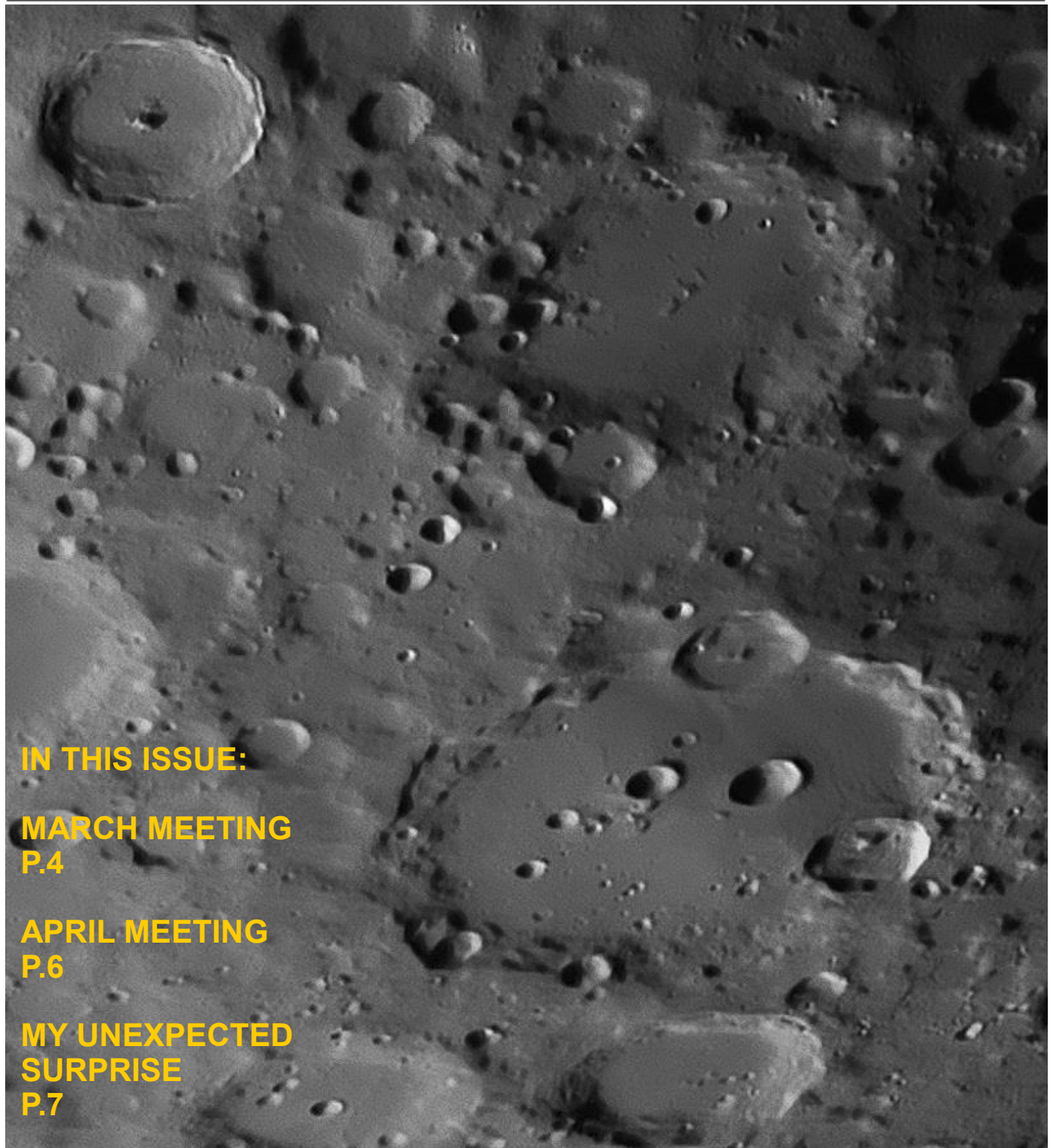


Nova Notes

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



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From the Editor —

At least astronomy can be done from home. The impact of the virus is far ranging currently, with everything being shuttered, closed and cancelled. Thankfully we can still observe. It might not be our preferred dark-sky location, but we can do it from our backyards. Everyone can really, if they are a member of the RASC or not.

It's the non-members as well as those who might be looking for astronomy guidance that we can really reach out to and possibly make a big impact. There was an email on the national mailing list that said that requests to join the RASC Facebook group exploded as the quarantine began to set in. So, people must be interested in knowing what's up in the skies.

Using webinars, and other streaming platforms, like what has been done with the last two meetings, is a fantastic way to reach people who are stuck at home, but also not in the city. Doing an Explore the Moon, or Explore the Universe night once things begin to enter post-Covid life could be a great outreach driver and tool.

You can't and shouldn't get rid of going to a venue, and doing in person outreach where you get eyes on eyepieces, but if we incorporate these remote observing sessions along with the more traditional approaches to outreach, we can reach further and more frequently. Anyone, in theory could host an outreach event on any evening (a little promotion would be best, but can be done at the drop of a hat) and could reach people all over the province. So someone in Cape Breton could watch and get involved but not have to commute the hours, and hours required to participate in an RASC event. Expanding the way people can participate gives more opportunities that the Centre can possibly grow with new members who can feel engaged even though they are far away.

While I know planning and coordinating anything takes time and effort, if the Centre moves forward we could do an outreach once a month via over the internet. I think we could, and would get a lot of traction. Especially in the era of self-isolation, we need to keep our minds busy and focused, so what better way to stay busy in the evenings than working through your Explore the Universe, or Explore the Moon program with a bunch of other members at the same time.

Astronomy doesn't have to be such a singular hobby. We know how much fun Nova East is, so lets try and incorporate that group mentality through the technology we have at our disposal.

Now if only we could have a word with whomever keeps ordering that lousy weather.

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

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

The deadline for the next edition is 24 July 2020.

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.

St. Croix Observatory

Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix. 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.

Meeting Dates for 2020

13 June, 2020
12 September, 2020
3 October, 2020
7 November, 2020
5 December, 2020
(Includes AGM)

In lieu of a face-to-face meeting, we will now be hosting Members' Meetings using Zoom. You do not require a Zoom account to join in but you are required to register for this webinar. The webinar is limited to 100 registrants - first come, first served. The panellists' presentations are being recorded and will become accessible via a link on <https://halifax.rasc.ca>

Halifax RASC Board of Directors, 2020:

Honorary President : Mary Lou Whitehorne	(Appointed)
President: Judy Black	(Elected)
Vice-President: Paul Gray	(Elected)
Secretary: Peter Hurley	(Elected)
Treasurer: Gregg Dill	(Elected)
National Council Rep: Pat Kelly	(Appointed)
Director: Pat Kelly	(Elected)
Director: Matthew Dyer	(Elected)
Director: Paul Heath	(Elected)
Director: Wayne Harasimovitch	(Elected)
Director: Tom Crosman	(Elected)
Director: David Hoskin	(Elected)
Librarian: Wayne Harasimovitch	(Appointed)
SCO Manager: John Liddard	(Appointed)
Observing Chair: Dave Chapman	(Appointed)
Outreach Chair: Paul Heath	(Appointed)
DSP Committee: Dave Chapman (interim)	(Appointed)
Nova Notes Editor : Charles White	(Appointed)

Cover photo

By David Hoskin

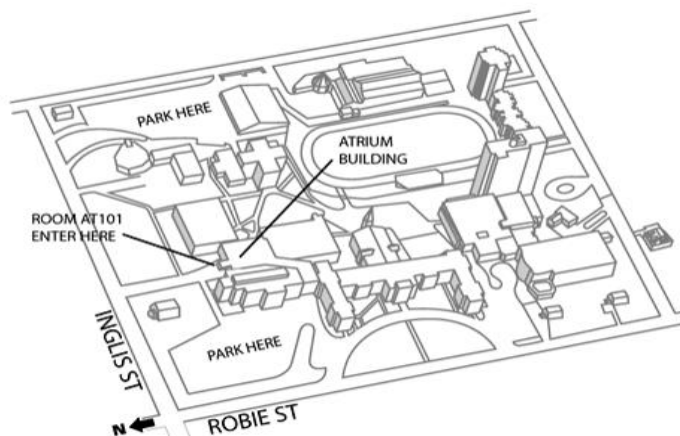
A snap of Tycho, Maginus, Clavius (Left to Right). Be sure to check out the full version, and more great work in the Centre Showcase.

Meeting Location:

Saint Mary's University

Atrium Building (AT)
Room AT 101

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



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

Board meetings begin at 10:30 a.m., usually in room AT217, and all members are welcome.

March Members Meeting

By: Pat Kelly

Some flurries and strong winds did not hamper attendance at the March meeting as more than 45 people were in attendance. Paul Gray started the meeting off by introducing the members of the board, and then reviewing the slide show of recent members' images that had been looping on the projection screen. As we were going to have a presentation of animals in space, that was also the theme of Paul Heath's "Food for the Soul" poem. Paul Heath then informed the crowd of several upcoming outreach events.

We will be attending the Saltscapes Expo again this year (April 24-26). We are also doing a special event with the Discovery Centre on April 26 to mark the close appearance of the Moon and Venus in the sky. The theme for the latter event is "The Tale of Two Crescents". We are hoping to do a few daytime events in the week leading up to Sunday.

Dave Chapman presented the "What's Up?" feature. He noted that while he was recently back from outside of the county and had a sore throat, he did not have a runny nose to go with it, so it was NOT coronavirus. At the February meeting, Dave had presented a series of observing challenges for people to attempt before this meeting. Because Dave Hoskin had attempted most of them, he received a prize of a copy of *Explore the Universe*. A second prize of a sealed copy of the 2020 *Observer's Handbook* was given to Fiona Morris, an up-and-coming astrophotographer, for having come the greatest distance to attend the meeting.

Dave's daylight "pie graphs" for March 1st and 31st showed two features that made them stand out from those of January and February. One was the change in orientation to the daylight hours caused by Daylight Saving Time, the other, more light than dark, caused by the equinox on March 20th.

He noted the coming gathering of Saturn, Jupiter, Mars, and the Moon on the morning of March 18th and then gave a summary of the visibility of all of the planets for the month. He then reviewed the "Explore the Universe" challenges for the coming month. At the end of his presentation, Judy Black presented Dave with his own "Explore the Universe" certificate and pin! Dave noted that while only 55 of the 110 objects in the program are required, he had gotten all 110. Quinn Smith pointed out that Dave had over 60 years to do it!

Judy then presented an update from the Board, which looked mainly at the recent webcast (available on-line) and the national awards. She noted that the Simon Newcomb Award had been won previously by four members of the Halifax Centre. Dave Chapman came back up to introduce John Read as the fifth, and this year's winner! Dave noted that the award has been started by the Halifax Centre, and when a Halifax Centre member wins it, in addition to the usual prize, the Centre gives them a copy of Simon Newcomb's book, *Astronomy for Everyone*. John had no idea that he had been nominated, so Judy was able to give him an unofficial copy of the official letter that he will be getting to let him know that he won. The Centre board thought that it would be nice to surprise him with it at a meeting as his work schedule does not often allow him to attend meetings.

No sooner had Dave Chapman gotten back to his seat, when Judy called him back up to help with the next part. A rather puzzled Dave returned and Judy noted that the other award that had been up on the screen was the Fellow of the RASC Award. Of the fourteen that have been awarded, four have gone to Halifax Centre members: Dr. Roy Bishop, Dave Lane, Mary Lou Whitehorne (who had been unable to make it to the meeting) and Pat Kelly. And now there were five, Dave Chapman being the fifth. To say that Dave was caught by surprise is a bit of an understatement!

Dave said that he was literally speechless, to which Judy replied that had been what we had wanted!

For those that could not make it to the meeting, videos of the two presentations can be found on the Halifax Centre YouTube channel (search for "RASC Halifax".)

Paul Heath was up next with the handbook talk. He had chosen the section on dwarf and minor planets and explained how you could use the list of positions and magnitudes of the year's brighter dwarf and minor planets to attempt to track them down. Pluto had its own finder chart, due to its low brightness. The only real way to spot Pluto is to use the chart to see where it will be, and then make a detailed sketch of the area. Look again several days later and you should be able to see that one of the "stars" has moved. That would be Pluto!

We then had the launch of a new book, *50 Animals That Have Been in Space*. John Read noted that his wife, Jennifer, was actually the lead author and had done most of the research. They gave some background on what made them write the book. Jennifer loves animals, and John loves anything astronomical so the topic was not as hard to choose as they might have expected. They also noted that there were already books on this topic but they were either geared to young children or were quite technical and aimed at adults. Their book is in between. They even had to start out by figuring some basics, What is an animal? Where does space actually start? What is an orbit? (You can go into space, yet not go into orbit!).

Their book followed the developments of aviation from the Montgolfier's brothers' hot air balloon, to the first real rockets, the V-2s developed in Germany during World War Two, to modern day probes and orbiting stations. If you asked most people what animals have been in space, I suspect most would answer with mice, dogs, and monkeys.

Their book could as easily been called *50 Species That Have Been in Space!* The variety was quite impressive. This is definitely a book worth getting!

Just before the refreshment break, Roy Bishop noted that 50 years ago to the day (and almost to the hour), Nova Scotia had experienced a total solar eclipse. He had brought along a newspaper article showing the path of totality over Nova Scotia. (I recall that eclipse well...I watched it from Spryfield beneath overcast skies!) We had a cake as part of the snacks. It was to mark the 25th anniversary of the signing of the lease for the land for the St. Croix Observatory. In two years time, we will have another cake to mark the opening of the observatory.

After the break we had a presentation by Blair MacDonald and Jerry Black on astroimaging. They are doing three separate talks on the subject; the first was on the basic anatomy of an imaging system, namely the types of hardware and software. They covered a wide range of topics and looked at the pros and cons of various options types of hardware. One example would be cameras. You need one, but should it be a DSLR or a CCD? Many components require a similar decision, be they optical system, mount, guiding system, software, etc.

They also noted some developments in "older" types of hardware. Some DSLR cameras no longer give true RAW data as the camera does processing on the image before you get the file, and the manufacturers are very hush-hush over what they are doing. There are also some areas where it is not wise to skimp on cost. The mount for the system is one of these areas. The range of software available is also staggering. You can even get pieces of software that will form an integrated system where you can set things up, walk away, and get the images a few hours later. You can see the slide show here: <https://tinyurl.com/Imaging1>.

April Members Meeting

By: Charles White

RASC President, Judy Black welcomed members and guests to the very first RASC Halifax Centre meeting via webinar.

Moving right into the meeting Judy introduced Dave Chapman, Observing Chair for the Halifax Centre, to talk to the viewers about “what’s up” in the night sky for the month of April. Some highlights he focused on were on the Sun, and how the hours of astronomical night are shrinking, when the phases of the Moon would be, Venus and its spectacular meeting with the Pleiades, and that comet ATLAS could become a naked eye object come the end of May.

Dave also gave an overview of some stars and deep-space objects that members could hunt for to work on their Explore the Universe certificate.

News from both the National and Centre councils were brought up next, with Judy changing the name from “News from the Board”, to the much more lighthearted “Covid Updates for the Bored”. In the updates it was noted that National is doing self-isolation star parties that are happening every other Wednesday, starting April 8th and going through until June 3rd. National would also be hosting a speaker series, with topics that include “30 years of Hubble” as well as on the fated *Apollo 13* mission.

For Centre news, the next meeting will be done remotely through webinar on May 2nd, and June 13th. There would also be in the coming days Centre run virtual observing sessions that will focus on lunar and deep space observing. Dates are to be determined.

Judy then gave a run down on the preparations for Nova East. She thanked Dave for arranging some great guests for this year, like Andrew Fazekas, Astronomers without Borders, and a presentation from two youth members of the Centre. Registration at this time however is not open, and won’t open until it is determined if Nova East can proceed due to Covid-19 restrictions that the provincial government has put in place at this time.

After the conclusion of board news, Pat Kelly gave a talk on Limiting Visual Magnitude that is in the *Observers Handbook*, and how you can use it in your observing, both visually and with equipment.

Pat started by telling us that the best place to figure out what your limiting visual magnitude (LVM) is to search out and find Polaris. He gave a brief tutorial on how to find it using the Big Dipper. From there we learned about the magnitude systems and how the brightness of stars is measured. The system is backwards to every other system, as a star with a magnitude of 0.67, is actually fainter than a star with a magnitude of 0.27. There are diagrams in the *Observers Handbook* (pg. 68) that you can use to determine how dim a star you can see on the night you’re observing. He then discussed Atmospheric Extinction and how the angle that you’re observing something gets affected by how much of the atmosphere you’re looking through and how that can affect your LVM.

There was no librarian report for the April meeting, but it was noted that a new cart for the library is being looked into.

Blair MacDonald, and Jerry Black gave their second part of their talk on astroimaging. This was a technical talk with a focus on the software Ascom, which is a predominately Windows based system that nearly all astronomy automation is done through.

Paul Heath then took us through an activity for youth and the young at heart making a star from a balloon.

Paul Gray rounded off the presentations for the meeting with a breakdown on how to observe and record your observations of variable stars. This was inspired by the recent events concerning the rapid dimming of Betelgeuse this past winter. For those just starting to make recordings, he recommended the book *Observing Variable Stars* by David Levy. For additional information and resources, he recommended checking out the American Association of Variable Star Observers (<https://www.aavso.org/>).

Editor’s note: The full meeting can be found following this URL: <https://www.youtube.com/watch?v=7YP06hEu7OQ>

My Unexpected Surprise

By: Fiona Morris

I have this unique hobby called astrophotography. Many people ask me what astrophotography is and how a 15-year-old gained interest in it. It shocks many people that a teenager would rather spend their whole Saturday night operating complex photography and astronomy equipment instead of playing video games or going to a party. Let me tell you a little bit about my passion, how I got into it, and why I love it.

Astrophotography is a branch of photography where photographs are taken of astronomical objects, celestial events, and areas of the night sky. There are two main types of astrophotography, deep space and wide field. Deep space is when you take a picture with a zoom lens or telescope and usually have either a galaxy or nebula in your frame. Wide field is usually taken with a camera lens that has a wide field of view, so your picture contains an interesting foreground which is usually a landscape and a sky that contains stars. The camera enables you to capture the details in the night sky you would never be able to see with your naked eye.

I have always had a love for science and I watch many documentaries and videos related to science. One of the science documentaries that I watched a few years ago had this short clip in it, probably about 10 seconds long. It was a time-lapse of the Milky Way moving across the sky in the Sahara Desert. My mind was blown, just a simple camera could take pictures of the stars?

Years before, my dad won a photo contest with a point-and-shoot camera and his prize was an entry level camera. That's the camera everything started with. I watched countless YouTube tutorials and stayed up so late on many nights reading articles that I would fall asleep while reading. After I gained enough knowledge on astrophotography, I decided to give it a go.

I was at my grandparents for the night and I brought along my parents old photography equipment. It was a clear night with no moon which was perfect for taking pictures. I had struggled to focus on the stars, but for the first time I was happy with my results. Once I had enhanced my pictures, I was astounded. I captured the light from the stars along with the Milky Way in most of my first

pictures. My parents' encouraged me to post them on Facebook, so I did and what a surprise, there were lots of likes and positive comments. That was the day I became hooked on astrophotography.

I joined many Facebook pages that were about astrophotography. One of the pictures I had posted in the group someone commented on it that I should submit my photos into *SkyNews* because they have a weekly photo contest. I went through all of my best pictures and submitted 2 of them. If I won a weekly contest I would have the chance to win the annual contest which has big prizes like telescopes which is what I really want to own.

I had a lot of doubts when I sent those photos in. Seeing previous photos that have won photo of the week made me think that I definitely wouldn't have a chance. All I could do was to wait and see.

It was the end of yet another long boring school-day, and that says a lot because I actually enjoy going to school. At a leisurely pace I made my way down the crowded, chaotic hallway. My phone started to ring and I glanced at it but I just assumed that it was a telemarketer because why would someone from across the country want to talk to me? I hung up the phone and kept going.

As I walked by the office I heard my name being yelled, I picked up my pace and headed in there. My mother and her coworkers caused a big commotion when I walked in. Finally, out of all the chaos I heard someone say that a magazine company called and were looking for me. I went blank with confusion, I completely forgot that I submitted those photos.

The secretary jumped out of her chair "that's who called looking for you!". I was confused because I doubted they were calling about my photo. I also was confused about why they would call the school instead of me. Mom explained to me that *SkyNews* called the school looking for me, so the office forwarded the call to her room. She was about to hang up because she thought it was a magazine company selling subscriptions to the teachers, but the secretary said it was a magazine I submitted photos into. She gave my phone number to the woman and that was who I hung up on.

Mom made me call them back right away. As the phone rang, my chest tightened and I felt myself getting all red and sweaty. She picked up, I choked down the lump in my throat. She explained to me that they had seen my photos and thought that I would make a great story for one of their articles. I was so shocked, I have always seen myself as an introverted nerd and couldn't believe that I would ever be interesting enough to write an article on. I don't know, maybe I'm interesting enough to all the other nerds out there like me.

The woman said that she would like to interview me over the phone and I complied. She also added that she had to get a hold of the school because I forgot to add in my contact information. I let out a sigh, only I would be dumb enough to do something like that. She asked many questions about me and my hobby like what got me interested, what equipment do I use, and what would be the next piece of equipment I would add to my collection. After a few minutes of talking over the phone, I got more comfortable with talking so her and I didn't stutter as much.

The interview was finished, and she told me she would email the article to me when it was done. My leisurely pace turned into me bouncing off the walls. I told everyone what happened over the interview. I loved seeing the looks of confusion on everyone's faces, no one at the school had a clue what astrophotography was. They were all just curious to see what was going on why we were making such a big deal out of it.

I told my family and friends about this news. My friends are still confused as to why I do this hobby, but they were still happy for me. Mom and Dad were very proud that I got recognized for something I put lots of time and money into. On the other hand, I was still in disbelief.

I have been accepted into summer camps through application before, but this excitement felt different. Even though I didn't win the contest, my work was still recognized and the thought of someone wanting to write about me thinking that people will want to read it makes me feel like I won. I don't need a big trophy collecting dust in my room to make me feel like I won.



What also makes me feel like a winner is my family supporting me to make my dreams come true and the fact that my what I love and work hard for gained recognition.

Even if you think you know you are not going to win a photo contest, hockey game, or make it into a certain university. You should always try, even if it's the slightest chance you can win, there is still a chance. I know I would rather give it my all and take my chances to still get turned away rather than not try at all and regretting it afterwards. Why wouldn't you try, there is nothing to lose.

Halifax Centre Showcase

Thanks as always to those who submitted to the showcase for this edition of Nova Notes.

Cover photo: Tycho, Maginus, Clavius
(Left to Right) - David Hoskin
Grimaldi - David Hoskin
Bailly - David Hoskin
Heart Nebula - Jerry Black

