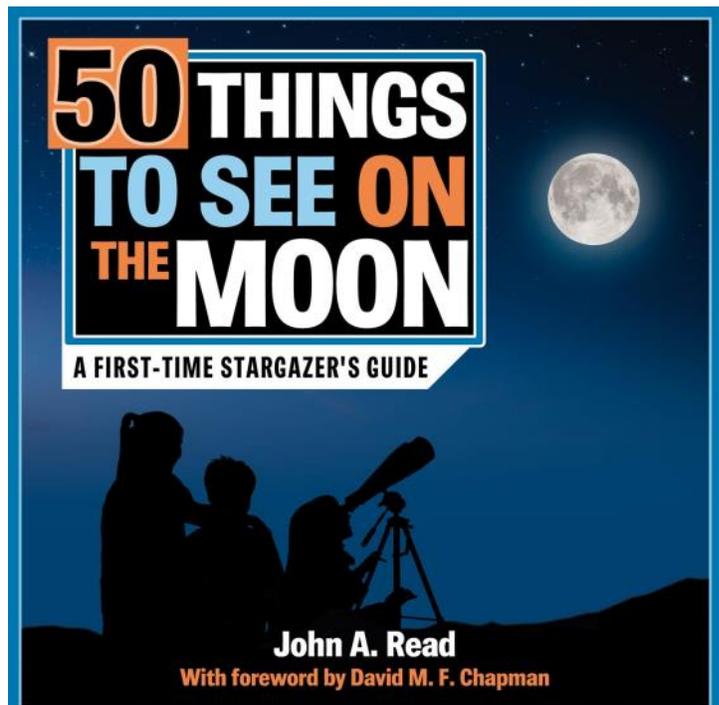
Announcing a new book, *50 Things to See on the Moon* by Halifax RASC's John A. Read.

The book is organized by lunar phase, as each day passes, an additional slice of the Moon becomes visible. With each slice comes new craters, lunar seas, and jagged mountain ranges. Every section contains three views of the Moon; an upright view for binoculars, a rotated view for Newtonians, and a mirror reversed view for reflectors and SCTs (using a 90 degree diagonal). This is the perfect book for a first-time stargazer who is curious about what is up there.

David M. F. Chapman, (RASC Observer's Handbook Emeritus Editor) contributed as technical editor and provided a foreword. The book has been pre-released in paperback on Amazon, while hardcover copies will be available in book stores across Canada beginning in April.

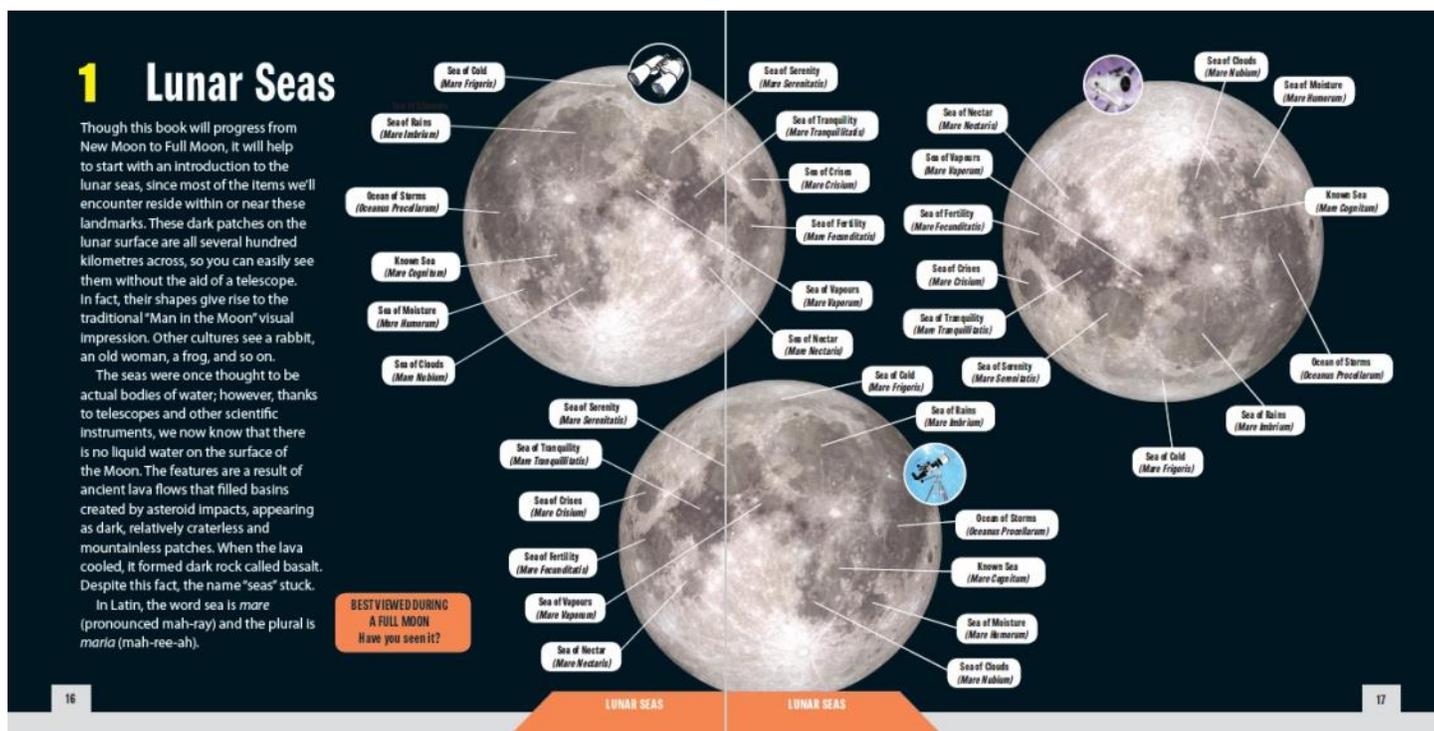
*50 Things to See on the Moon* can be found at: <https://www.amazon.ca/Things-See-Moon-first-time-stargazers/dp/1732726132>

Check it out!  
John. A. Read



Above: The cover of *50 Things to See on the Moon*.

Below: Pages from the book showcasing the lunar maria.



## Halifax Centre Showcase

Thanks to those who submitted and shared their photos to Nova Notes for this edition. There is some great work going on at Halifax Centre.

Submissions for January/February:

**Sun pillar** - Judy Black

**M81** - David Hoskin

**M104** - David Hoskin

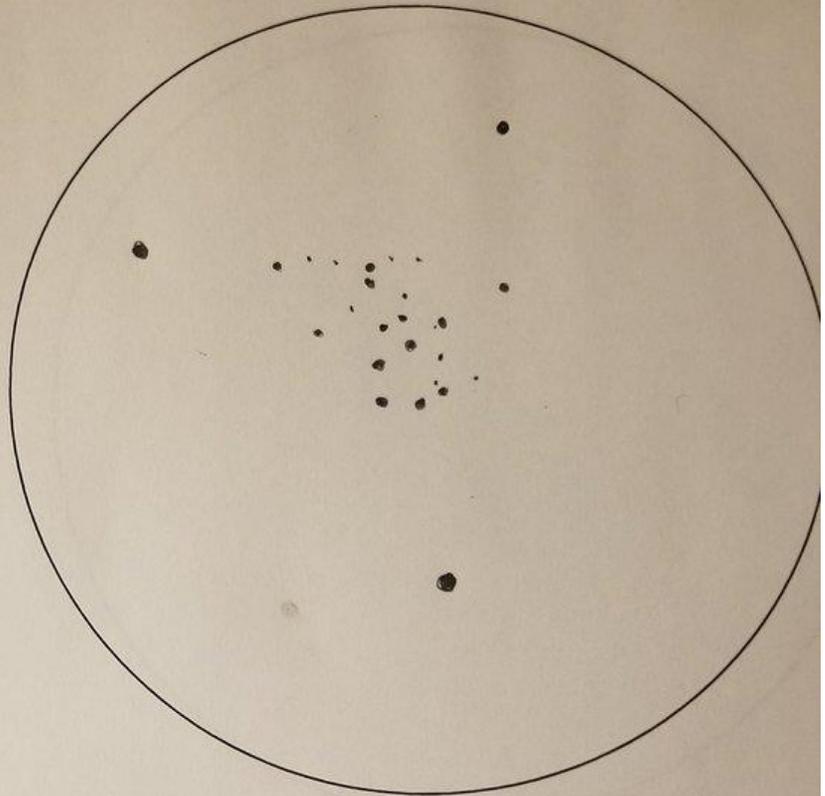
**M105** - David Hoskin

**M44** - Charles White



Object: M 44
Time/Date: 20:30 22/02/2019
Location: SPO
Conditions: Clear 1-13°C No Wind
Seeing(1-5):
Transparency(1-5):

Instrument:
10x15 Binoculars
Eye Piece: /
Filter: /
Const: Cancer
RA: 8h 41.5m
Dec: +19° 36'



**Notes:**

5.6° F.O.V. unstabilized binos, +3 mag.  
 Done for the February RASC members meeting challenge.  
 From the observatory, M44 is a faint fuzzy to the  
 naked eye.

Unstable so hard to keep steady. Able to record 22 individual  
 stars. Unsure if the 3 stars that form a bright triangle  
 around the cluster are technically apart of it.