

Nova Notes

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

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Highlights

NOV / DEC 2022

VOL 53 NO 5



FROM THE EDITOR
HALIFAX CENTRE
& SCO INFORMATION
A SPECIAL FROM THE
PRESIDENT

2



MEMBER NEWS
MEMBER MENTIONS
MEMBERS' UNIVERSE
FOOD FOR THE SOUL

6



PUZZLE CORNER
MEMBERS' MEETINGS

17

In this issue:

From the Editor	2
Centre Information	3
A Message From the President	4
“Sharing Talent With A Special Mission” Halifax RASCAL, John Read partners with PASSAGE	6
Mi’kmaw Moons Book Published	7
Moonscapes: The Aristarchus Plateau by David Hoskin	9
Member News	11
RASC Halifax Member Mentions	11
Members’ Universe	12
Food For the Soul: The Poetry of Paul Heath	16
Puzzle Corner	17
November/ GA / December Member Meetings	19

Cover Photos:

Main Photo:

Composite image of the occultation of Mars by the full Moon this evening. The first shot was at about 1830 Pacific time and the second shot was about 1940 Pacific time. Both shots taken with a Nikon Z9, 1.4x teleconverter and 500mm f/5.6 lens @ 1/800th of second, f/11, ISO800 from San Bernadino, California by **Jason Dain**

Thumbnails (L-r):

St. Croix Observatory drawing by **Mary Lou Whitehorne**

November 8, 2022
Lunar Eclipse (Totality)
by **Lisa Ann Fanning**

Halifax Centre Logo

Note: All photos and original works in this edition are the copyrighted property of the photographers, writers and artists. Permission to use any of their photos for other purposes must be obtained from the photographer.

From the Editor

For many of us, December is a time to look back on the year, and remember all the good things and think about the challenges and figure out how to make them opportunities in the new year.

Life is beginning to return to “normal” (whatever that is.) Old routines becoming new again, and gatherings returning to fashion.

I have so many smiles when I think back on the centre members’ works memorialized in Nova Notes - gatherings, accomplishments, advice, encouragement and of course, the greatest gift, humour.

We are a centre of people from all walks of life, backgrounds and even across borders. To paraphrase President Judy Black, it is the diversity of the centre members that make us one beautiful tapestry.

On a similar note, I was looking through my photos of 2022’s full (and close to full) Moons, which included 2 Lunar Eclipses and (the “squished”) “Super Moon” and realized it was a whole range of gorgeous colours, and it reminded me of Judy’s words.



I am grateful that my tenure as editor began under Judy, and that I have gotten to know such a kind, compassionate and dedicated president. I know many of you reading this will join me in sending well-wishes as she transitions from her office as president.

Wishing you all the best for the holiday season, and much prosperity and clear skies in the new year!

With continued gratitude,

Lisa

Upcoming Meeting Dates

- **December 3, 2022 (Meeting + AGM)**
 - Tiffany Fields - SMU BGO
 - Chris Young - Sky Lore
- **January 7, 2023 - Halifax Centre Youth Member Presentations**
 - Keegan Oickle - RASC NextGen Committee & his projects
 - Silas Eastwood - Winner of the RASC Intermediate Prize in Astronomy for his project: SMARTEN: Simulated Microgravity and Reduced Friction Test Environment for Nanosatellites

We are now hosting hybrid live/Zoom Members' Meetings. Halifax Centre meetings are usually held on the first Saturday of the month, except for July and August.

Come join us in-person in Room AT101 at Saint Mary's University or by pre-registering for the meeting on Zoom.

The meeting are recorded and become accessible shortly thereafter on our Halifax RASC YouTube channel. For information about the meeting and how to register for the Zoom session, please visit <https://halifax.rasc.ca/index.php/activities/rasc-events>

For past meeting replays, visit our YouTube Channel <https://www.youtube.com/c/raschalifax>



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, a warm-room, and washroom facilities. We welcome you to bring your own equipment or to use the Centre's 400-mm Dobsonian telescope, 100-mm binoculars, and the recently acquired SCT and gear for astro-imaging.

Enjoy dark pristine skies far away from city lights and the company of like-minded observers searching out those faint "fuzzies" in the night. Most clear Moon-free nights, you will find our keen observers out there! Announcements of members visiting SCO are made on the Centre's Discussion List. If you are not a key holder and would like to become one or need more information, please contact the SCO Manager, John Liddard at scomanager@halifax.rasc.ca.

SCO is Open!

Go to our website (<https://halifax.rasc.ca>) for the *latest SCO usage guidelines*.



St. Croix Observatory drawing by Mary Lou Whitehorne

Halifax RASC Board of Directors, 2022

Elected	
President (Also Appointed: National Council Representative; Chair, Governance Committee)	Judy Black
Vice-President	Patrick Kelly
Secretary (Also Appointed: Chair, Nominating Committee)	Peter Hurley
Treasurer	Gregg Dill
Director	Tim Doucette
Director	Matthew Dyer
Director (Also Appointed: Observing / EPO Chair)	David Hoskin
Director	Kathy Walker
Director	Jaime Whynt
Appointed	
Honorary President	Mary Lou Whitehorne
Auditor (2021-2022)	Dave Lane
Dark-Sky Preserve Committee, Co-Chair	Peter Hurley
Dark-Sky Preserve Committee, Co-Chair	Tony Schellinck
Librarian	Jerry Black
Nova Notes, Editor	Lisa Ann Fanning
Nova Notes, Copy Editor	John McPhee
St. Croix Observatory, Manager	John Liddard

Nova East Star Party



SAVE THE DATE FOR 2023!

August 18-20, 2023

(New Moon August 16)



A Message from the President

Somehow, seemingly overnight, my tenure as the President of the RASC Halifax Centre is ending. Where did the time go? The Centre policies, for which I played a large role in developing, stipulate a maximum of three one-year terms before stepping down for at least one year. As much as I would love to continue, it is time to hand the reins to another soul equally devoted to our Centre.

Along with my fellow team members on the Board, we began working towards what we thought would be an action-packed year of fun, activities and, yes, governance. However, in March 2020, our world came to a temporary standstill until we determined how to keep going, how to ensure the Centre not only survived but thrived.

Halifax Centre has been a blessing for many of us during the pandemic. It has been a place to maintain contact with the outside world and to continue viewing the world around us albeit from our own corner. In early 2022, the world slowly began opening up and we once more considered gathering together. Helen Keller said, "Walking with a friend in the dark is better than walking alone in the light." How true. Sitting or standing beside a fellow observer in the dark allows for so much – pointing our gear at objects and having that "oh, wow" moment together, enjoying the sights and sounds of crickets, frogs, and fireflies (should I mention coyotes, noisy geese and the occasional deer?), and just enjoying the quiet and how it fills you with peace and contentment. We can paraphrase Ms. Keller's quote for the solar observers of our Centre: "Walking with a friend [in the light] is better than walking alone." In Halifax Centre, regardless of time of day, none of us need walk alone.

Although I have the title of "president", I never saw myself as being "at the top." Every member within RASC Halifax Centre has always been seen as my fellow "team" member. Their enthusiasm, apprising us of exciting events, willingness to come together, sharing observations (successes and pitfalls), informing us about newly purchased equipment, conducting formal and informal outreach, messaging on discussion lists about what could be purchased (equipment, books, adjuncts), the level of volunteerism, mentorship on and off the observing field, and the camaraderie shown in daylight and in the dark under starry skies - these are what drew me to astronomy and especially to this Centre, not just the wonders of the night skies. These are what continue to keep me here.

I was elected at the December 2019 AGM and became only the fourth woman to have sat in the President's chair, following the footsteps of Kathy Oakley (1983-1984, 1987), Mary Lou Whitehorne (1990-1991, 2002), and Andrea Misner (2009). I am sure that because of the increasing number of qualified, curious and enthusiastic women joining our Centre there will be more women to follow.

We are going forward in this supposedly post-pandemic world, welcoming everyone to the team. It doesn't matter if they have a newfound astronomical interest or if it's a re-found one, nor does it matter if they reside in Nova Scotia or further afield across Canada, somewhere in the USA or in another part of the world. Friendships have begun at RASC events, and some have certainly lasted the test of time.

I want to thank everyone I have met over the past three years for their support, their input, their humour, their dedication to all things astronomy and to the RASC Halifax Centre. This includes the Board of Directors and Committee members, appointed positions, members at large, and the numerous volunteers at our events (for the Centre, at Kejimikujik National Park, and at InOMN and the Discovery Centre). I'm sure you have noticed that no one remains a stranger long at any events we host or to which we were invited. Some of them have become very dear friends. When I think of our Centre, I am reminded of William Butler Yeats' words, "There are no strangers here; only friends you haven't met yet."

A Message from the President (con't)

When next I encounter members I haven't met yet and those who have known me from my beginning with the RASC, you will be greeted with a new salutation, "Hi. I'm Judy Black, member of the RASC Halifax Centre." But never forget – starting at your feet, look up. The skies are open.

Judy



Photos courtesy of Jerry Black



*On behalf of Halifax Centre,
Thank You, Judy!*

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

PO Box 31011, Halifax, Nova Scotia B3K 5T9

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

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

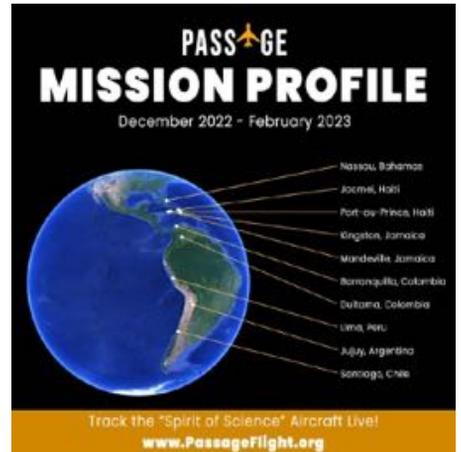
Articles on any aspect of astronomy and related activities will be considered for publication.

Sharing Talent With A Special Mission

Halifax RASCal, John Read partners with PASSAGE

By Lisa Ann Fanning with John Read

On December 3, 2022, a flight took off from Fernandina Beach Municipal Airport in Florida, but this was no ordinary flight. The "Spirit of Science," as the plane has been dubbed, is set to deliver school supplies, technology, books, telescopes, and lab equipment to underprivileged teachers and students in 7 countries. Piloted by 24 year-old pilot Lee Giat, the PASSAGE (which stands for Providing Aid in Science for South America's General Education) mission aims to bring these supplies to some of the most remote communities. In addition to the delivery of the supplies, there are outreach and teacher education events planned in the communities.



Flashback to when RASCal **John Read** learned about PASSAGE, he knew he had to be involved. Read says, "It was the perfect intersection between aviation, science and space. I knew that I could help out in a really important way."

Read, a licensed pilot himself, owns Stellar Publishing which has "simplified the stargazing experience in a way that's easy for anyone to understand" since it was founded in 2013.



Stellar Publishing's newly translated books before their journey. Photo by John Read

According to their website, they "now have dozens of products on the market in over 10 languages." So when the challenge arose to customize several of the titles for PASSAGE, not only did the books need to be translated into Spanish, but they also had to focus on Southern Hemisphere skies, which took about three months to create. "It was a lot of work rotating sky maps where they needed to be rotated, coming up with new lists of targets for the stargazers to observe. We also had to work with translators and consultants that were proficient in both Spanish and astronomy," says Read.

When asked what he was most looking forward to about the mission, Read talks about that wow! factor, that is, "the reaction of these kids and these youth when they see the stars through the telescopes."

Read points to the fact that pilot Lee Giat will be "taking an airplane into dangerous situations, remote communities that wouldn't otherwise be serviced."



Read poses for a photo with the "Learn to Stargaze" (his YouTube Channel) logo on the Spirit of Science before takeoff. Photo by John Read

He adds, "They wouldn't otherwise be getting school supplies and STEM supplies and telescopes that they'll be able to use to see the night sky and learn about the night sky. Because it's never been done before, it's just that much more special."

For more information about PASSAGE, or to follow the mission, visit www.passageflight.org.

Mi'kmaw Moons Book Published

By Lisa Ann Fanning with Dave Chapman

Question: What do you get when you combine a nine-year friendship filled with mutual respect between a cultural interpreter from Parks Canada and a scientist and astronomer with a publisher and an incredible illustrator?

Answer: An incredible book that tells a story of the natural rhythms of the Earth as seen through the eyes of the Mi'kmaw - *Mi'kmaw Moons: The Seasons in Mi'kma'ki* by Cathy LeBlanc and David Chapman Illustrated by Loretta Gould.

The book is a culmination of all the work Cathy LeBlanc and Dave Chapman have done to continue to share the traditional knowledge of the Mi'kma'ki.

In a CBC Radio interview with NS Mainstreets host Jeff Douglas, Cathy said that when she saw the image of the 12 Moons from Cape Breton University, it “connected her with the way her ancestors saw the passage of time.” This inspired her to teach Holly each Moon one at a time — in the time that they were in. Cathy describes this book as her “love letter to her niece” Holly.

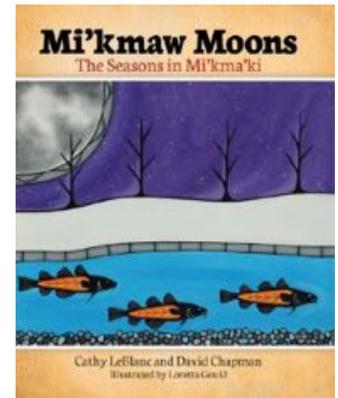
During “frog croaking time,” Holly was able to share that she heard the Peepers. Then during “leaf Budding Moon,” Holly was able to look out and see the buds on the trees, connecting her to the moon time. As time went on, Holly would notice these natural rhythms on her own, even before her conversation with “Auntie.”

Cathy would explain the cultural aspect of the Moon, and Dave would connect it with the astronomy. Dave’s role became that of ensuring the accuracy of the astronomy or the science behind the sightings.

Additionally, Dave also has a more extensive background in the publishing world, having edited many publications for the RASC, and more!

Formac Publishing invited Cathy and Dave to submit a proposal for a book suitable for all ages. Cathy’s only stipulation was that the artist be from the Mi'kmaw community. Loretta Gould was selected to create the incredible artwork.

At the launch of the book in Bridgewater, Holly danced at the launch the Fancy Shawl Dance, and a performance of the Honour song.



Mi'kmaw Moons
The Seasons in Mi'kma'ki
Formac Publishing
Company Limited
November 2022



The launch featured the Honour Song performed and sang by Beating Hearts and special guests and ended with the Dance Sisters sharing the Fancy Shawl Dance. Credit: South Shore Public Libraries Facebook Page

At the time of writing this article, *Mi'kmaw Moons: The Seasons in Mi'kma'ki* was already in the process of selling out of its second printing. *Mi'kmaw Moons: The Seasons in Mi'kma'ki* can be found where books are sold.



The creative force behind the Mi'kmaw Moons book project, L-R, Dave Chapman, Cathy LeBlanc and Loretta Gould. Credit: Mi'kmaw Moons Facebook Page



At *Mi'kmaw Moons* book celebration at MSVU. It was a great party with about 50 people, food, door prizes, friends, family, and neighbours. Elder Albert Marshall said an opening prayer and said very kind things. Cathy and Dave also got to meet artist Loretta Gould for the first time and signed many copies of the book they created together. Credit: Mi'kmaw Moons Facebook Page



The back cover features "12 miniatures of Loretta Gould's art." Credit: Mi'kmaw Moons Facebook Page

On behalf of those of us who have been inspired by this book, Wela'liog.

For more info on *Mi'kmaw Moons: The Seasons in Mi'kma'ki*, please visit <https://linktr.ee/MikmawMoons>

Moonscapes: The Aristarchus Plateau

by David Hoskin

The Moon provides lunar aficionados with a plethora of fascinating features for observation, sketching, and imaging. Of the many available choices, a personal favorite is the Aristarchus plateau, which is located at the boundary of Oceanus Procellarum (Ocean of Storms) and Mare Imbrium (Sea of Rains). Among the plateau's most notable features are Aristarchus crater, which is the brightest crater on the entire Moon, and Vallis Schröteri (Schröter's Valley), which is the Moon's longest sinuous rille. The Aristarchus plateau is best viewed when it is close to the terminator on days 11 and 26 of the lunar cycle; however, Aristarchus crater can be seen whenever it is in sunlight and is even visible when the area is lit by earthshine. The image of the Aristarchus plateau and surrounding area that is shown in this article was captured when the waning crescent Moon was 24.8-days old and 22.6% illuminated.



The Aristarchus plateau consists of a raised, 170 km by 200 km rectangular slab of lunar crust that is more than 2 km high at its southwestern edge. The plateau has a faint reddish colouration that contrasts with the grey of the surrounding lava plains. Although the plateau has some smooth areas, most of its surface is irregular due to the presence of many small hills and ridges. The estimated age of the plateau is more than 3.6 billion years, which corresponds with the approximate time of the proto-planet impact that formed the Imbrium basin and is speculated to have caused the uplifting, tilting, and fracturing of the Aristarchus region.

Aristarchus crater has a width of 40 km and is more than 3.5 km deep. At 450 million years old, Aristarchus is one of the youngest lunar impact craters, which accounts for its brightness as the material that was exposed and ejected by the impact has not yet been darkened by the solar wind. The crater is named after the Greek astronomer Aristarchus of Samos, who lived between 310 and 230 BCE. The bright walls of Aristarchus are steeply terraced, and the crater has a small central mountain. The ejecta-associated ray system, which stretches for several hundred kilometres, lies mainly on south and southeastern sides of the crater. Aristarchus crater contrasts nicely with the dark and smooth lava-filled floor of nearby Herodotus crater.

Named in honour of the German astronomer Johann Schröter, Vallis Schröteri begins at a 6 km-wide crater and soon increases in width to 10 km with a shape that resembles a cobra's head, hence the nickname Cobra Head. Vallis Schröteri is believed to be the result of volcanic activity. The sinuous rille extends for 160 km with a maximum depth of 1 km, gradually narrowing to a width of less than a kilometre before ending near the western edge of the Aristarchus plateau. The valley floor is level but contains a slender rille that is a challenge to photograph from Earth.

Rupes Toscanelli is another interesting feature of the Aristarchus plateau. This ridge, which is lit by sunlight in the above image, extends north from Aristarchus B crater and travels through Toscanelli crater before ending just beyond the small bowl-shaped crater. Narrow clefts criss-cross the terrain to the northeast of Aristarchus crater. Interestingly, the Aristarchus plateau is associated with the highest number of transient lunar phenomena recorded by visual observers for any lunar feature. These phenomena, which include temporary obscurations and cloud-like features, might be caused by the slow outgassing of radon from Aristarchus crater. However, the authenticity of these transient lunar phenomena has been questioned as none have yet been photographed. Perhaps the mystery will be solved by a future astronomer!

Sources

A Guide to the Moon's Aristarchus Crater by Sir Patrick Moore, BBC Sky at Night Magazine

Lunarpedia.org

Moon Observer's Guide by Peter Grego, Firefly Books Limited

The Aristarchus Plateau by Charles Wood, Sky & Telescope Magazine

Member News



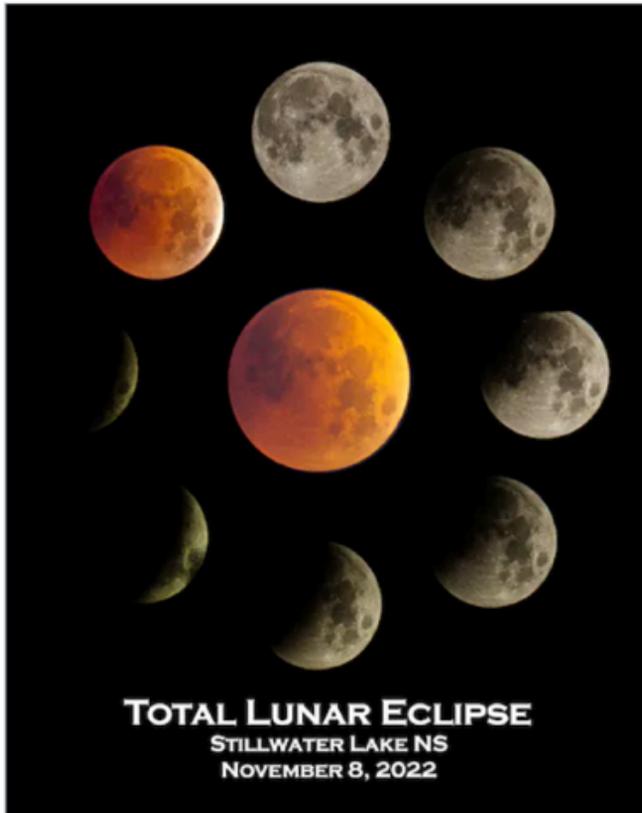
Congratulations Observer!

Congratulations to **Elsie Ferguson** on obtaining the Explore the Moon (Telescope) Certificate - September 19, 2022

Member Mentions

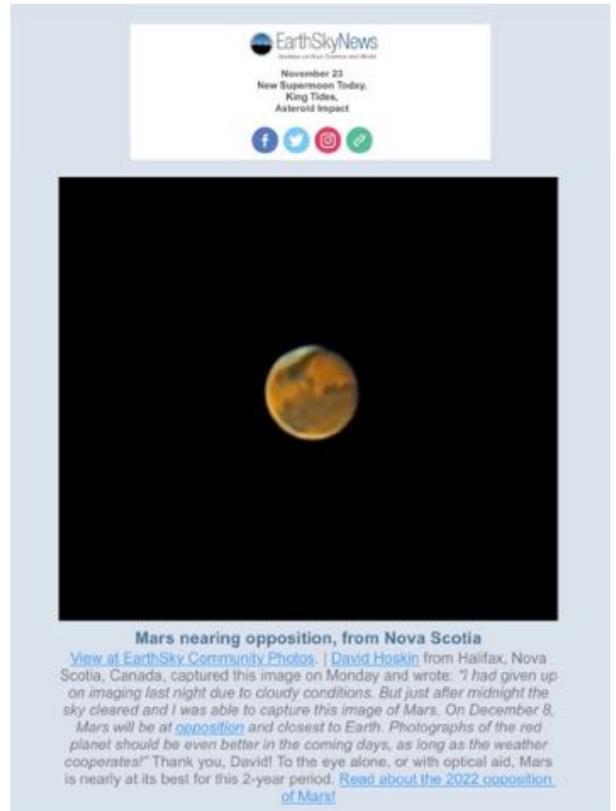
WEATHER PHOTO: Total lunar eclipse in Stillwater Lake, N.S.

Allister Aalders - Weather Specialist | Posted: Nov. 9, 2022, 6 a.m. | Updated: Nov. 8, 2022, 2:04 p.m. | 1 Min Read



-Contributed/Jason Dain

Jason Dain's Total Lunar Eclipse Collage of images was shared in The Chronicle Herald on November 9, 2022. Image via <https://www.saltwire.com/atlantic-canada/weather/weather-photo-total-lunar-eclipse-in-stillwater-lake-ns-100792642/>



David Hoskin's photo of Mars nearing opposition was featured in EarthSky News, a daily email newsletter on November 23. Many of David's wonderful works can be found in his community gallery portfolio [here](#).

Members' Universe



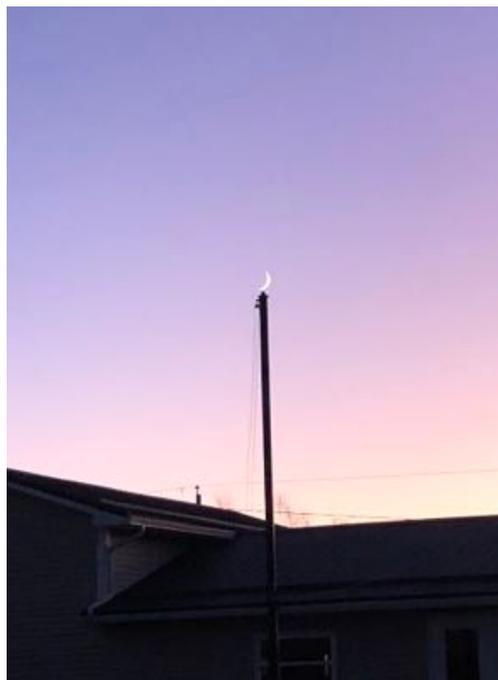
Remarkable image of a bright fireball captured by **Kathy Walker**'s sky camera in Halls Harbour on November 27, 2022 at 2:12 am AST. Image used with permission by Kathy.



Total Lunar Eclipse
by **Lisa Ann Fanning**
Images of the eclipsing Full Moon
taken on November 8, 2022 from
4:00 AM ET - 5:45 AM ET. iPhone
13 through Swarovski Optik 65mm
Spotting Scope - Assembled in
Bazaar for iOS

Members' Universe

Jaime Whynot takes us to the Moon



Jaime Whynot took these photos of a stunning sky and the 12% crescent moon hanging out on top of the flag pole on November 26, 2022.



Jaimie Whynot's First quarter moon with lunar X and V visible taken September 13, 2021. Taken with iPhone 8 through Sky-Watcher 200p 8-inch dob, 17 mm eyepiece.



Here is **Jaime Whynot's** 96% waxing gibbous Moon on Monday, December 5th. Taken with iPhone 8 through a Sky-Watcher 200p 8-inch dob, 17 mm eyepiece.

Members' Universe

David Hoskin's Universe...

David Hoskin has been doing mostly planetary and lunar imaging this past month And we love it!



David Hoskin's Lunar Eclipse 5 minute sequence from November 8, 2022



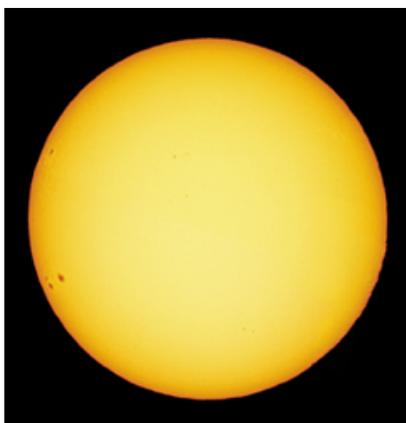
NGC 2169 open cluster in Orion's club Photo by David Hoskin



Jupiter and Io November 24, 2022 Photo by David Hoskin



Mars at its closest approach from December 1, 2022 Photo by David Hoskin



Solar white light from December 2, 2022
Photo by David Hoskin



Waxing Gibbous Moon Dec 5 2022 Photo by David Hoskin

Members' Universe

David Hoskin's Universe...



Tycho and Clavius Photo by **David Hoskin**



Mare Imbrium and Apennine Mountains Photo by **David Hoskin**



Mare Imbrium and Alpine Valley Photo by **David Hoskin**

Food for the Soul: The Poetry of Paul Heath

Painted Images

In ages long past,
Sages and Story Tellers paced
The embers fading glow.
In villages scattered across the lands,
Upon the stars, heroes, and creatures great and small,
Were Painted Images across those glittering skies.

Woven as they paced, morals within each vision
Were held up by the Stars.
Retold through ages long,
As embers faded before the dawn.

In ages past,
With patient measure,
Motion of the glimmering firmament, unfurled
On papyrus and stone recorded, where once
Only grand images, across the skies were realized.

Then the fires, were not left to die,
Embers focused quiet, lost in glare filled skies.
Yet Sages and Story Tellers whispered still
Of heroes and creatures upon a Star filled firmament.

We reached above the skies,
Glory witnessed, filled our eyes.
Now Sages and Story Tellers, once more are sought,
With an Artists brush, an Elders touch,
Stories bold, and morals retold.
On pages now, the Painted Images flow.

Embers focused quiet,
Now upon the page, in cloudy and sun filled skies,
Between the glittering stars we seek,
As painted images refill the skies,
Sages and Story Tellers tales, yet again enrich the Mind.

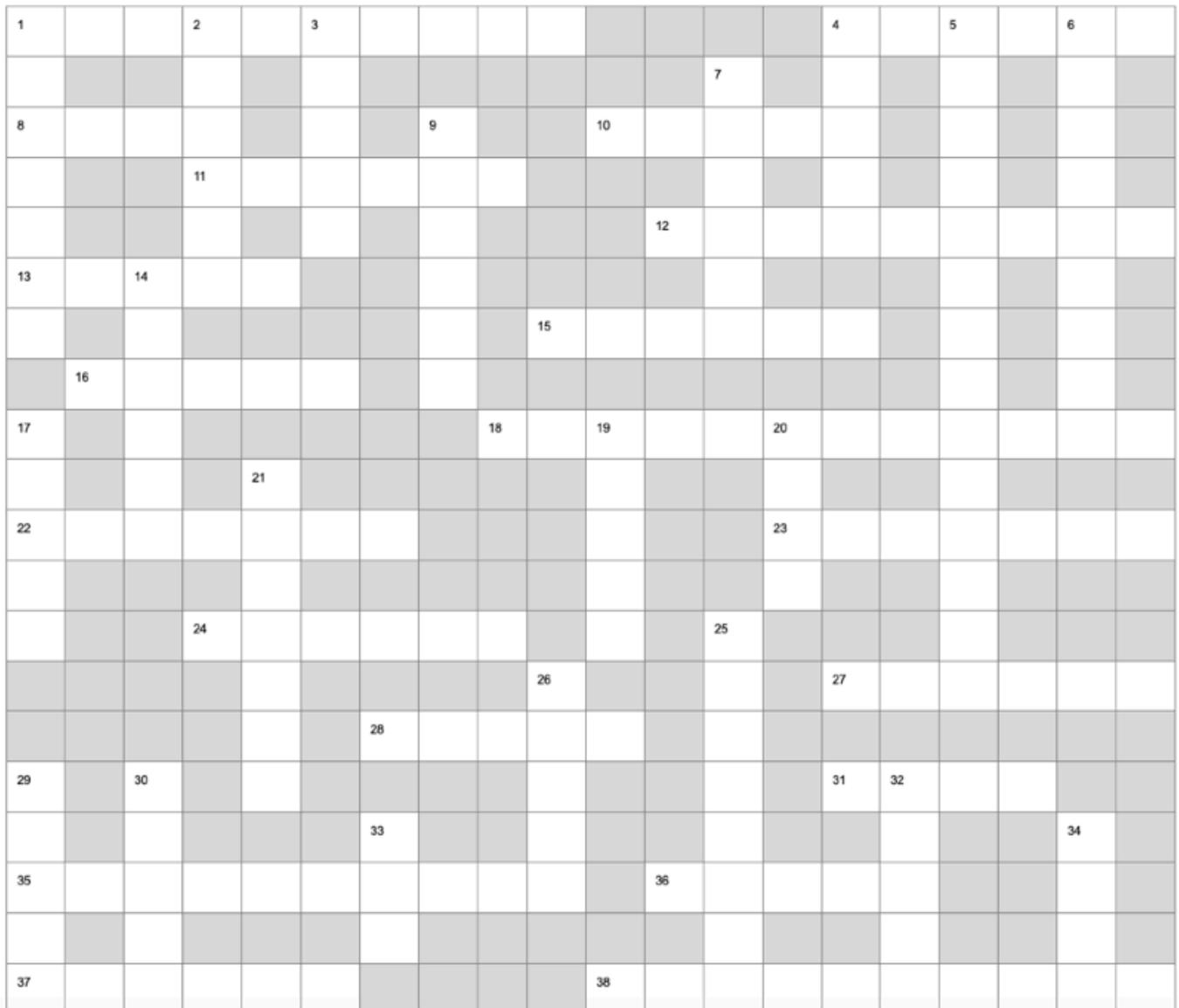
PUZZLE CORNER – *Bright Star Names*

(See next page for clues)

Astro Cross Words

By Lauren Burgoyne & Norman Scrimger
Reprinted from Nova Notes 1982, Vol 13(2)

Astro Cross Words became a regular feature in Nova Notes. Five puzzles were provided to members over the course of a year's editions. Each puzzle had a common astronomical theme. This, the second one published, was Bright Star Names. Lauren Burgoyne and Norman Scrimger, the creators of the puzzle series, noted that While most of the names required are well known, some are more obscure and involve a bit of searching. Good luck to everyone! Answers will be in the next edition of Nova Notes (no cheating by those with access to previous Nova Notes editions).



Across

- 1) The "Head of the Serpent Charmer"
- 4) The chained maiden's girdle
- 8) The upper right-hand corner of the chair
- 10) Forms a fairly bright equilateral triangle with iota and delta Vel
- 11) One of the stars along the river
- 12) The "Neck of the Snake"
- 13) One foot of the Firebird
- 15) Also called *Deneb Kaios of Cetus*
- 16) Sixteen across is a cross
- 18) Between this star and Denebola is centred the greater cluster of galaxies controlled by M87
- 22) Occulted by Mars on April 7, 1976
- 23) Diminutive form of the Latin "Rex" or "King"
- 24) Gamma Eridani
- 27) Helps Shaula mark the scorpion's sting
- 28) Theta Leonis
- 31) Some say "enough" to part of the horse
- 35) This name means "Head of the Kneeler"
- 36) The "Head of the Goat"
- 37) This star is guarded by Alschain and Tarazed
- 38) The shoulders of the "Rein-holder"

Down

- 1) The Queen's knee
- 2) A star halfway between M41 and pi Pup
- 3) Forms a wide naked eye pair of 4.5-degree separation with Alpha Centauri
- 4) One of the pointers
- 5) One of our closest neighbours
- 6) Named in honour of England's Charles II
- 7) The NDP part of the raven
- 9) One of the twins
- 14) One of the two guardians of the pole
- 17) The head of the ram
- 19) Lies on the vane of the arrow in the archer's hand
- 20) The "Wonderful"
- 21) Fourth magnitude star northwest from Alpheca
- 25) The southern of the two stars flanking Altair
- 26) Will be the pole star in 2000 years
- 29) Brightest star in the Southern Triangle
- 30) When Pluto was discovered near this bright star marking a twin's waist, they said "What's That"
- 32) Beta Leporis
- 33) The beginning of the scorpion's tail
- 34) Brightest member of the Summer Triangle

Answers to Last Edition's Puzzle

P	I	S	C	E	S	A	U	S	T	R	I	N	U	S			A	P	S							
		C				N				N		A					R									
		U	S			T	U			D	S	G	R	I												
11	R	E	T	I	C	U	L	U	M		U		I				E	U								
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31	G		U							34	U	R	S	A	M	A	J	O	R			M				
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35	S	C	L			A	Q	U	A	R	I	U	S				I						R			
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50	M	I	C	R	O	S	C	O	P	I	U	M					51	A	U	R	I	G	A			

November 05, 2022 RASC Halifax Centre Meeting:

(34 attendees)

To watch a replay of the meeting, please visit: <https://www.youtube.com/watch?v=mJHy6meSsE0&t=751s> on the RASC Halifax YouTube Channel.

Opening comments - Dave Lane gave some remarks about the first time using the hybrid (Live/ Zoom) meeting format. If anyone has any comments on format, they can be directed to Judy at the President's mailbox.

President's Remarks

Welcome - Judy Black

RASC Halifax President Judy Black welcomed everyone to the monthly meeting, explained the benefits of membership and reviewed the agenda. She acknowledged the Indigenous lands in which the meeting was held and read the Centre's inclusivity and diversity statement.

Halifax Centre Mini- Keynotes:

David Hoskin - Photo Montage

David presented photographs from Centre members Jerry Black, Michael Boschat, Barry Burgess, Dave Chapman, Jason Dain, Jeff Donaldson, Tim Doucette, Nancy Hughes, Lisa Ann Fanning, Paul Gray, Karen Hamblin, David Hoskin, Blair MacDonald, Dave Robertson, Gurav Singh, and Kathy Walker.

David Hoskin - A Brief Introduction to Telescope Eyepieces

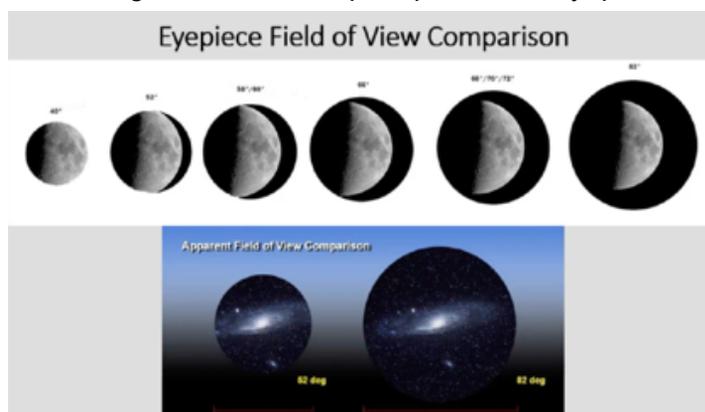
David reviewed selecting the right eyepiece. When choosing, it is important to use the following factors:

- What objects do you plan to observe?
- What is your tolerance for optical imperfections?
- Is a wide field of view important?
- Do you wear glasses?
- How much do you wish to spend?

He also reviewed the important equations to know: Eyepiece magnification, maximum useful eyepiece magnification, largest focal length eyepieces without light loss and true field of view.

There are three eyepiece sizes 0.965", 1.25" (which is most common) and 2" - they should be fully multicoated and black interior and on interior of lens elements to reduce reflections.

He also reviewed various designs, such as the symmetrical Ramsden, Huyghens, Kellner, orthoscopic, Plossl, wide angle, Erfle, Nagler, Radian and panoptic, zoom eyepieces as well as Barlows and focal reducers.



Dave Lane - Lights & Filters

Dave Lane reviewed using light and filters for visual astronomy, why use them, the visible spectrum, sensitivity of the eye, sources of light (to filter or enhance) and types of filters and how they are used.

Filters should be used for image dimming (for example, when looking at the Moon,) feature selection or contrast enhancement and to fight light pollution.

In addition, he reviewed sources of light, such as that from Astronomical Light Sources (including “blackbody,” stars (and clusters), galaxies and objects visible by reflected light such as planets, moon and reflection nebulae.

Sources of light pollution were also discussed, including the expanded use of LED lights.

Types of filters include neutral-density, coloured (dye) filters, interference filters, planetary filters, narrowband filters. For further reading, see the *2023 Observer’s Handbook* Filters by Roy L Bishop (page 64.)

Filter	Used For
#8 Light Yellow	Orange and red features on Mars, Jupiter, Saturn
#11 Yellow-Green	Blue and red features on Jupiter
#15 Deep Yellow	Improving contrast on moon, blocking blue light
#21 Orange	Enhancing bands on Jupiter and Saturn
#23A Light Red	Dust clouds on Mars
#25 Red	Ice caps and surface of Mars
#38A Deep Blue	Lunar features and Red Spot on Jupiter
#47 Violet	Venus and clouds on Mars
#56 Light Green	Cloud detail on Jupiter and Venus, Mars ice caps
#58 Green	Martian ice caps, clouds, and dust storms
#80A Medium Blue	Red Spot and bands on Jupiter
#82A Pale Blue	Low contrast features on Jupiter and Saturn

Source: Starizona

Dave Chapman (Halifax Centre) - What’s in a Name? How celestial objects are named.

This installment focused on surface features of Inner Solar System Bodies

He discussed the IAU (International Astronomical Union) working group for planetary system nomenclature of planets, dwarf planets, minor planets and satellites of all of the above.

Featured are Mercury, Venus, Mars and Martian satellites

Judy Black - 300 Things to know about the RASC National Council

Judy Black discussed the purpose of the National Council - which is to advise the Society’s Board and Committees in matters of interest to the Centre’s and the Society in general and to facilitate the Society’s goals and missions. Membership consists of representatives from all 30 Centre’s with one rep for every 200 members in each Centre. The Council meets at least four times per year and at least one consultative meeting with the Board (usually at the GA.)

Feedback was provided based on member discussions, and an open letter drafted to the RASC Board of Directors from the National Council on August 16, 2022 co-signed by Judy Black, Chair of the National Council and Stephen Nourse, President of the Ottawa Centre.

Themes discussed, abysmal year of member services, lack of communication, collaboration and transparency. As a result, Judy and Stephen were invited to attend a special Board meeting, and broadened methods of communication and solutions were discussed consequent to the open letter.

Paul Heath - Food for the Soul - Painted Images

Paul presented his latest poem, Painted Images, which can be read on page 16 of this edition of Nova Notes. His poem was inspired to recognize Dave Chapman and Cathy LeBlanc's book and as well as national support for the world asterism project and the discovery of Hipparchus' star catalog. This poem has been selected for publishing in a SkyNews article for the start of their World Asterism Project segments starting in Mar/Apr.

David Hoskin (EPO/Observing Chair) - What's up in November Skies?

David reviewed highlights of the November sky. Days are getting shorter! He highlighted the sun, solar activity, the Moon, and targets needed to check off for Explore the Universe, and when they can be viewed. He also highlighted planetary positions, constellations, stars (including double and multiple) and Deep Sky Objects. Additionally, Comet C/2020 V2 (ZTF) was highlighted. Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

Judy Black (President) - Update from the Board

Halifax Centre Stars:

Tim Doucette - was quoted in a Fox 13 News story in Tampa Bay with Timelapse footage of the Orionids meteor shower.

Tim was also featured as Deep Sky Eye Observatory won the Yarmouth and Area Chamber of Commerce Tourism Business of the Year Award.

David Hoskin's Pleiades photo taken at the SCO BBQ was featured in EarthSky.

Dave Chapman's Comet 2022 E3 photo was featured in EarthSky in an article by Don Machholtz.

Terry Trees, the coordinator of the Urban Observing Program of the Astronomical League reference to Astronomical League program in the USA Edition of the 2023 Observers Handbook.

Gaurav Singh's photo of M42 was highlighted for its beauty.

Rob Fanning was recognized for obtaining his Explore the Universe certificate in August 2022.

And Elsie Ferguson for obtaining her Explore the Moon (Telescope) certificate in October 2022.

Dave Chapman's book release with Cathy LeBlanc was highlighted.

Halifax Centre Photo Contest submission deadline is midnight Saturday, November 12, 2022.

Categories are Wide Field, Solar System, Deep-Sky/ Prime Focus plus the "People's Choice Award." Winners will be announced at the AGM December 3, 2022. To enter, visit halifax.rasc.ca.

Nova Notes Deadline Saturday December 10, 2022 for the November / December edition - and check out the puzzle corner too!

2023 Nominations are due by Saturday November 12. Email Peter Hurley (secretary@halifax.rasc.ca) President and Treasurer positions are being vacated, but all positions may be nominated.

Wanted: Participation



- Meetings

- Topic, book review, equipment review
- Observing strategies, observing fiascos
- Good observing sites
- Serendipitous observations, “Oh Wow!” moments, “discoveries”

Attend (in-person, virtually)

Maybe.... Make introductions of speakers at a meeting?

- Task Teams / Subcommittees

- Team effort!
- Support & back each other
- Learn from each other
- Fun! Fun! Fun!

*Nova East Planning Committee (NEPC)
Dark-Sky Weekend (DSW) planning
Nominating Committee
Governance Review Committee
Communication Strategies*

Heads Up! 2022 Meeting Dates & Events

Upcoming: December 7, 2022 AGM Meeting

The first meeting of the new year will be January 4, 2023

Meetings will continue to be hybrid (on Zoom and In-Person)

Explore the Universe books are available for sale for \$20. They can be shipped at additional cost.

Calendars are also available for sale for \$20

Five out of 12 months plus the cover feature photos by Halifax Centre Members Tim Doucette (cover & November, Iris Nebula), Fiona Morris (April, Leo Triplet), Jason Dain (June, Blue Horsehead & December, Melotte 5) and Kathy Walker (October, Messier 5)



December, 2022 RASC Halifax AGM + Centre

Meeting:

(25 total (includes 3 non-members for the AGM)) To watch a replay of the meeting, please visit: https://www.youtube.com/watch?v=uoTyl6_6DbQ on the RASC Halifax YouTube Channel.

Royal Astronomical Society of Canada - Halifax Centre
Annual General Meeting (AGM)
Saturday, December 3, 2022 – 1:00-1:48 PM
Via Zoom - Meeting ID 848 4938 0821

Welcome and Opening Remarks

Judy Black thanked the 25 members in attendance and noted this would be the last AGM she would host as President. Fourteen attended the AGM/Members meeting by Zoom (including 3 non-members) and 11 attended in-person. Mi'kma'ki land acknowledgments and the inclusivity and diversity statements were read. She noted that reports were pre-circulated to members and would not be read during this meeting. The exceptions are the Treasurer and Auditor reports.

1. Approval of 2022 Agenda

221203AGM-Mot01:

It was moved by Chris Young and seconded by Matthew Dyer to approve the 2022 AGM agenda as circulated.
CARRIED.

2. Approval of 2020 AGM Minutes

The minutes of the December 4, 2021, AGM had been pre-circulated to members. No errors or omissions were noted.

221203AGM-Mot02:

It was moved by Chris Young and seconded by Bob Russell to approve the minutes of the 2021 AGM as posted on the RASC Halifax Centre website.
CARRIED unanimously.

3. Appointment of a New Auditor

At this point in time, there is no nominee for this position. Dave Lane agreed to have his name forwarded for appointment.

221203AGM-Mot03:

It was moved by Chris Young and seconded by Bob Russell to appoint David Lane as Auditor for 2022-2023.
CARRIED.

Board Reports

(Note: Reports in their entirety will included in the Jan/Feb 2023 edition of Nova Notes)

Judy Black noted the reports from the Board and the appointed positions had been circulated as part of the AGM agenda circulated on November 29, 2022. No questions regarding the reports were noted.

Dave Lane will address both the Treasurer and Auditor reports in Gregg Dill's absence.

Auditor and Treasurer Reports

Dave Lane noted he was presenting both the Auditor's and Treasurer's Reports on behalf of Gregg Dill who was unable to attend.

He brought attention to the **Comparative Income Statement**. He classified this year as a relatively uneventful year with a surplus of \$1943.76. There were not too many expenditures nor much extraordinary revenue. Judy Black noted that membership went down by 9.

Royal Astronomical Society of Canada, Halifax Centre Comparative Income Statement Years Ending September 30, 2021 and September 30, 2022			
	Years Ended September 30		Amount of Increase or (Decrease) during 2022
	2022	2021	
Revenue			
Membership Fees	\$4,003.58	\$3,027.24	\$976.34
Donations	\$857.88	\$306.83	\$551.05
Observatory Donations	\$240.00	\$9,090.00	(\$8,850.00)
Education & Outreach	\$50.00	\$0.00	\$50.00
Interest	\$2.25	\$237.36	(\$235.11)
Sales of Merchandise	\$525.00	\$550.00	(\$25.00)
Nova East (Net)	\$996.19	\$0.00	\$996.19
Nova Notes Print Subs	\$260.00	\$157.00	\$103.00
Miscellaneous	\$20.00	\$0.00	\$20.00
Total Revenue	\$6,954.90	\$13,368.43	(\$6,413.53)
Expenses			
Meetings	\$230.00	\$230.00	\$0.00
Newsletter	\$265.97	\$0.00	\$265.97
Depreciation and write offs	\$490.47	\$546.64	(\$56.17)
Equipment and Supplies	\$0.00	\$0.00	\$0.00
Purchase of Merchandise	\$453.47	\$0.00	\$453.47
Office Administration	\$444.69	\$297.41	\$147.28
Educational Activities	\$231.14	\$414.22	(\$183.08)
Insurance	\$1,706.00	\$1,687.00	\$19.00
Awards and Donations	\$0.00	\$50.00	(\$50.00)
National Office Processing	\$113.01	\$98.28	\$14.73
Operating Expenses - SCO	\$1,076.39	\$15,638.25	(\$14,561.86)
Miscellaneous	\$0.00	\$0.00	\$0.00
Total Expenses	\$5,011.14	\$18,961.80	(\$13,950.66)
Operational Surplus (Deficit)	\$1,943.76	(\$5,593.37)	\$7,537.13

The RASC membership fees are up but not due to increase in number of members but because of corrections to missing revenue. Donations is higher because of donations made to the Centre. Sales of merchandise not unusual. Nothing else remarkable on the revenue side.

On the expense side, the meeting expenses are primarily due to Zoom membership. It was noted that paid subscriptions for print versions of Nova Notes editions was no longer an option due to the expense and lack of volunteers for this task; members will receive the paid for editions over the next few months. Office administration is due to post office box rental, renewal of our registration with the Registry of Joint Stock Companies (RJSC) and miscellaneous mailings. Educational Activities include paying for bulk orders of Sky News, star finders, and other RASC education and promotion materials. There was an expected

slight increase in the liability and property insurance for the St. Croix Observatory (SCO). Operating expenses for SCO were less than last year as most of the upgrades were done in the previous year; what is included here are incidentals, conclusion of the electrical work and the cost of the two barbeques held this year.

He brought attention to the **Comparative Balance Statement** as of September 30, 2022.

A) Assets:

Two GICs worth \$4000 each will have the principal reinvested and the income made in the past 1.5 years deposited into our account. Library was depreciated 3% from previous year's estimated worth. Observatory equipment relates to the telescopes and other related equipment which again depreciated 3%. The amount cited in *Miscellaneous Estimated* has been there since 1984; it has been written off.

B) Liabilities

Accounts payable related to summer events such as Nova East.

C) Capital

The decision was made some time ago to put some equity into Nova East for the Planning Committee to utilize for bringing in speakers or enhance Nova East for a special occasion.

Royal Astronomical Society of Canada, Halifax Centre Comparative Balance Sheet Years Ending September 30, 2021 and September 30, 2022			
	Years Ended September 30		Amount of Increase or (Decrease) during 2022
	2022	2021	
Assets			
Cash	\$8,539.13	\$5,410.24	\$3,128.89
Investments	\$8,000.00	\$8,000.00	\$0.00
Accounts Receivable	\$240.38	\$0.00	\$240.38
Library Estimated	\$1,219.70	\$1,257.42	(\$37.72)
Observatory Equipment	\$10,198.42	\$10,513.68	(\$315.26)
Miscellaneous Estimated	\$0.00	\$137.40	(\$137.40)
Total Assets	\$28,197.63	\$25,318.74	\$2,878.89
Liabilities			
Accounts Payable	\$935.04	\$399.63	\$535.41
Total Liabilities	\$935.04	\$399.63	\$535.41
Capital			
Nova East Working Equity	\$5,000.00	\$4,899.93	\$100.07
Common Equity	\$22,262.59	\$20,019.18	\$2,243.41
Total Capital	\$27,262.59	\$24,919.11	\$2,343.48
Total Liabilities and Capital	\$28,197.63	\$25,318.74	\$2,878.89

221203AGM-Mot04:

It was moved by Judy Black and seconded by Chris Young to approve the Financial Report as presented.

CARRIED unanimously.

Dave then presented the **Auditors Report**. He noted recommendations for the Treasurer and the Board to address:

1. Before the books are put to rest, printouts of all revenue, expense, and balance sheet transactions (the Journal) from the accounting software should be included in the records binder. In addition, all electronic records (receipts, deposits, bank statements, etc.) should be consolidated onto a USB Drive kept with the records.
2. The “Observatory Equipment” asset is presently depreciated at only 3% (declining balance method). This means equipment (most of which was not purchased new) remains on the books for a very long time. My recommendation is that next year the depreciation method be switched to 10% (straight line method), except where those assets recorded at a one-dollar value.
3. There has been inconsistency in what has been recorded as an expense versus a depreciable asset. For example, some electrical work in 2012 was capitalized but the recent (2020-21) major electrical upgrade (valued at about \$15,000) was expensed. The Board should create a consistent policy for what is capitalized and what is not.
4. There are small discrepancies between the monthly reports provided by the RASC and the associated deposits that need to be resolved. In the meantime, Dave proposed a workaround that will be more accurate. If he is not appointed Auditor next year, he will communicate the details to the new Treasurer.
5. The GNUCash accounting software should be fully used so that the year-end work is much easier to do and to audit. In recent years, many of the balance sheet accounts have not been updated and the “invoices” (and Account Receivable) and “bills” (Accounts Payable) features were not used. For much of the year, this is fine but near the beginning and ending of a fiscal year this is problematic.

Gregg will provide the written notes for the statements for inclusion in the January/February Nova Notes.

221203AGM-Mot05:

It was moved by Bob Russell and seconded by Chris Young to approve the Auditors Report as presented.

CARRIED unanimously.

Judy Black asked if there were any questions regarding the other reports that had been circulated. None were received.

221203AGM-Mot06:

It was moved by Chris Young and seconded by Brad Filippone to accept the Board of Directors and Committee reports as pre-circulated.

CARRIED unanimously.

Call for Nominations and Election of 2023 Board of Directors

Judy Black, member of the Nomination Committee, presented the nomination for the Board of Directors. There were 3 calls for nominations from the floor for the 2023 Board of Directors. The slate of nominees for the 2023 Board of Directors was then presented as follows:

Executive Committee

President – John Nangreaves
Vice-President – Patrick Kelly
Secretary – Peter Hurley
Treasurer – Jaime Whynot

Directors

Judy Black
Gregg Dill
Matthew Dyer
David Hoskin
Tony McGrath
Kathy Walker

Three calls for further nominations were made.

221203AGM -Mot07:

It was moved by Dave Lane and seconded by Chris Young to close nominations.
CARRIED unanimously.

There being no further nominations, the 2023 Board of Directors positions were elected by acclamation.

The Board had approved appointments at previous deliberations. Judy Black stated Mary Lou Whitehome continues to be the Honorary President until December 2023.

Auditor	David Lane
DSP Committee, Co-Chairs	Peter Hurley, Tony Schellinck
Governance Committee	Judy Black
Librarian	Jerry Black
National Council Representative	Judy Black
Nominating Committee	Peter Hurley
Nova East Planning Committee	Chris Young
Nova Notes, Co-Editors	Lisa Ann Fanning, John McPhee
Observing Chair	David Hoskin
Education & Public Outreach (EPO) Chair	David Hoskin
SCO Manager	John Liddard

Please notify the Secretary, Peter Hurley of any further nominations. Judy stated the appointments would be approved by the incoming Board at their January 3, 2023, meeting.

Adjournment

There being no further business, the meeting was adjourned at 1:48 PM AST.

Centre Meeting

President's Remarks

Welcome - Judy Black

RASC Halifax President Judy Black welcomed everyone to the monthly meeting, explained the benefits of membership and reviewed the agenda. She acknowledged the Indigenous lands in which the meeting was held and read the Centre's inclusivity and diversity statement.

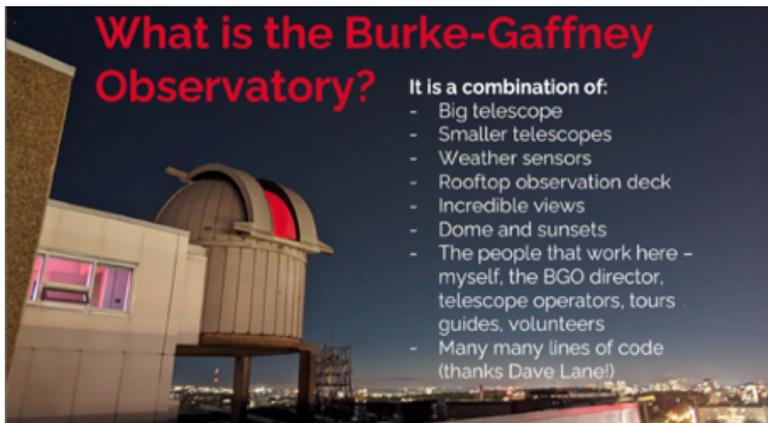
David Hoskin - Photo Montage

David presented photographs from Centre members Jerry Black, Michael Boschat, Dave Chapman, Jason Dain, Lisa Ann Fanning, Paul Gray, David Hoskin, Nancy Hughes, Blair MacDonald, Kathy Walker and Jamie Whynot

Presentations

Tiffany Fields - Sharing the Burke-Gaffney Observatory locally and all around the world

Astronomy Technician at Saint Mary's University and Halifax RASC member, Tiffany Fields gave an overview of the Burke-Gaffney Observatory (BGO) located at Saint Mary's University.



She walked through the history of BGO, including the upgrades that took place in 2013, and more recently, the replacement of the 50-year-old mount.

The BGO offers free public tours ~every other weekend. There is only space for 25 individuals (and fewer per COVID-safety guidelines,) so reserved tickets are required.

The Dr. Ralph Medjuck Telescope (upgraded in 2013) is a “social-media-controlled robot” which is connected to Twitter, Facebook, Text Message, Android app, Windows app, MacOS app and email.

Dr. Ralph Medjuck Telescope

Telescope Specifications

- Planewave Model CDK24
- Optical Design: Corrected Dall-Kirkham
- Primary Mirror Diameter: 0.61-metres
- Secondary Mirror Diameter: 287-mm
- Effective Diameter: 0.54-metres (21.2")
- Focal length: 3962-mm
- Focal ratio: 6.50
- Brightness Ratio - scope to eye: 5909x

Visual Observing

- Theoretical Faintest Visual Stellar Detection: 16.35 mag (no light pollution)
- Actual Faintest Visual Stellar Detection: 14.2 mag (obs. of Pluto, Sept 2015)
- Theoretical Resolution: 0.19 arc seconds (with perfect atmosphere)
- Minimum Magnification: 122 using the 0.2x aperture rule
- Maximum Magnification: 1219 using the 2x aperture rule

Notable features

- He's a social-media-controlled robot!

The image shows a photograph of the Dr. Ralph Medjuck Telescope, a large, complex instrument mounted on a robotic base, with a person standing next to it for scale.

The telescope. “Ralph”, has gotten a lot of great press, as it is only one of three robotic telescopes in the world (one other is run by Dave Lane and the other one is currently out of service.)

To communicate with “Ralph” #keywords are used as commands. A full list of commands and options is located at observatory.smu.ca/bgo-useme.

Other features at the observatory include weather sensing systems and an all sky cam.



To become involved, contact via info@observatory.smu.ca or on the web at observatory.smu.ca

Chris Young (Halifax Centre) - Sky Lore (or Meanderings in cultural Astronomy)

Chris presented the Pleiades and its role in planting, navigation, for telling weather and navigation. This presentation was based on an article on JSTOR: “Watchers of the Pleiades: Ethnoastronomy among Native Cultivators in Northeastern North America.

David Hoskin (EPO/Observing Chair) - What's up in December Skies?

David reviewed highlights of the December sky. He highlighted Mars as this month's highlight. On December 8 @ 12:14 - 12:32 AM, the Moon will occult the red planet. Days are getting shorter. Winter solstice is on December 21. He highlighted the sun, solar activity, the Moon, and targets needed to check off for Explore the Universe, and when they can be viewed. He also highlighted planetary positions, constellations, stars (including double and multiple) and Deep Sky Objects. Geminid Meteor Shower will peak the night of December 13/14. Ursid meteors will also peak December 22/23. Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

Judy Black (President) - Update from the Board

President Judy Black congratulated John Nangreaves and a reminder the president can always be reached at president@halifax.rasc.ca

Halifax Centre Stars:

Jason Dain's Total Lunar Eclipse montage was featured in the Chronicle Herald on November 9, 2022 as the Photo of the Day.

Lisa Ann Fanning's Total Lunar Eclipse montage was featured in EarthSky on November 8, 2022.

David Hoskin's photo of Mars was featured in EarthSky on November 23, 2022.

Nova Notes content deadline is Saturday December 10, 2022 for the November / December edition All editions are online on the RASC National website. And check out the puzzle corner too!

Governance - Amendments made to B2: Terms of Reference - Ordinary Committees of the RASC Halifax Centre (Nova East Planning Committee) - minor adjustments made to dates of appointments of Chair and members and the use of social media to conduct meetings.

Halifax Centre Photo Contest - 11 images by four imagers were submitted. So no contest will be held this year. The images will be held over to next year's contest if imagers would like to resubmit them at that time.

Heads Up! 2022 Meeting Dates & Events

Meetings will continue to be hybrid (on Zoom and In-Person)



Explore the Universe books are available for sale for \$20. They can be shipped at additional cost.

Calendars are also available for sale for \$20 - 4 out of 12 months plus the cover feature photos by Halifax Centre Members Tim Doucette (cover & November, Iris Nebula), Fiona Morris (April, Leo Triplet), Jason Dain (June, Blue Horsehead & December, Melotte 5) and Kathy Walker (October, Messier 5.)

The meeting closed with President Judy Black thanking everyone for making her term as president enjoyable!

Special thanks went to Dave Lane, Jerry Black and Bob Russell for their work in making the hybrid meeting a possibility.

