SKYNEWS

Mary Beth Laychak and Pluto, giving lecture at AGM, by Joe Carr

Dinner and a Meeting

On February 22nd, RASCals from near and far (mostly near) gathered at the Ambrosia Centre, in *sunny* downtown Victoria, for our annual general meeting. We haven't had a dinner meeting since the autumn of 2018 and very nearly didn't have one this time, when we lost our original venue due to flooding. With not much time to do so, Deborah Crawford took over the planning of the event and our dinner meeting was salvaged. The venue itself is nicely laid out, with only one entrance, something a lot easier to manage when you're the treasurer trying to keep track of all the arriving diners and collecting their fees.

The dinner portion of the event was all right. It's been stated that the Ambrosia Centre has a wide range of options, but because a lot of people had already ordered their dinner, it was decided to have the menu as close as possible to the one we had arranged at the other venue. If we had the luxury of time to have everyone redo their orders on a new menu, from what I've heard the results would have been much better than making them adjust their menu for us. That said the steak was small. Yes, I may be a bit biased from all the Frisbee-sized, ranch steaks I've grown accustomed to over the years, but that was the smallest steak I've ever had that wasn't part of a tasting menu.

Our guest speaker, Mary Beth Laychak, gave an engaging lecture about the Canada France Hawaii Telescope. In a time when space telescopes are getting the lion's share of the headlines, many of us were left with a greater appreciation of this observatory and excited about its future as the Maunakea Spectroscopic Explorer.

With dinner and our feature presentation behind us, it was time for handing out awards and the actual business of the meeting. Michel Michaud won the Newton/Ball Award (seen right, at top right of page); Ken Mallory won the Ernie Pfannenschmidt Telescope Making Award; Doug MacDonald won for Excellence in Astrophotography; and certificates of appreciation were handed out to Marjie Welchframe, Chris Aesoph, David Lee, and Bruce Lane. As Secretary, Barbara Lane gave a summary of the year's activities. Deborah Crawford presented the Centre's financial statement and Nelson Walker gave a report about the goings on at RASC National.

The midterm elections were a mild affair, as they often are, other than RASCals calling our President's bluff about quitting if he didn't get a 1st vice president. He was talked down from the ledge by Council and some new people have taken up other positions in our Centre, just not the 1st vice presidency. Marjie Welchframe becomes our new 2nd vice president, Mandy Lee is now in charge of public outreach, and Bill Weir has taken up the post of Pearson College Liaison. Next year's 2021 AGM elections will be very different, with a number of Council members finishing up their two year terms and deciding whether to take on new roles, continue on with their jobs, or step aside for new Centre members to take over their positions on Council. In any case, we'll have a new president, as that post has fixed two year terms. This doesn't preclude a former president from being elected to that role, as has happened several times in the past; it just precludes the outgoing president from doing so.

Bruce Lane

Editorial Remarks

What a difference a month makes. After a winter of disappointing weather for amateur astronomy, including a snow storm in January, we've had some decent night skies in February. It's given RASCals some opportunities to observe and image occultations with the Moon and planets. There's another good occultation, with the Moon and Venus, on the evening of March 28th. This is especially fortunate for those of us who aren't overly keen with getting up before dawn to see these celestial events. Observers and astrophotographers alike are dusting off their equipment, while others are still remembering whether or not they have equipment. After all the terrible weather we've endured, it's time to get out there and enjoy these clear skies that we've been given.

In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, a short essay by Nathan Hellner-Mestelman, an announcement about an astronomy themed play coming very soon to Victoria, as well as all the astrophotography and articles you've come to expect from the *Victoria Centre SkyNews*.

Bruce Lane: SkyNews Editor

President's Message for March

This is the inaugural President's message for my second and final term as President of the Victoria Centre of RASC. I would like to thank members of the Council and other active members for their support in the past year. A special salute to our Treasurer, Deb Crawford, who was busy sorting out our year end finances when we learned that our AGM planned location, the Cedar Hill Golf Course, was no longer available. She rallied to the cause and soon found an alternate venue that ticked all the boxes. Her initiative was key to the success of the AGM and I am very grateful for her contribution. I would also like to thank our Secretary Barbara Lane for presenting our Annual Report in an entertaining manner and Bruno Quenneville for organizing the awards. Our speaker, Mary Beth Laychak, delivered a most interesting and entertaining presentation on the history of the CFHT, and we are fortunate that NRC Herzberg helped make that happen.

Thanks must also go to Marjie Welchframe, Mandy Lee, and Bill Weir for stepping up and joining the Victoria Centre Council. Their added support and David Lee's generous offer to organize Astronomy Day convinced me to stay on for a second term. I was, however, a little disappointed that there were no takers for the position of first Vice President. This places our organization in an awkward position. Our constitution prohibits the President from serving more than two consecutive terms. As a consequence if the current situation stands by next February the President's position will be vacated with no groomed successor to assume the mantle.

The Victoria Centre is a vibrant and active organization and a leadership role may seem intimidating to some. A number of measures are being taken to make this position less daunting. An operator's manual is in the works that will provide step by step instructions for major events such as Astronomy Day, the Victoria Centre Star Party, the Saanich Fair Outreach event, and the AGM. Saturday Night Star Parties at the DAO offer an incredibly rich and focused opportunity for astronomical outreach. The number of these events has nearly tripled since 2015. In order to accommodate this increase

we have attempted to trim our sails and have withdrawn from some of the less focused outreach opportunities. Meanwhile "In-reach" activities like Astro Cafe have grown in popularity, and help to engage new members and recharge veteran RASCals with more knowledge, energy, and enthusiasm.

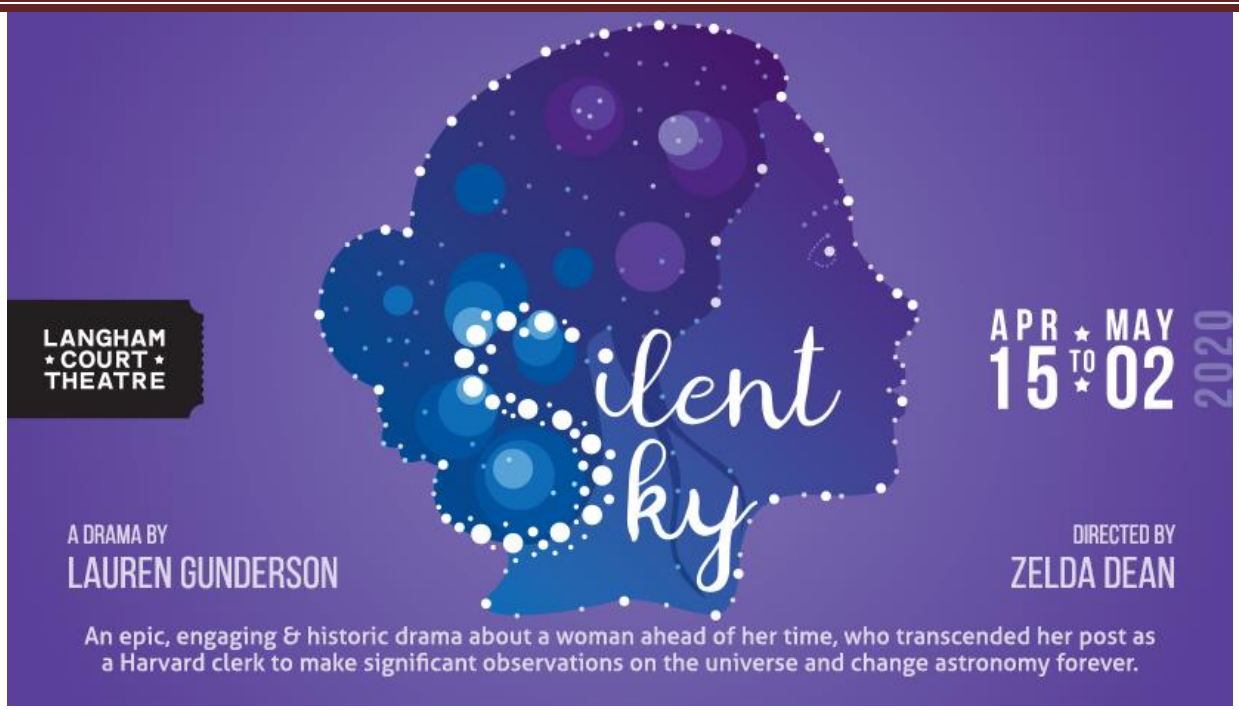
The primary duty of the first Vice President is to schedule and introduce speakers for the monthly meetings. NRC Herzberg has been very supportive in this regard and the following speakers are already scheduled for the remainder of the season:

Wednesday March 11th: Dr. Tyrone Woods - Understanding Supernovae from Tycho to Today
Wednesday April 8th: Dr. Matt Taylor - Role of Dwarf Galaxies & Globulars in Galaxy formation.
Wednesday May 13th: Dr. JJ Kavalaars - An Update on Arrokoth (aka Ultimae Thule)
Wednesday June 10th: Dr. Abedin Abedin - Modelling Meteoroid Swarms

That only leaves 6 more talks to schedule until the next AGM! So please, give the First Vice President role serious consideration. It is a great opportunity to deepen your involvement in this remarkable organization. For 106 years the Victoria Centre has been dedicated to its primary mandate: to stimulate interest, and to promote and increase knowledge in astronomy and related sciences. By stepping up, you would help keep this wheel turning, and make an important and satisfying contribution.

Usable Skies

Reg Dunkley



Silent Sky

Victoria's **Langham Court Theatre** is presenting (15 April – 2 May) *Silent Sky,* a dramatization by Lauren Gunderson about the life of Henrietta Swan Leavitt, whose discovery of the relation between the period of the brightening and dimming of a Cepheid variable star and its luminosity enabled for the first time measuring distances beyond our own galaxy. Audience members will also meet Harvard astronomers, Annie Cannon and Williamina Fleming, who similarly featured prominently in Dava Sobel's *The Glass Universe: How the Ladies of the Harvard Observatory Took the Measure of the Stars.*

The Theatre's blurb (https://www.langhamtheatre.ca/boxoffice/plays/silent-sky/) reads:

"How can we measure our lives against the beauty of the universe? Epic, Engaging & Historic: Henrietta was a woman ahead of her time – an amateur astronomer who transcended her post as a Harvard clerk to make significant observations on the universe and change astronomy forever. Suitable for all ages"

Sara Ellison (University of Victoria) and Jim Hesser (National Research Council/Herzberg Astronomy and Astrophysics Research Centre) are acting as scientific advisors to the production team, in which roles:

a) Jim showed the actors and prop team glass photographic plates he'd taken in the early 1970s with the then-new 4 meter diameter, telescope at Cerro Tololo (now the Victor Blanco Telescope), explained this primitive, pre-CCD technology, ☺ and demonstrated how to properly handle glass imaging plates.

b) Sara inspired the actors and entire production team with a riveting, illustrated presentation on the importance of Ms. Leavitt's work, as well as comparing the situation for women in astronomy today versus a century ago.

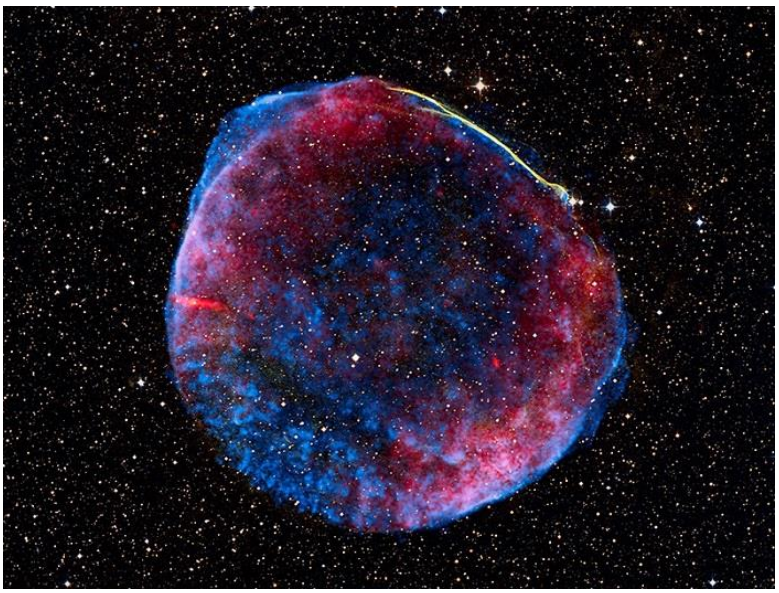
With NRC colleagues, Jim will also give the production team a tour of the historic Plaskett Telescope in March, to further their appreciation of the observatory environment of the day.

Early-bird ticket prices are available before 23 March. Note that UVic's Sara Ellison will give pre-performance talks at 7 pm on 29 April and 1 pm on 2 May, based on her truly inspiring and informative talk she gave to the production team. Audiences for those two performances are in for an additional treat.

Jim Hesser

Monthly Meeting Speaker: Dr. Tyrone Woods
When Stars Explode: Understanding Supernovae from Tycho to Today

7:30 PM, Wednesday, March 11th; 2019 in Room A104, Bob Wright Centre; University of Victoria



In 1572, a new "star" appeared in the sky that forever changed the way we think about the Universe. Identified by famed Danish astronomer, Tycho Brahe, this incredible event is now understood to have been the explosion of a dead star — a supernova. Since then, supernova observations have illuminated the Cosmos, revealing everything from the origin of the iron in our blood to the final fate of the Universe. In this talk, I'll outline a brief history of supernova astronomy, culminating in the cutting-edge work being carried out in Victoria and across Canada today to understand why and how some stars explode, and the lasting impact of their explosions and remnants in our Galaxy and beyond.

Dr. Tyrone E. Woods is a research associate and Plaskett Fellow at NRC-Herzberg in Victoria. There, he studies the physics of some of the most energetic events in the Universe, by combining theoretical models with observations across the electromagnetic spectrum. Before returning to Canada, he completed his PhD at the Max Planck Institute for Astrophysics in Munich, Germany, and held research positions in Australia and the UK.

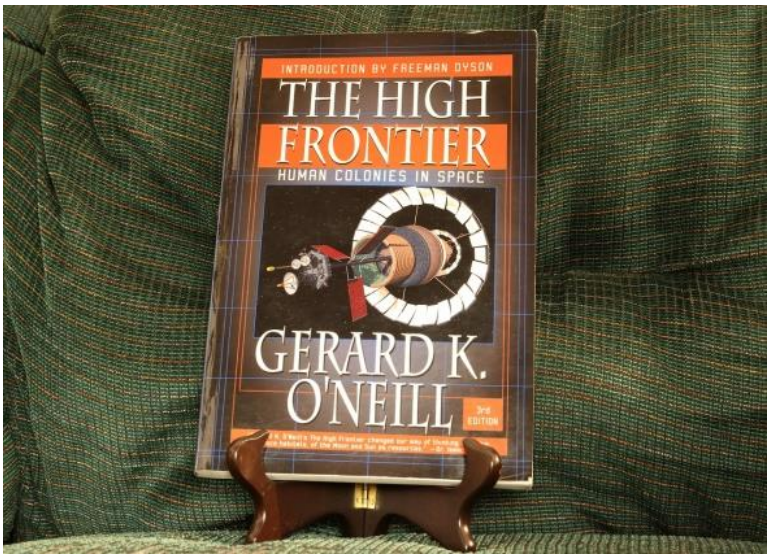
Astro Café: Monday Nights, 7:30-9:00pm

Astro Café is a weekly astronomy gathering for both RASC members and the public alike. It runs on Monday nights, finishing up at the end of May and returning in September. Astro Café is primarily a social gathering, with presentations of recent observing sessions, astronomy gear show and tell, discussions about astronomy, and of course coffee and cookies (please remember to bring a reusable mug…perhaps even a Astro Café mug). It's located at the Fairfield-Gonzales Community Association, in one of the portable classrooms tucked in behind the main administration building, at 1330 Fairfield Road. Astro Café is a nice introduction to the amateur astronomy community of Victoria. The lights will be on and a sandwich board out front to let you know where we are.

February started off with another session of Handbook 101, with Chris Purse going over sections of the RASC Observer's Handbook. The next Astro Café was a show and tell. There was a plan to go outside and observe if the weather was good, but no observing reports were made. The following Monday was Family Day, so Astro Café shuttered its doors for the evening. The last Monday of the month featured a talk on the Planets and Solar System by John McDonald.

Bruce Lane

From the Library



After our monthly meeting, feel free to join your fellow RASCals socializing up in the astronomy faculty lounge on the 4th floor of the Elliott Building, where we have coffee, juice, and cookies. It's also where the RASC Victoria Library is housed, with over 500 titles, curated by Diane Bell, our RASC Victoria Librarian. Our library covers many aspects of astronomy: observing, astrophotography, telescope construction, space exploration, astrophysics, and much more. Every month, *SkyNews* will be featuring a new selection from our Centre's library, complete with a brief book review.

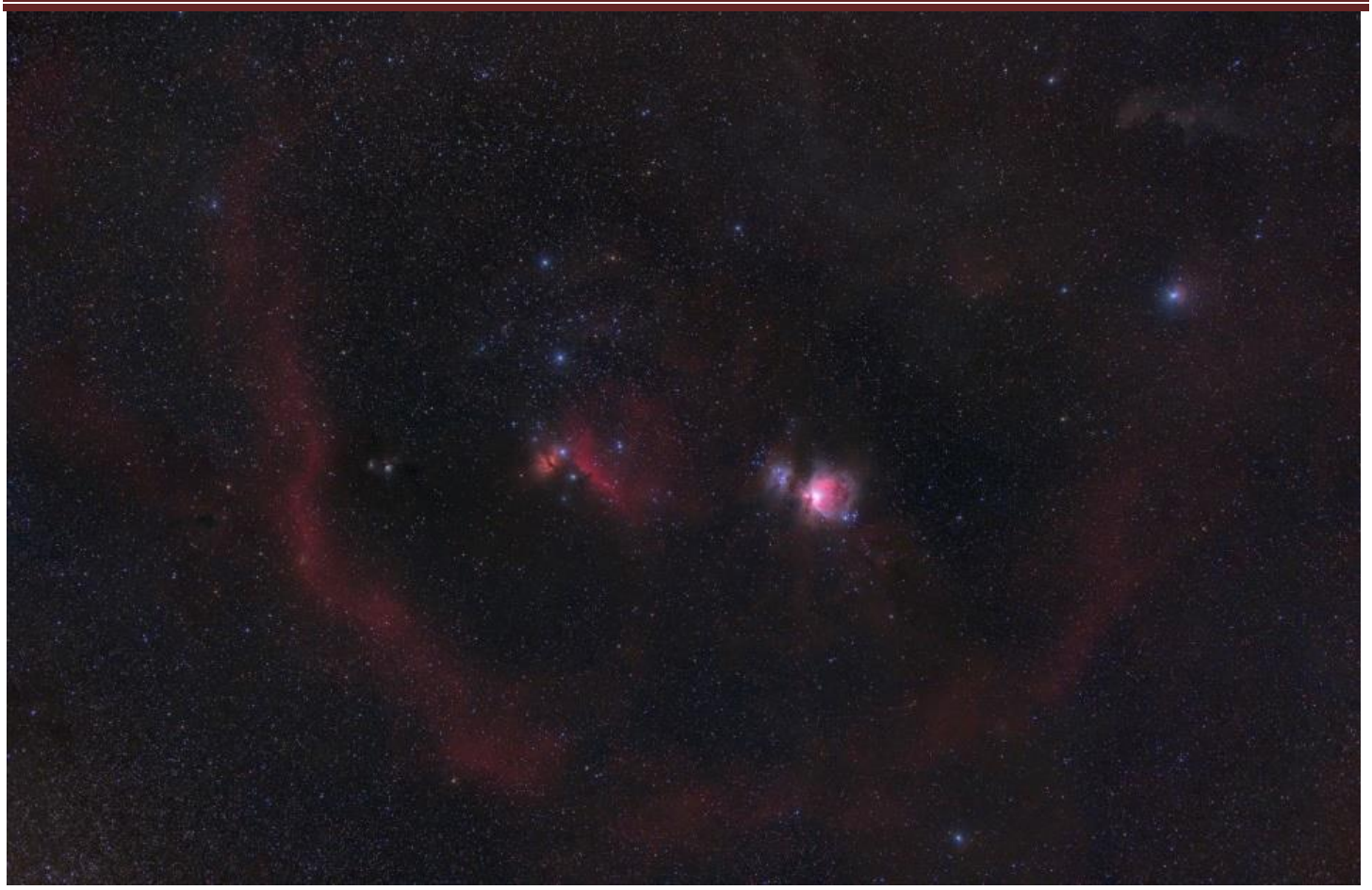
I've been fortunate with my selections for this column, in that almost all of the books being reviewed were ones that I also have in my personal library. Where I run into problems is when I own 2-3 books by an author, but the RASC Victoria Library has a different one by that author. Diane Bell was kind enough to provide me with a list of the entire collection, which has made it a bit easier to cross reference the collection against my own, instead of quickly scanning the library shelves after the monthly meeting in the hopes of seeing a familiar face in the crowd of books.

At the end of February, we lost one of the great minds of astronomy, with the passing of Freeman Dyson, at the age of 96. While neither the Centre library nor my own collection has any of his books, I do have the next best thing on my bookshelf. This month we're taking a closer look at ***The High Frontier*: *Human Colonies in Space*, by Gerard O'Neill**, with an introduction written by Freeman Dyson. Often referred to in other books on the subject, *The High Frontier* is very likely the most important book ever written on the subject of colonizing space. Sadly we've failed to do more than maintain a tiny outpost in low Earth orbit since the cancellation of the Apollo program.

O'Neill was a pioneer in particle physics. He designed parts of the Stanford Linear Accelerator Center, like the electron-positron storage ring accelerator, which he used to perform the first collider beam physics experiment ever done. Years later, he became interested in space exploration and applied his mind to the problems of colonizing space. People who followed his vision are often referred to as O'Neillians; as opposed to the followers of von Braun, who are sometimes referred to as Braunians, and like to build big rockets and plant flags. There are also the Saganites: the followers of Carl Sagan whose primary focus is to seek a greater understanding of space.

Published in 1977, it's a vision of the future we never had but still could if there is the will. Gerard O'Neill died in 1992, never seeing any of the ideas he proposed being put to use. Meanwhile, *The High Frontier* has gone on to inspire generations of science fiction writers, with an *O'Neill cylinder* used for the design of the *Babylon 5* space station. Decades later, Apogee Books continues to print and update this book, because of an appreciation of its importance to inspire a future where we are living beyond low earth orbit. It's not about just exploring and exploiting resources in space, but about establishing colonies beyond the surface of our own world. With much of his own work featured in this book, Freeman Dyson wrote an impassioned introduction for the 3rd Edition that was published in 2000. This edition also includes a CD-ROM with lectures by Gerard O'Neill. *The High Frontier* is an essential and inspiring read, for anyone interested in the colonization of space, but sadly not one available at our Victoria Centre Library. You can still order the paperback edition from your local bookstore though.

Bruce Lane

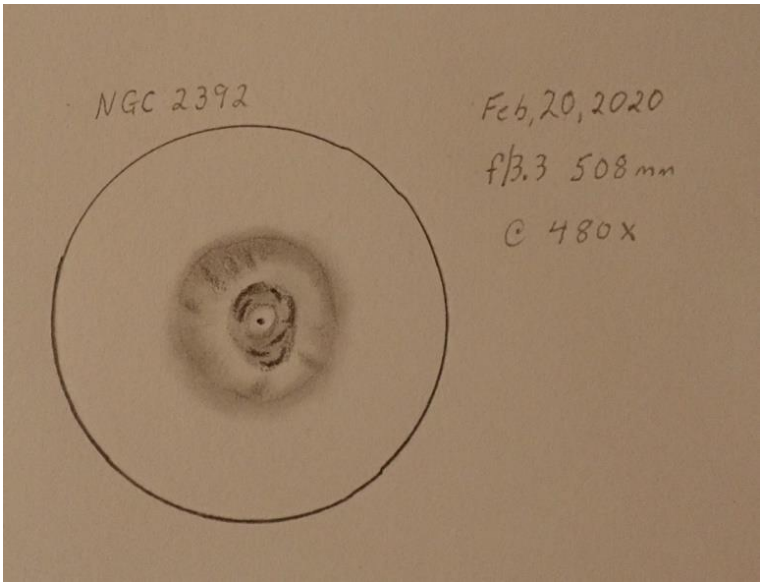


Hill and Dale (Observing on the Island)

So many clear nights in February were a welcome change, after months of terrible weather. Bill Weir enjoyed some good nights out at the Pearson College Observatory, in Metchosin, and word is that he'd really like more people to join him. You can see a sketch by Bill Weir of NGC 2392 (Clown Face Nebula) on the following page. They have some amazing new optics that would make it well worth the drive. Bill also took the time to go out and do some sidewalk astronomy at My Chosen Café, with his 6" Dobsonian reflector telescope. Others just took their optics out to their own backyards. A number of RASCals were out observing and imaging the recent occultations of the Moon and planets, occurring in the pre-dawn hours. Daniel Posey has also been doing some wide field astrophotography with his new camera (see Orion above).

The Technical Committee has even had some clear skies to work on our ailing Ritchey-Chretien telescope, but the news isn't good. Thanks to the help of Les Disher, who has made several trips down from Courtenay to lend his expertise, it's now been determined that the issue has to do with flexure (minor misalignment) between the telescope and its truss, causing problems when the telescope is used for astrophotography. Council has again agreed to put funds aside to ship the telescope back to the supplier for repairs and pursue our warranty options. When it's crated up and shipped off, it's been suggested that we mount a smaller telescope on the large equatorial mount at the Victoria Centre Observatory, to give us some astrophotography options while the big beast is away at the vet. We will still have our 20" Obsession Dobsonian reflector and as always members are free to bring their own optics up to the Hill.

The weekly sessions at the Victoria Centre Observatory were a bit hit or miss with the weather. There were beautiful skies one night, but only if you waited until very late at night. On another occasion, there were decent conditions, but partial clouds, and another session was clouded out. In the only VCO report submitted for February, it was discovered that our picnic table had vanished. There have been no updates on this grievous matter.



A reminder that although the VCO belongs to and is for the use of the members of the RASC Victoria Centre, with both weekly scheduled and unscheduled sessions run by our MiCs (Members in Charge). The VCO is located on National Research Council property. This means that all visitors to our observatory must be on our observer list and registered with the NRC. To get on the list, just contact Chris Purse (Membership Coordinator) *membership@rasc.victoria.ca* and we'll see you up there on the Hill some night soon.

Bruce Lane

I Have a Bad Feeling About This: Star Wars Mistakes that Should Have Killed the Characters

I love Star Wars, and I was excited to watch the release of movies seven, eight, and nine. However, when I re-watched the whole series, I couldn't help but notice some minor, yet grave inconsistencies, and some things that just didn't make sense. These are things that would pass by most Star Wars fans, but when Star Wars and science are put together, the following critique is just what happens.

In short, science enthusiasts make harsh movie critics.

1. Accelerating to light speed is a bad idea

The Millennium Falcon is an iconic Star Wars ship, but it really shouldn't have appeared again after the fourth movie. Nor should have Luke, Leia, Han, and Chewbacca because they were onboard the Millennium Falcon when it went into light speed for the first (and also should have been the last) time. This is because warping into light speed, in the movies, takes about 2 seconds to do. Now, accelerating from 0 kilometers per hour to 1,079,000,000 kilometers per hour in 2 seconds will put exactly 15,281,580.47 Gees of force on poor Luke, Leia, Han, and Chewbacca. No solid substance in the Universe could withstand that amount of force, and so the Millennium Falcon, along with Luke, Leia, Han, and Chewbacca should have been torn apart into individual subatomic particles and vaporized into a long stream of plasma. So it really was the force that killed Luke; g-forces to be exact. This problem of physics also applies to every other ship that warped into light speed and all their passengers.

2. Light speed isn't so fast after all

Even if Luke, Leia, Han, and Chewbacca were to have survived the tremendous g-forces, they still would have faced another problem. Even by travelling at the speed of light, the fastest speed in the universe, they would likely not have made it to their destination planet for tens of thousands of years. If you think about it, the closest exoplanet to Earth is Proxima Centauri b and that's 4.1 light years away. Therefore, it would take the Millennium Falcon 4.1 years to make the journey there, even while light speeding. All the planets in Star Wars are most likely scattered across the galaxy, which would put tens of thousands of light years between them, and thus make the light speed journey tens of thousands of years long. Consequently, Han and Leia would have Ben (Kylo Ren) be born, raised, and then die on the Millennium Falcon, which, upon reaching its destination, would be completely devoid of human life. The long distances, even at light

speed, could explain why, in the Last Jedi, when Leia makes a call for help from the Rebellion, no help comes. It was because the Rebels were coming, but they wouldn't reach their destination for ten thousand years (by which point the war would be over, and everybody would be dead).

3. Gravity shouldn't be in some places

This inconsistency wouldn't really kill the characters, but it is interesting that every single ship seems to have normal gravity. These ships don't have rotating parts to create artificial gravity, and they aren't accelerating upwards as to mimic gravity. Even the Millennium Falcon, only 35 meters long, appears to have normal earthly gravity. The first Death Star was pretty huge, about 160 kilometers across, but even that size would still only cause people on the surface of the Death Star to feel 1/53rd of the gravity we feel on Earth. This lack of gravity would certainly make the Obi Wan and Darth Vader lightsaber duel much more amusing, with the two of them floating through the air in nearly zero-G.

The second Death Star could have been a lot larger. In the sixth movie, when the Executer super star destroyer smashes into the second Death Star, it is notable that the Death Star has very little apparent curvature. This is strange because the Executer is 20 kilometers long, and the second Death Star is said to have been 160 kilometers wide, so you really should be able to see significant curvature in that scene. Since there is little curvature, the second Death Star could have been up to 900 kilometers wide! Even then, though, the gravity at the surface would not exceed about 1/40th of the gravity on Earth.

4. Lightsabers are constant bolts of lightning

A lightsaber is probably the most iconic thing about the Jedi. However, lightsabers are much more dangerous than previously thought. A lightsaber is able to cut through metal, humans, and pretty much anything. Lightsabers are so bright because of the power they have. The power needed to cause a typical saber sword to glow bright white, and be hot enough to cut through people with ease, is about 1 billion volts -- comparable to a bolt of lightning. However, instead of just lasting a few milliseconds, it is a constant bolt of lightning. Such electric power would instantly cause the air around it to explosively turn into plasma. So when Obi Wan gives Luke a lightsaber on Tatooine, when Luke activates it he should be obliterated instantly. Even if Luke could survive explosive plasma, the electricity would probably not stay contained to the lightsaber, but instead pass through the metal handle of the lightsaber and conduct towards the closest conduction point, which, in this case, is Luke. So Luke would be either exploded, or have 1 billion volts passed through him. Therefore, all lightsaber duels in Star Wars should have ended very fast, as both duelers would die as soon as they activated their lightsabers.

5. Tatooine's star system

First of all, when Luke was staring at the binary sunset, he should have had two shadows, and second, Luke shouldn't be staring at the two suns without a solar filter. Another point of interest about the Tatooine star system is that the larger star is red, and the smaller one is yellow. If we assume that the yellow star is a sun-like yellow main sequence star that means that the red star is probably in the subgiant phase becoming a red giant. This wouldn't kill any characters and it's not a mistake, but it does mean that Tatooine probably only has a few million years left until it is destroyed by a dying, red giant star.

6. None of the characters seem to need oxygen.

It seems really strange that all the characters, no matter which planet they go to, can breathe the air with ease. This concept is interesting, considering the characters' similarity with humans. They aren't humans. They live in a galaxy far, far away. Even on the barren world of Tatooine, the dry, waterless world of Geonosis, the fiery world of Mustafar, with lava and sulfuric gases shooting out into an oven like atmosphere, and especially on imperial star destroyers, with the entrance bay straight open to space itself. The characters can still breathe without any kind of protection. Since these characters seem to be just like humans, they really should fall over and die a very painful, dramatic death as the atmospheres of these planets poison them.

In conclusion, I am glad that these iconic characters did not succumb to the physical laws that would have brought them to their untimely demise, because otherwise, we couldn't have had more Star Wars movies that have entertained millions over the past (over) four decades. Despite these useless facts that no one really needs to know, I still love Star Wars, and I hope they come out with more episodes.

Nathan Hellner-Mestelman

Astronomical Term of the Month: Parsec

I think that most amateur astronomers understand that a *parsec* is a measurement of distance and not of time. Yes, George Lucas was writing Star Wars before Wikipedia existed, but would it have hurt him to crack open a book or look these things up in an old fashioned encyclopedia?

Parsecs are used by professional astronomers to measure interstellar distances. When observing a star, from positions at both sides of our orbit around the Sun, we can measure the parallax to determine its distance in parsecs. A parallax of one arc second ($1/360^{th}$ of a degree) equals one parsec. A parallax of 0.5 arc seconds equals 2 parsecs. One parsec is the equivalent of 3.2616 light years or 206 265 astronomical units (AU being the average distance from the Earth to the Sun). One of the reasons why astronomers prefer parsecs is because that it is a pure measurement that is easier to confirm by observations. For measuring distances across our own galaxy and beyond, because space is really big, we can also make use of kiloparsecs, gigaparsecs, or even megaparsecs. There are a number of other measurements used by astronomers for very big distances, but they are mainly for specific reasons, such as cosmology measurements to show the expansion of the Universe.

Bruce Lane

In Closing

March is often a time of great excitement in the amateur astronomy community, where many of the residents of the Greater Victoria region take those first timid views under the night sky, after enduring the *harsh* Canadian winters of Southern Vancouver Island. The balance in the night sky, between winter and summer deep space objects makes it the ideal time at our latitude to hold a Messier Marathon. The Messier Marathon is essentially a scavenger hunt across the Universe for amateur astronomers, using binoculars and telescopes to hunt for deep space objects from the Messier List. Sadly, for the first time in many years there isn't one scheduled for this year. It seems to have become one more casualty in the growing list of shrinking activities at our Centre.

Astronomy Day, held once again in the lobby of the Royal British Columbia Museum, will be on April 25th. That evening also marks the first of many Summer Saturdays of the season, on top of Little Saanich Mountain, hosted by the Friends of the Dominion Astrophysics Observatory. For those who choose to volunteer for both activities, day and night, it's a bit of a marathon in and of itself.

With the Ritchey-Chretien telescope at the VCO still having issues, for the foreseeable future we'll still have weekly scheduled observing sessions, but you'll see fewer spontaneous sessions during the week, until either the 16" telescope is fixed or an interim telescope is mounted to catch the interest of the astrophotographers who regularly run extra sessions on the Hill. On March 21st, we have a big evening planned on Little Saanich Mountain, with the weekly observing session at the VCO coinciding with a RASC Victoria imaging session at the Plaskett Telescope. Bill Weir will also be running sessions out at Pearson College, where they have recently received some very nice optics, rivalling those at our very own Victoria Centre Observatory. You should get in touch with him. He'd love to have you join him out in Metchosin.

Most importantly, don't wait for an event to go outside and observe or image the night sky. If it's a clear night, prepare by taking a look at your charts or planetarium software/apps, and get some use of your binoculars and telescopes. The only thing worse than having cloudy skies, is wasting the opportunity of going outside at night under a clear sky.

Bruce Lane: SkyNews Editor

Photography Credits

Cover: Mary Beth Laychak and Pluto, giving lecture at AGM, Feb 22, 2020; by Joe Carr

Page 2: Michel Michaud (right) being presented with Newton/Ball Award; Feb 22, 2020; by Joe Carr

Page 2: Panoramic image of AGM dinner, Feb 22, 2020; by Joe Carr

Page 3: Crop of Bruce Lane (SkyNews Editor) at 2013 RASCal Star Party in Metchosin, by Chris Gainor

Page 3: Crop of Reg Dunkley (RASC Victoria President) at 2018 AGM, by Joe Carr

Page 4: Jim Lovell celebrates his 42nd birthday. This is the earliest picture currently in the ALSJ that shows Jim with red stripes on his suit. Photo filed March 25, 1970. Scan by Kipp Teague, courtesy of NASA

Page 5: Marketing Poster for *The Silent Sky*; permission for use received from co-producer, Holly McGimpsey; artist not known

Page 6: SN 1006 Supernova Remnant, imaged July 12, 2014; by NASA, ESA, and Zolt Levay (Space Telescope Science Institute), courtesy of NASA

Page 6: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 7: Posed Book, "*The High Frontier*", taken at Editor's residence on Mar 6, 2020, by Bruce Lane

Page 8: Orion test image, data taken Feb 18, 2020; by Dan Posey

Page 9: Sketch of NGC 2392 (Clown Face Nebula), taken Feb 20, 2020; by Bill Weir

Page 11: Occultation of Moon and Mars, taken Feb 18, by David Lee

Page 12: "Brownie" close-up, ISA Brown chicken, taken Feb 8, 2020; by Bruce Lane

Call for Article and Photo Submissions for April Issue

SkyNews is looking for submissions of astronomy photos and articles for the April issue of our Victoria Centre's magazine. Send your submissions to editor@victoria.rasc.ca

RASC Victoria Centre Council 2020

Director Positions	**Name**	**Email**
Past President	Chris Purse	pastpres@victoria.rasc.ca
President	Reg Dunkley	president@victoria.rasc.ca
1st Vice President	Really? Nobody?	vp@victoria.rasc.ca
2nd Vice President	Marjie Welchframe	vp2@victoria.rasc.ca
Treasurer	Deborah Crawford	treasurer@victoria.rasc.ca
Secretary	Barbara Lane	secretary@victoria.rasc.ca
Officer Positions		
Librarian	Diane Bell	librarian@victoria.rasc.ca
Technical Comm Chair/Sys Admin	Matt Watson	admin@victoria.rasc.ca
Skynews Editor	Bruce Lane	editor@victoria.rasc.ca
Public Outreach	Mandy Lee	outreach@victoria.rasc.ca
School Outreach	Laurie Roche / Sid Sidhu	
Telescopes	Sid Sidhu	telescopes@victoria.rasc.ca
National Representative	Nelson Walker	nationalrep@victoria.rasc.ca
Light Pollution Abatement	Dave Robinson	lighting@victoria.rasc.ca
Membership Coordinator	Chris Purse	membership@victoria.rasc.ca
Observing Chairperson	Jim Stillburn	obschair@victoria.rasc.ca
Website Content	Joe Carr	web@victoria.rasc.ca
NRC Liaison	James di Francesco	
FDAO Liaison	Laurie Roche	
UVic Liaison	Alex Schmid	
Pearson College Liaison	Bill Weir	
Members at Large	Jim Hesser	David Lee John McDonald
	Dan Posey	Li-Ann Skibo