

NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC
VOLUME 2022 ISSUE 2 MARCH/APRIL 2022



Paul Sykes Lecture – Sat, Mar 12 @ 7:30pm

Creating Black Holes with Dark Matter at Cosmic Dawn

Sophia Gad-Nasr, Science Advisor and Dark Matter Hunter

Virtual lecture on Zoom/YouTube (see link below)

Join us on Saturday, March 12 at 7:30 pm for our annual Paul Sykes Memorial Lecture (held virtually). Our YouTube channel will live stream the lecture, which you can find at the following address:

<https://www.youtube.com/channel/UCZ9gX3n2zRNiIjQ0v7kwvfg>

We are pleased to host Sophia Gad-Nasr this Saturday. Sophia is a Science Advisor and Dark Matter Hunter and is currently a PhD student in Cosmology at University of California, Irvine. She describes her lecture as follows:

At the heart of every large galaxy lies a black hole millions to billions of times the mass of the Sun. These supermassive black holes are found too early in the Universe's history to be explained by conventional mechanisms: their formation remains a mystery.

The answer may lie in yet another

other of the Universe's mysteries: dark matter. A substance six times as abundant as normal matter, dark matter is everywhere and holds galaxies



together. If dark matter particles scatter off of one another, then the interplay between gravity and these scatterings may lead to a catastrophic collapse, leaving behind a black hole in its wake.

Join me on a tour of the dark Universe during the earliest stages of its

evolution. I will discuss the puzzle of the existence of supermassive black holes at cosmic dawn, and how dark matter may resolve this mystery. With space telescopes like the James Webb, we can peer back far enough to see if dark matter in galaxies does collapse and form black holes at cosmic dawn, and potentially unravel this longstanding mystery in cosmology.

This annual lecture is held in memoriam of Paul Sykes, who passed away in October of 2005. Paul was an RASC Life Member and avid supporter. Upon his passing, he bequeathed a substantial sum that has kept your Vancouver Centre financially solid for the last 15 years.

Paul was born in Hummelston, Pennsylvania, USA in 1918. He was interested in astronomy at an early age. During his teens, he published

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MARCH 12

Zoom

No Thursday lecture for March. Instead, join us on Saturday for the Paul Sykes Lecture. Details above.

APRIL 14

Zoom

Astrophotographer Rouzbeh Bidshahri presents an introduction to astrophotography concepts and gear. See Meetup for details.

MAY 12

Zoom

Speaker TBD. Watch Meetup for details.

On Motion-Detecting Floodlights

by Michael Levy

Today is recycling day. Like many Vancouver houses, my house has a service lane. Below is a photo of what I saw when I took my recycling material into the lane.

When my neighbour built his new garage, about three years ago, he made sure that it was well equipped with lights—under the eave lights and motion detecting lights which (as you can see) are viciously bright and cast an unhealthy colour temperature.

I often tell my friends that this is not the world I signed up for. So many bad things are happening. Sometimes I give up trying to help improve things. But not today! I want to write about one small thing inside another small thing that I have done and that you can do: reduce your outdoor lighting, and get rid of those horrible, no good, cheaply made, outdoor flood lights.

Now as far as I can tell, there are just two reasons people install these lights (actually three, but I don't want to accuse anyone of being a thoughtless idiot, so I will not mention the third reason). These reasons are to provide light when occupants come home on a

dark night, and to prevent theft. I will make one small concession: the first reason is better (for light pollution abatement) than an always-on flood. But there are alternatives, and I will suggest two. First though, I want to address the second reason.

Do motion detecting floodlights



prevent theft?

An internet search seems to indicate that they do. This was in the top hit when I did a search:

Motion-activated lights are an important layer of home security. It is true that lights cannot stop a criminal in the physical sense. They can, however, have a power-

ful psychological effect that can give a would-be intruder reason to stay clear of your home.

There are two ways that a motion-activated light can deter a criminal—through its startle effect and temporary blinding illumination. Although criminals are aware of how motion-sensor lights work, the high adrenaline levels they experience while contemplating their crimes makes them highly apprehensive and easy to startle. When an outdoor light suddenly turns on, it has a startling effect that heightens that anxiety and fear. This

alone can cause a criminal to question whether someone can see them and if proceeding further is worth the risk of potentially get caught or possibly even shot by the resident. This increased apprehension is sometimes all it takes to stop an intruder in their tracks.

The illuminating effects of out-

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President's Message

Some great news came to us February 7th. New asteroid (10098) Jaymiemathews = 1991 SC was announced in the International Astronomical Union WGSBN Bulletin Volume 2, #2. Our council nominated Dr. Jaymie Matthews when asked two years ago by a RASC National nominating committee. We think very highly of our friend and are so

pleased to have had a part in seeing him receive this honour.

"Discovery: 1991-09-30 / R. H. McNaught / Siding Spring / 413

Jaymie Mark Matthews (b. 1958) did undergraduate studies at the University of Toronto and his MSc and PhD at West-

ern University. He has been a member of the faculty of the University of British Columbia since 1992 and was made an Officer of the Order of Canada. He is principal investigator for the Microvariability and Oscillations of Stars Telescope." – IAU WGSBN Bulletin 2, #2

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About RASC

The RASC Vancouver Centre meets at 7:30 PM on the second Thursday of every month at SFU's Burnaby campus (see map on page 4). Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$89.00 per year (\$52.00 for persons under 21 years of age; family memberships also available) and can be obtained online, at a meeting, or by writing

to the Treasurer at the address below. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd-numbered months. Opinions expressed herein are not nec-

essarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor or mailed to the address below.

Remember, you are always welcome to attend meetings of Council, held on the first Thursday of every month at 7:30pm in the Trotter Studio in the Chemistry wing of the Shrum Science Centre at SFU. Please contact a council member for directions.

2022 Vancouver Centre Officers

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Library

The centre has a large library of books, magazines and old NOVAs for your enjoyment. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

On the Internet

rasc-vancouver.com
astronomy.meetup.com/131/
www.facebook.com/RASC.Van
www.instagram.com/rascvancouver/



@RASCVancouver

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V5A 4Y0

Map to Meeting Site



IMPORTANT NOTICE:

Our lectures have moved on-line until further notice due to COVID-19 and SFU having shut down most on-campus activities.

We will resume our physical lectures at SFU once it is deemed safe to do so.

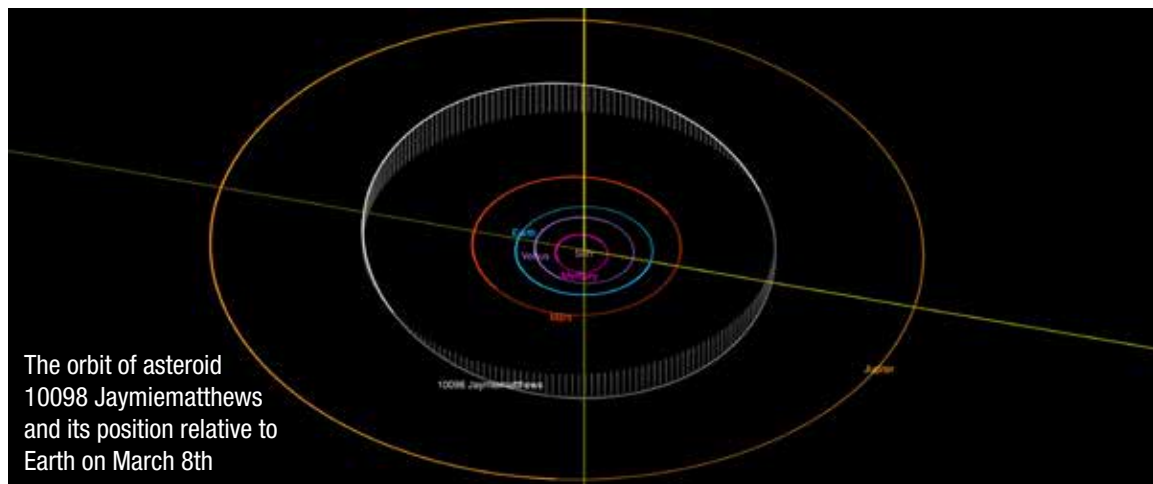
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The transition from winter to spring is welcome. The days grow longer to equal the length of night on March 21 at Equinox. The night air is still cool and clear when the weather allows. For those of us that enjoy visual observing, it's galaxy time as Leo and Virgo present their treasure chests of galaxies. Visually observing these gems means getting away from the city light pollution in order to

enjoy the best dark sky background. A dark sky increases the contrast and the joy of observing. We hope the weather gives us a clear, dry night and that we have the opportunity to be in the right place at the right time. We can pretty much count on the stars being there on a clear, future night if we miss them now.

So many other things are uncertain, certainly with regards to timing. I wish I could predict when we

will be able to meet again in person. Some of the health restrictions are easing. From the start of this year, council prepared for both virtual meetings with possible in-person meetings for the rest of this year. Starry Nights has been in-person recently for the vaccinated wearing masks. Our monthly meetings continue to be virtual for the time being. Astronomy Day in April will be virtual again this year with in-person



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his own monthly astronomical column. He was an officer in the United States Air Force, served in the Pacific during WWII, attaining the rank of captain. Following the war,

Paul attended UBC in 1948, earning a degree in physics. He rejoined the U.S. Air Force and attended the Oak Ridge School of Reactor Technology, studying nuclear physics. He worked on the NERVA Project,

a nuclear rocket development effort. Thereafter, Paul returned to BC and was appointed a lecturer and administrator in Physics at UBC. He remained there until retirement in 1983. ★

Starry Nights at SFU the night before if the weather permits.

We have been fortunate to have excellent presenters at our monthly members meetings. In January, we had Don Hampton informing us about Space Weather and the Sun's activity that drives it. Don is a Research Associate Professor at the Geophysical Institute, University of Alaska Fairbanks. In February, we had Matthew Borghese, Solar System NASA Ambassador. Matthew has presented before and this time his talk was an inspiring selection of past, current and planned NASA missions. Coming up Saturday, March 12 we host virtually our annual Paul Sykes memorial lecture via Zoom and YouTube; Sophia Gad-Nasr, PhD student from Irvine Califor-

nia, will be speaking about Collapsing Dark Matter into Black Holes at Cosmic Dawn. Sophia has an uncanny ability to present clear graphics to explain complex concepts and she has a large social media following in part because of this ability. In April, we welcome our own member Rouzbeh Bidshahri who is a mechanical engineer with a lifelong passion for astrophotography. One of his astrophotographs is on the cover of the current Sky News. He plans to tell us about the process and approach, using some of his outstanding examples, incidentally captured from West Vancouver.

Things run smoothly when many of us work well together. We all benefit from the dedication and gift of time from many volunteers and the

Vancouver RASC Council, I extend my thanks and gratitude to you all. We invite members to become actively involved with your club. Volunteers help us with outreach to the public. There are few joys as satisfying as hearing someone gasp in surprise and delight as they take in the view through one of our telescopes. It is human to delight in sharing each other's discoveries. Share what you know, suggest speakers, offer to volunteer, and submit articles and astrophotography for publication in the NOVA newsletter or on our website. Council members emails are on our website and in this newsletter. Looking forward to hearing from you and, even better, to one day when we can meet again in person.

Clear Skies – Alan Jones ★

Membership has its Privileges!

Are you tired of looking at the same objects again and again (planets, moon, etc.)? Is your telescope collecting dust because it's hard to locate deep sky objects? Would you like to bring your observing to a stellar level? Robert Conrad, our new observing director, revived the Vancouver RASC observing group and invites you to join by sending him an email at observing@rasc-vancouver.com. Some of the benefits of belonging to this group include:

- Hands on training on how to operate the SFU Trottier observatory
- Weekly observing sessions at the observatory or at dark sky locations
- One-on-one coaching on how to locate thousands of objects in the night sky
- Attend small interactive seminars delivered by Robert on a range of topics including failsafe star-hopping, charting challenging objects and understanding the motions of the cosmos
- Learn to make your telescope dance by locating objects such as asteroids, nova, and supernovae
- Spectroscopy and imaging training from Howard Trottier and an opportunity to collaborate on observatory research projects
- Updates on observable sky events happening during the week like asteroid/comet/deep sky conjunctions
- Access to observing guides and lists that Robert created that took hundreds of hours to create and will help with planning observing sessions
- Knowledge and expertise from other observing group members
- Learn how to quickly and efficiently find and star-hop to deep sky objects using a range of binoculars and telescopes

Upcoming Events

May

7 – Virtual Astronomy Day/Science Rendezvous with SFU

August

21 - 28 – Mt. Kobau Star Party

December

12 – AGM

Should BC Provincial Parks Become Dark Sky Preserves? by Leigh Cummings

Have you ever had an idea that seems to keep niggling you through the years? You know, some thought that you dismiss as not realistic, yet it keeps percolating back up to the surface when you come across a story, or something someone says seems to trigger it again. I have such an idea and, for better or worse, I will share it with you all.

Is it time to lobby our Government of British Columbia to apply to the Royal Astronomical Society of Canada's National LPA Committee for Dark Sky Designation for all Provincial Parks? That is, of course, a very over simplistic idea, considering that the parks have different designations and RASC has different Dark Sky designations as well. It would take time and lots of study to figure out which RASC designation is suitable for each park, depending on the Provincial Park's designation. But let us look into how we might go about this.

The Provincial Parks are a legacy of mostly pristine country left to us by politicians with foresight as to the importance that the wild has to our well being, as well as the well being of the world we call home. British Columbia was the first province in Canada to establish a provincial park, which was Strathcona Provincial Park on Vancouver Island, established in 1911. By 1930, there

were 13 provincial parks and another 50 areas set aside for future consideration.

There are now 644 Provincial Parks (A, B and C designations) in BC covering 10,552,672 hectares, or 105,526.72 square kilometres. There are an additional 308 Recreation Areas, Conservancies, and Ecological Reserves covering 3,174,954 hectares, or 31,749.54 square kilometres. Combined with another 84 areas designated under the Environment and Land Use Act, we have set aside 14.26% of BC's land mass to parks and conservation. We have a lot to take pride in.

For the most part, our provincial parks are mostly undeveloped and dark. You might ask why is there any need to try to have the parks designated as Dark Sky Preserves, Nocturnal Preserves, or Urban Star Parks? My best answer to that is the same answer that was given to the original distracters of creating provincial parks in the first place. Governments change and with them priorities change. The people behind the establishment of the first provincial park foresaw the need to protect wilderness for wilderness' sake for the good of us all. They hoped that once parks were established, governments would not risk the wrath of the people by violating them.

As pressure mounts to open up

more provincial parks to recreation development, I think it will become more important to have a set of lighting guidelines in place to safeguard the nocturnal wilderness in the same way as the diurnal wilderness. A good example of why I think this is important is Porteau Cove Provincial Park. The operators of the park changed the lighting in the parking lot and the dock without consideration for the impact the lighting will have on the nocturnal environment, especially the marine environment. I do not believe they intended to do harm, they just did not have a set of guidelines to follow. Once the Provincial Parks were made aware of the situation, the lighting on the dock was removed.

I am certain that the biologists and the botanists that work at or with BC Provincial Parks know the importance of the nocturnal environment. It seems, though, that they are not always consulted or have input into decisions that are made in regards to the operation of parks, as in the case of Porteau Cove Provincial Park. If they had, then maybe that whole issue might have been averted in the first place. It might not be practical for the operators to always consult with the science staff, or action might have to be taken quicker than a science study

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door security lighting can also serve as a crime deterrent by removing the cloak of darkness that burglars and other home intruders prefer to hide in. A light that suddenly illuminates an area that a criminal is lurking around or planning to hide in can quickly foil his plans.

The trouble is that this supposed expert advice comes from the same company that sells motion detecting floodlights. The above paragraph is full of claims that, as far as I can tell, are simply made up—“powerful psychological effect,” ... “it has a startling effect,” ... “temporary blinding effect” and so on.

On the other hand, the company ADT, a major brand in the home alarm industry, has a lengthy article about outdoor lighting, and they reach a much more measured conclusion, backed by actual data (albeit not very rigorous):

“So do outdoor lights deter crime? They can, but only for a small portion of potential burglaries.”

The ADT article, which you can find at <https://www.adt.com/resources/do-lights-deter-burglars>, references recommendations made by “SecurAmerica, LLC” whose pamphlet on securing your home barely even mentions lights! Here, for example, is an interesting quote from them:

“Most burglaries occur between 10 a.m. and 3 p.m., since that’s a prime timeframe where many homes are not occupied.”

Unfortunately, there is much conflicting data on the value of outdoor lighting as a crime deterrent, and no actual data that I can find on motion-

detecting lights. But what I do know is that lights in my lane come on fairly often, triggered probably by raccoons or skunks, and are always ignored—by me and my neighbours.

Given what I have read, and my own observations, I am certain that, in this area of town at least, motion-detecting flood-lights do not prevent theft.

But what about the first reason: providing light for me when I come home at night? Well, I had such a light on my back door, and being a good LPA advocate, I only ever turned it on if I was driving somewhere and expected to drive back after dark. Or to take food waste out the back door to my recycling bin. The only trouble was that it worked so badly. Sometimes it stayed on too long. I found it hard to focus in the right area. Sometimes it went off just at the wrong time, leading to cuss words as I stumbled into garden furniture—it was just not doing its job.

Then I had an idea: get rid of the motion detector. This was easily done, and a simple rewiring job to join together the two wires that went to the detector. The harder problem was how to install a two-way switch in the garage. It would be impractical to run the required wires to the garage. The solution was very simple: use a remote wireless switch in the garage and replace the switch in the house with the requisite receiver. The system I used is called a Lutron Caseta, available from your favourite retail store. My only objection to it is that it only comes in a dimmer model, which I do not really need. Other than that, it does the job! If I arrive home and it is dark in the backyard, I use the remote switch in the garage to turn the light on, and

I turn it off once I am in the house. There are also ways to control lights from your smart phone.

An alternative to remote switches is to install small solar powered pathway lights. In my case, the path from my garage to the house has a lot of pavers and concrete so this was not feasible.

Is light pollution really the problem that astronomers claim it is? Of course it is. I will add one piece of evidence that you may not have been aware of: world-wide, insect populations are in decline, and without insects, the human race may well become extinct. What has this to do with light pollution? Well, just consider this headline from *The Guardian* published in November 2019:

Light pollution is key ‘bringer of insect apocalypse’

Interestingly enough, this past weekend, Bob MacDonald interviewed Oliver Milman on his show, “Quirks and Quarks” whose book, *The Insect Crisis: The Fall of the Tiny Empires That Run the World*, is coming out on March 1 this year. Milman makes it very clear how dire the world would be without insects.

In conclusion:

1. Yes, light pollution is a serious problem that must be addressed for the future of the planet;
2. Yes, you can help do something about it;
3. I did something, pickle sized, admittedly, but something: no more motion-detecting floodlight.

After all, never forget the Scottish proverb: “Many a pickle makes a mickle.” ★

Effects of Light Pollution on our Cosmic Outlook by Shay Pomeroy

When was the last time you saw the sky filled with stars? With an [estimated 80%](#) of the world unable to see the Milky Way, these statements are far from groundbreaking. But what is lost when we can no longer place ourselves among the stars? Our ability to view the night sky leads to a [greater sense of connection to our natural world](#) and positive social effects linked to altruism and well-being. Beyond this, viewing our cosmos likely has significant effects on our [physical](#) and [mental health](#).

Often overlooked is the role cosmic viewing has on cultural development and how that's becoming lost to light pollution.

Beginning in prehistory, early humans gazed up at the sky and interpreted the constellations as a vital part of their mythology and beliefs, a practice that continues today. Beyond the naked eye, astronomy is one of our oldest formal pursuits and

helped us understand our place within our solar system and, eventually, the larger cosmos. Without the visible night sky, "we can lose a sense that we're part of something unfathomably large, a perspective that can deeply feed into our worldview." [Kelsey Johnson](#), *Professor of Astronomy at the University of Virginia*.

Coming out of the (relatively) recent start to the "Space Age," we must keep our eyes on the stars and our sense of discovery as a species. Being able to view the cosmos effectively is not only crucial for your sense of perspective but is what leads to the next generation of astronomers, physicists, and explorers. "If you've never seen stars, and you don't learn astronomy in school, there's a big gap there. And that means a gap in future advocates for this work," says Professor Johnson.

The tangible effects of our decreasing daily connection to

our cosmos are not well known, but if the last few years are evidence of anything, an increased sense of perspective is sorely needed. In the words of [Nicholas Campion](#), historian of cultural astronomy, "there is no human society that does not, somehow, in some way, relate its fears, concerns, hopes, and wishes to the sky."

As urbanization relentlessly rolls onwards, we must do our part to advocate for more [dedicated observing sites](#) and consider how we build our cities regarding light pollution sources. Furthermore, organizations such as the [International Dark-Sky Association \(IDA\)](#) are becoming increasingly vital as we safeguard the ability of future generations of stargazers.

Everyone deserves the experience of awe from seeing our beautiful Milky Way in the night sky and the profound sense of perspective that comes with it. ★

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would allow for. In this case, operators should have guidelines set out for them for just such an occasion. The RASC National LPA committee already has the guidelines in place (Canadian Guidelines for Outdoor Lighting, CGOL 2020) which, if the parks were designated as Dark Sky Preserves, the operators would have a clear understanding of their responsibilities. Also, parks that already have development within

their boundaries will have guidelines to work toward a darker nocturnal culture.

In order to establish Dark Sky designations within our park boundaries, it will require the cooperation of more than one government agency. Highways run through a number of our parks. Can we have them designated "Dark Sky Corridors" and have intelligent and well-shielded lighting where lighting is required? Where parks border developed ar-

reas, can we eventually have these developed areas conform to Dark Sky lighting guidelines? We have the technology to make these goals possible. Now all we need is the will to make it happen. Can we do this for future generations to come? Will British Columbia become a nocturnal tourist hotspot of the world? I leave it to you to ponder. Let it niggle in your minds for awhile. Maybe if enough of us scratch the itch, something might happen. ★

My First Astronomy Books

by J. Karl Miller

A few days ago, I rifled through one of several of our bookshelves in our house. Hidden behind some family pictures I came across two books which I've had since shortly after I first got interested in Astronomy (at the ripe old age of 8 [I'm now 82]). In previous posts, I have stated that I was born in Berlin; the books were published in the German language and were first printed in the 1930s. My copies are reprints from the 1940s. They were already well-used books when they were given to me and haven't improved their condition since then. I wrote about what got me started in astronomy in November 2019; the article appeared in the Jan/Feb 2020 Nova newsletter.

The books are written by different authors. The older book, *Von Fernen Welten* (Of Distant Worlds) by Bruno H. Bürgel, was originally published in 1910. The author was a true philosopher; he wrote other books about many aspects of the "human condition." As such, this book was written for the general public and was only meant to be a general look into Astronomy. Nonetheless, it contains a lot of astronomical detail.

The "newer" book, simply named *Astronomie*, by Oswald Thomas, was first published in 1933. Thomas was a professional Austrian astronomer and wrote this book for the scientifically-interested public and to "fill in"

some astronomical themes which were less often addressed in other books on astronomy. It contains a multitude of tables, drawings, information about both the non-rotating and rotating sky, astronomy of the Earth's globe, the solar system, and

monocular was my "telescope" for a number of years. It was an overwhelming feeling for me to find some of the interesting astronomical details mentioned in Bürgel's book. Oswald Thomas' book became my reference book later, and I occasionally still refer to it. Even in this digital age, well-written older books have value. They can last centuries and don't need batteries.

Nowadays, you can get all this information on the internet, and on your smartphone or home computers; at that earlier time, the necessary technology did not exist. I've used the two books only occasionally in the last four decades. Having been a member of the RASC

through all this time, I have the advantage of access to up-to-date astronomical information in the annual *Observer's Handbook*, Sky-News magazine, the RASC Vancouver Centre's library, and the Nova newsletter, all included in membership. The astronomical knowledge and experience of RASC members is freely given to everyone who asks, member or not.

In early 1950, I joined an astronomy club called the BAV (Berlin Association [workgroup] for Variable stars) which had access to what was then a temporarily-located Wilhelm Foerster observatory (see note). It had a seven-inch refractor, exposed to the weather (no domed build-

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The battered books

what was known and unknown of the near and distant universe at the time. However, it was not annually updated. An enlightened neighbour in the apartment building where we lived gave me this (also used) book in 1953 as a present.

Bruno Bürgel's book gave me more motivation to look at and learn more about the sky. I spent many hours in public libraries. The sky of Berlin in the late 40s and early 50s was far less light-polluted, because many buildings had been bombed into ruins and streets were still sparsely illuminated. We could not afford to buy a pair of binoculars, never mind a small telescope, but I was the proud possessor of a 3X40 Galilean monocular. That

FOR SALE

FOR SALE – CUSTOM BUILT REFRACTOR TELESCOPES AND TRIPODS

By Suzanna Nagy, Secretary

Leigh Cummings and I had the recent pleasure of meeting with Eileen Dwillies. Her husband, Paul, had passed away last year. As a retired graphic designer and commercial artist, one of his many hobbies

was telescope making. We were very impressed with Paul's skill level in that he had built a number of refractor telescopes. Eileen offered first choice to RASC Vancouver. After assessing each telescope, we decided to keep just one and returned the remaining four to Eileen. While each refractor telescope worked and worked well, each also had a number of small issues that needed address-

ing.

Eileen is looking to sell these custom-made refractor telescopes and tripods to anyone who shared her husband's passion for telescope making. It is our opinion that they would not be suitable for anyone just beginning to learn observing.

If you are interested, please reach out to Eileen at edwillies@hotmail.com



FOR SALE

Skywatcher EQ3-2 dual motor drive, still in original box.

I am happy to let it go to any interested party for \$350.00.

Contact Ron Jerome at jerome3292@shaw.ca



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ing). The telescope had been built by dedicated amateur astronomers with salvaged parts from the bomb-damaged Urania observatory in Berlin. We were an enthusiastic group of people of various ages and, besides variable stars, observed everything else, too, along with setting up and showing people the view through the telescope on public astronomy nights. Our variable star observational results were mailed to the AAVSO in the U.S. and I hand-copied their reference maps by tracing them on transparent paper (AAVSO's star maps are now acces-

sible on-line). I still regard my participation in our RASC's in-person public astronomy nights as my most

(subject to Covid-related rules at this time).

Note: The new Wilhelm Foerster observatory is now located on top of the only "mountain" in Berlin worth that designation (in my opinion); the mountain consists of thousands of tons of broken bricks and cobblestones, and other detritus collected from the war's ruins when rebuilding of the city was underway after the war. Trees and other plants have turned it into a beautiful park. The 3-dome Wilhelm Foerster observatory is now a totally up-to-date public institution connected to a Zeiss planetarium. *



The "temporary" Wilhelm Foerster Observatory, about 1950

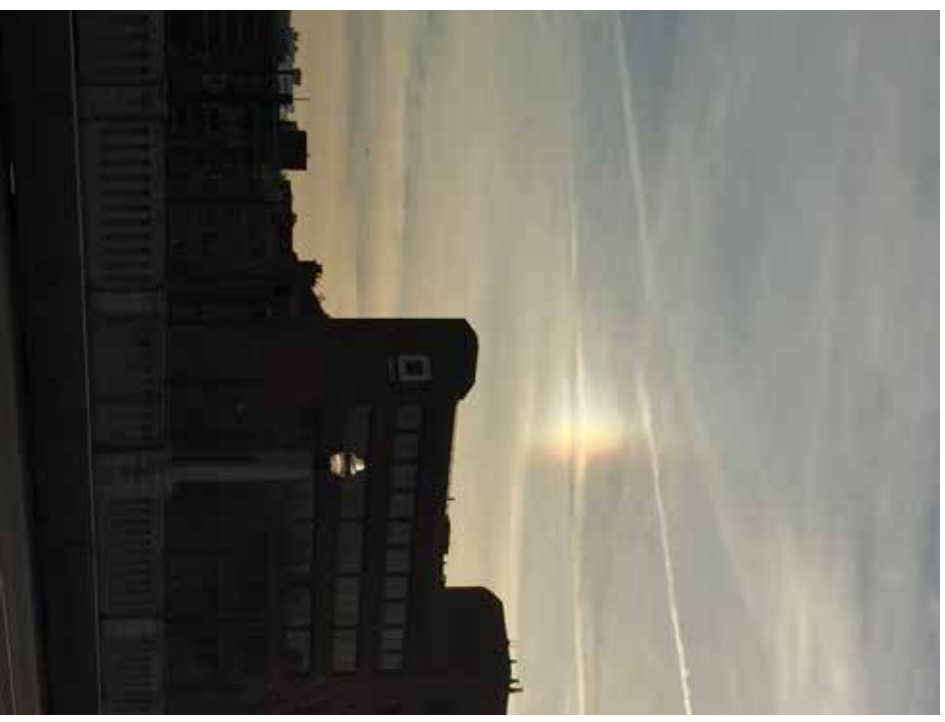
rewarding of astronomical activities. Covid-19 has put a damper on this in the last couple of years, but I'm hopeful about doing so again, soon

At right, some of our RASC-Vancouver volunteers at Starry Nights at SFU this past Friday night. We are hopeful this continues to be a safe, in-person event going forward.



RASC-Vancouver Centre president, Alan Jones (along with his furry assistant, Star), presents our Events Coordinator, Hayley Miller, with the Vancouver Centre Appreciation Award for 2021. Congratulations, Hayley!





Parhelion by Douglas Filipenko

Parhelion (sun dog) photographed using an iPhone 5 from near the centre of Burrard Bridge at around 4pm on Friday, Jan. 28, 2022; the view is toward the southwest. The Sun is to the right, outside the photograph. Note the red-end of the spectrum is closest to the position of the Sun. A parhelion is the result of sunlight passing through tiny hexagonal water crystals suspended high in the atmosphere, often within cirrus clouds, as seen in this example. Under the right conditions, two parhelia can be seen on opposite sides of the Sun, although only one was identified at the time of this photo.