

Nova Notes



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

PO Box 31011, Halifax, Nova Scotia, Canada B3K 5T9 www.halifax.rasc.ca halifax@rasc.ca

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E mail: novanoteseditor@rasc.ca

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Front Page Photo: Bruce Hamilton

Sunset at Litchfield on the Bay of Fundy

Taken on 09/27/14 at 19:12:43

Canon EOS REBEL T2i, @1/200sec, Av 8.0

ISO 100, Lens EF-S17-85mm f/4-5.6 IS USM

Focal Length 24.0mm



From the editor

Quinn Smith

It has been a wonderful summer! I spent three months riding my motorcycle around the USA, visiting several observatories (both optical and radio) and finally made it to Meteor Crater in Arizona. I will include a short write-up in a later edition of Nova Notes. I also have managed a little observing, including several sessions at SCO learning to use and set up the new 16" Sky-Watcher Dob. I must say this is a wonderful addition to the observatory and I encourage members to get themselves out to SCO and enjoy the dark skies, and equipment available.

This summer has included several outreach and observing events, including the Dark Sky Weekend at Keji, our annual Star Party, Nova East, at Smiley's Provincial Park, and the Observe the Moon weekend. I want to thank all the members who have organised, participated in, and supported these activities. I have to say that following all these events, reading the observing reports posted on the e-mail "list", and from my own experiences, I can't remember a summer (well maybe from August onwards) when we have had such great weather and clear skies.

We have a great Centre, and I encourage everyone to get involved and support and enjoy the programs and facilities that we have available in Nova Scotia. Clear skies!

St. Croix Observatory

Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix, NS. The site has grown over the last few years to include a roll-off roof observatory with electrical outlets, use of the Centre's new Go To 400-mm Dobsonian telescope and 100-mm binoculars, a warm-room, and washroom facilities.

Enjoy dark pristine skies far away from city lights, and the company of like minded observers searching out those faint "fuzzies" in the night. Observing nights (Fridays close to the New Moon) are open to both members and their guests. If you are not a key holder and would like to become one, or need more information, please contact the Observing Chairman, Alex LeCreux (for contact info, see below).

Upcoming Observing Nights:

October 24th 2014
 November 22nd 2014
 December 19th 2014

Meetings begin at 7:30 p.m. at Saint Mary's University in room AT 101.

October 17th 2014

Our guest speaker will be David Griffith who will talk is titled "They Came from Outer Space" - a talk about his hobby of searching for meteorites.

November 21st 2014

This meeting will be a telescope workshop with short talks and demonstrations. Bring your questions, telescopes and astronomical "toys" for discussion.

December 12th 2014 (Note Date Change)

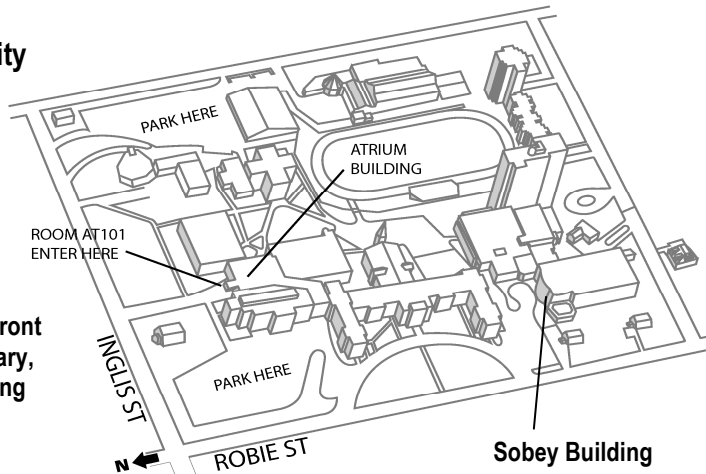
Our Annual General Meeting—terribly exciting!

All meeting location and contents subject to change

Meeting Location: Saint Mary's University

Atrium Building 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 third Friday of the month, except for the months of July and August, when there are no meetings.

Executive meetings begin at 6:30 p.m., usually in room AT 306, and all members are welcome.

The NOVA program (a beginner's guide to observing) will begin on October 17st at 6:30 p.m. in the main meeting room.

Halifax RASC Executive, 2014:

Honorary President	Dr. Roy Bishop	(902) 542 3992	RLB@eastlink.ca
President	Paul Heath	(902) 457 0610	pheath@eastlink.ca
1st Vice-President	Graham Rose	(902) 406-014	gbrosegr@netscape.net
2nd Vice-President	Karl Penney	(902) 457 4046	karlpenney@eastlink.ca
Secretary	Chris Young	(902) 441 6861	cjy@eastlink.ca
Treasurer	Ian Anderson	(902) 678 8009	taursagroup@yahoo.ca
Nova Notes Editor	Quinn Smith	(902) 852 3894	quinnjem@yahoo.com
Librarian	Megan Milzner	(902) 448-6196	milzner83@gmail.com
SCO Observing Co-Chair	Alex LeCreux	(902) 253-2173	alecreux@eastlink.ca
Observing Co-Chair	Sean Dzafovic		sdzafovic@gmail.com
National Representative	Pat Kelly	(902) 472 2322	patrick.kelly@dal.ca
Councilor	Wesley Howie	(902) 448 3966	wes@lightimages.org
Councilor			



meet the Board of Directors, and see how the RASC is run.

Although we haven't finalized a cost for registration (in the order of \$120), volunteers receive a 50% discount, as well as a special GA volunteer tee shirt. Of course volunteers do not

I hope by now most of you know that the Halifax Centre will be hosting the 2015 RASC General Assembly at Saint Mary's University (July 1-5). The theme of this GA is "*Stars by the Sea*" and we hope that many members will take the opportunity to get involved in exciting and unique event.

The 2015 GA planning committee has been hard at work for the last two years, organizing the accommodation and venue rooms at the university, as well as preparing a schedule of events. For those of you that have not been to a GA, this is an excellent opportunity to "rub shoulders" with members from across the country, and well as an excellent chance to

have to register for the GA, but by registering, a member has full access to all the GA events, lectures, parties and tours.

Throughout the next month (both at the meetings, through the Centre website, and in the pages of Nova Notes), we will keep the members updated as to our progress, and outline opportunities that will allow members to get involved.

If you would like to find out more about the 2015GA, and/or how you can participate, please contact Quinn at quinnjem@yahoo.com.

The NOVA Program

Editor

In the past few years the Halifax Centre has offered the *Nova Program* to members and guests. We did not run this program in 2013, but by popular demand, it's back!

The *NOVA* program (*New Observers to Visual Astronomy*) was created by the RASC Prince George Centre as an introductory program for their members.

This program, which is hosted by Sean Dzafovic, teaches new observers the basic astronomy knowledge and skills to enable them to become proficient amateurs.

The course consists of eight one hour sessions, usually held the hour before our monthly meeting (in the meeting room) and costs approximately \$60.00 (to cover course material). As a bonus non-members will receive a membership discount if they join the Halifax Centre during the program.

The next program will begin on October 17th but for the course to be practical, a minimum enrolment is required. If you are interested please contact Sean at: sdzafovic@gmail.com.



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

PO Box 31011, Halifax, Nova Scotia, B3K 5T9

E-mail: novanoteseditor@rasc.ca Newsletter editor: Quinn Smith

Nova Notes is published 5 times a year, in February, April, June/July, September/October, and December.

The deadline for the next edition is November 15th 2014

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

Articles on any aspect of Astronomy and Allied Sciences will be considered for publication.

Nova East

The Editor

The annual Nova East Star Party was held as usual at Smiley's Provincial Park on the weekend of August 22-24 2014. It was a great weekend, and I think everyone who attended had a great time.

People started arriving on Friday afternoon and were surprised that there was no large tent set up (as is usual at Nova East). This year however, the Park had completed the new building within the Nova East site, and we were able to use this 30ft x 20ft building instead of renting a 20ft x 20ft tent. Not only did we have a larger, more weatherproof meeting area, but we saved the \$800 we normally pay for renting a tent.

By the time Dr. Rob Thacker (our Friday evening guest speaker from Saint Mary's University) was introduced, more than 56 members and guests had registered. Dr. Thacker's talk topic was "Big Hopes for Big Scopes" and Dr. Thacker described the hopes and frustrations of Canadian Astronomy in the next decade.

After Dr. Thacker's talk we were treated to clear skies, and the whirr of telescopes could be heard late into the night (morning).

Saturday was a beautiful day, and brought an array of talks, workshops and tours, followed by the evening events that included the astrophotography contest, and door prize draws. The astrophotography contest was won by Art Cole (see page 10) and the main door prize draw was won by someone whose name we have forgotten (would the winner please contact the editor).

After the Saturday speaker Jeff Donaldson gave a presentation titled "Cross Border Astronomy", we were again treated to clear skies (after a few local clouds had dissipated). The skies

were perhaps not as good as Friday night, but we had a great turnout of campers from the Park and people observed and socialized late into the night.

We have had a great run of good weather lately for Nova East and this year was no exception. I would like to thank everyone who attended the event, the staff of the Park who looked after us so well, Brian Giffin (from Atlantic Photo Supply) for his continuing support of NE, and especially the Nova East organizing committee

who worked so hard to make this year's event such a success.

Thank you all!

NE Organizing Committee:

Blair MacDonald (Chair)
Pat d'Entremont,
Ian Anderson,
Irene Moore,
Ron Mills
Michelle Arenburg
Quinn Smith



Above: The new building at the Nova East site at Smiley's, with Brian Giffin flying a "quadcopter" over the observing site.

Below: Group photo for this year's Nova East (all pictures Blair MacDonald)



Keji—Dark Sky Weekend

Dave Chapman

Keji Dark Sky Weekend—2014 August 15–17

The Keji DSW 2014 was the 5th such event since the Dark Sky Preserve was declared in 2010, and it was even more successful than the previous ones. We had two OK nights of skies: dark, partly cloudy, a little hazy, but good enough for the purpose at hand. The weekend kicked off on Friday afternoon with Karl Penney and his solar scope at the Visitor Centre. Then we had an evening presentation by Paul Heath, building aliens at the amphitheatre, followed by Jen Eaton (Parks Canada) giving her regularly scheduled tour of the Solar System in the same location. Later, Chris Young presented his Green Laser Tour of the heavens at the Sky Circle, followed by observing with RASC telescopes in the surrounding field. We actually brought in a portable amplifier to boost Chris' voice for this, as we expected (and got) lots of people!

Saturday afternoon saw Andrea Misner teaching about the StarFinders to a handful of people at the Campfire Circle—we have to rethink the location of this event! Karl was back at the VC with his solar scope playing peek-a-boo with the Sun. In the evening, at the amphitheatre, Mary Lou Whitehorn gave an excellent talk entitled "This Magnificent Place," meaning our galaxy, not Keji! This was followed by observing with the Keji 10" dob at the Sky Circle with Paul Lalonde and Lesley Rogers (Parks Canada), with RASC telescopes in the field. Saturn was the big draw that night!

Both nights drew to an early close due to the rising of the Moon, but we were all happy to find our sleeping bags!

What a success! Hard to estimate numbers, but I reckon 500 over the weekend, with obvious duplication. In

addition to those mentioned above, thanks to Tony Schellinck, Wayne Mansfield, Bruce and Melody Hamilton, John McPhee, Jim Miller, and

Martin Helmich from RASC; and Ashley Moffatt and Jill Francis from Parks Canada.



*Andrea Misner giving a planisphere workshop during the Dark Sky Weekend.
Photo: Dave Chapman*



*Chris Young giving a laser sky tour at the Sky Circle at Keji
Photo: Chris Green*

September Meeting Report

Editor

The September meeting was chaired by our President Paul Heath, who opened the meeting, as usual, with a poem from his "Food for the Soul" series (see inset box).

The meeting was very well attended, with over 45 people present. What was particularly encouraging was the number of new members and guests (15) who were at the meeting. Paul welcomed all those present, introduced the Executive, and handed out information packages to the guests. He outlined the advantages of membership to the RASC and encourage the guests to join.

Quinn Smith then gave a short report on the Nova East summer star party (see page 4), as well as a reminder to the membership that the Halifax Centre will be hosting the 2015 RASC General Assembly in July 2015 (see page 3).

Chris Young then stepped up to inform the membership that the Centre had been offered, and had purchased for a very reasonable sum, our former President's (Richard Vanderberg) telescope, mount and eyepieces. Richard passed away in 2012, and it is very nice to have his equipment once more in the Halifax Centre (see SCO Additions on page 11).

Sean Dzafovic (our Observing Co-Chair) reminded the audience that he will again be hosting the NOVA Program beginning in October, during the hour before the main meeting. This is a great program for beginners, and more details can be found on page 3.

It was time for our first speaker of the evening, and Chris Young returned to the podium to talk about "Finding Your Way Around The Sky (or Old Tricks for New Observers!)". Chris explained that many new observers (and many older ones!) have difficulty

finding their way around the sky. Chris gave a sky tour, using several literal reminders to help people remember constellation and star positions.

*"Follow the arc to Arcturus
And on to Spica go;
Then turn northwest to
Regulus,
The foot of the lion, Leo.*

*It's just that far to Gemini,
Where Castor and Pollux glow,
Near Rigel, and Capella,
And Sirius, down below."*

If Spica isn't visible then take a shortcut from the big Dipper:
"A hole in the bowl, leaks on Leo".

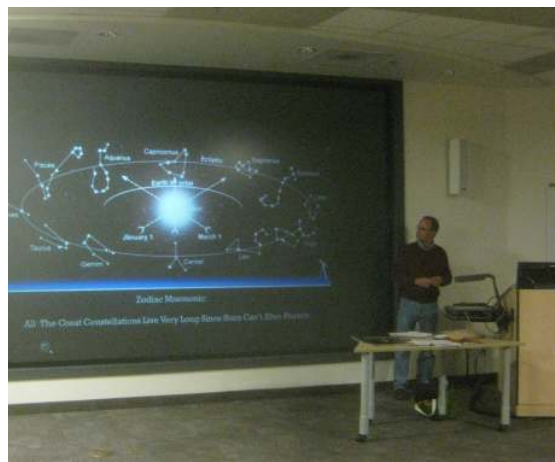
Chris's talk was full of great and helpful advice and I think that new and experienced observer's all learned something.

Next up was Paul Heath who gave hints and tips about practical observing. Paul stressed the importance of dressing well for an observing session. Many new observers forget just how cold it can get when just standing around observing. The golden rule is to dress for 10 °c colder than the expected temperature—and don't forget the hot drink!

Paul also reminded the audience about other equipment for observing such as a red flashlight, notebook (observing log) and pen (not red!). Paul discussed the advantages of a good adjustable observing chair as well as the use of an eye patch to prevent squinting. All in all Paul pointed out that the more comfortable, warm, and prepared you were, the more enjoyable the observing session would be.

Last up was Sean, who gave his monthly *"What's up?"* Sean takes relevant (monthly) items from the Explore the Universe Certificate and uses them to highlight interesting items to observe.

It was a great meeting, and judging



Chris Young explains the positions of the constellations of the Zodiac

Photo: Quinn Smith

from the conversations during the snack break at the end of the meeting was thoroughly enjoyed by both regular members as well as our new guests.

Several of the audience retired to the Henry House to continue the conversations, and a splendid time was had by all!

WONDERS PLANNED?

(Paul Heath)

In the Beginning, we did not search
For Wonder was but a step beyond shelters door.

In the Beginning, we did not plan
For Wonder spread, full across the sky.
In the Beginning, Elders told their tales
And Wonder filled our skies.

Yet Ages pass and wonder dimmed.
We locked our stories out
And barred our shelters to the night so bright,
That Wonder was lost behind the light.

But stories stayed within our hearts
And few, still searched without for darkness lights.

So we Begin again, to plan
That step beyond shelters door.
Begin again, to search
For stories spread across the skies.
To Begin again to see
Those Wonders, spread still, across our sky.

Connect with Mi'kmaw Moons

Dave Chapman

As I drove from Dartmouth to Tantalion on the Saturday morning of September 27, I was biting my nails over how many people would come to our presentation “Connect with Mi'kmaw Moons.” I have had poor luck recently with Library presentations, often presenting to only a handful of people, but this was a special presentation that I had cooked up with my project partner, Cathy LeBlanc, a member of Acadia First Nation. Those of you who attended the May RASC Meeting will recall our talk “In Search of the 13th Mi'kmaw Moon,” which I thought went over pretty well. Today's talk would be a stripped-down version, reworked to be an all-ages presentation, including a craft for the youngsters. Cathy and I hand-picked the Tantalion Library Branch for this event, as it is about equidistant (45 minutes driving) from my home in Dartmouth and her home near Bridgewater. In fact, our very first face-to-face meeting to on this project was held at that very place!

I needn't have worried, because our “appearance” on CBC Radio One “Mainstreet” the prior Thursday at supertime actually attracted a significant number of participants, including a SMU sociology prof and a young couple with kids from Chester! Cathy and I spent a few minutes setting up, then stood at the Library door to greet people. This is unusual for Library presentations, but it is how Cathy operates, so I indulged her. Things were going great until one couple thought we were some kind of fanatical religious cult trying to recruit members. I think it might have been the matching Astronomers without Borders shirts, showing people holding hands in a circle with the words “One People—One Sky” (see http://store.astronomerswithoutborders.org/images/teebk_grande.jpg). We quit, while we were ahead.

We ended up with 25 people, including about 8 young people, so not bad! We actually started on time, and Cathy began by reading her favourite night-sky Mi'kmaw poem (see the 2014 June Nova Notes). She transfixed the audience with her stories about the various Mi'kmaw Moon names and how she personally experienced them. Her main teaching point is that the Moon names refer to natural events that depict the succession of seasons in an never-ending cycle.

I introduced my astronomy part with a fine photo of the crescent moon that Michael Gatto had taken just the previous night! [see right, I hope its OK to share your photo, Michael!] I used it to draw attention to the start of the Wikewiku's moon-time (Fat Tame Animals). These Mi'kmaw moon names are being tweeted by Parks Canada from @ParksCanada_NS: first when the crescent is first visible after New Moon, and again on the Full Moon. As it promised to be clear the night following our presentation, I guaranteed the audience they would see the crescent Wikewiku's Moon if they only took the time to look.

I went on to explain the yearly cycle of the Earth and Sun, and how that creates the seasonal cycles and the succession of natural events that Cathy had described. Then I described the synodic cycle of the Moon, through its phases, and how the 29 1/2 day period is less than most of our calendar months. It is simple arithmetic to show that 12 synodic cycles makes up only 354 days, 11 days short of a 365-day year. After about 3 years of counting 12-moon cycles, you end up with everything one moon-time earlier than when you started. This creates a problem if your moon names depict seasonal activities! Hence the requirement for a 13th moon name that needs to be injected from time to time to synchronize the Moon cycle with the Sun cycle. Whew!



Photo: Michael Gatto

All this took 30 minutes, after which we broke the group into to two, the larger part working on a turtle rattlecraft with Cathy and the smaller group learning how to observe the Moon by eye and binoculars with me. The role of the turtle is to use the 13 scutes on the turtle's back to teach the 13 moons. At the end of the hour, we reconvened and the rattle-makers performed the Mi'kmaw Friendship Chant, led by Cathy.

We are very pleased with the participation and response to this program—everyone left very happy, including the presenters. We feel the Two-Eyed Seeing approach practiced by Cathy and myself is successful not only in guiding our research, but it also makes for a compelling presentation. In a way, it provides something for everyone, and everyone learns something a bit unexpected. We feel very confident of what we have learned so far, and we are ready for wherever Phase 2 takes us!

SCO Observing Reports

(Members)

Chris Young

Dave Chapman and I joined Quinn and his friend Efrain at SCO just after 8:00 p.m. Mark already had his 25" set up and it was getting fairly dark at that time.

Quinn was working out the set up of the 16" and was soon chasing pretty things around the sky and sharing them with the rest of us. Efrain had not much, if any, observing experience and we got some "Oh wows!" from him. I set up the Thurlow Binoculars to do some warm ups on Messiers as I have 5 people, so far, who are doing the Mini Messier with me. I was delighted to find all of the 12 summer & autumn Messiers on the list plus M45, the Pleiades, up 10 degrees above the NE horizon at 10 o'clock. Finding the Messiers is not quite the same as observing them and I intend to re-visit each and log my observations (following the suggested questions on page 87 of the Handbook—I was with Dave Chapman after all).

The Thurlows were fairly new to me and I found them excellent at 40x and they will be the preferred tool for chasing Messiers, and there is nothing like seeing with 2 eyes. I was so impressed that I wondered about having a pair and found we are very fortunate to have such an excellent pair of binos.

We all took turns looking through the 16", the Thurlow's and Mark's lovely scope. His new ladder is excellent – very stable. I believe Dave said the Sky Quality Meter said 21.2 which is not a record but I found the seeing to be very good with most of my Messier targets visible to just my eyes (which aren't that good).

Was a great evening, good banter, good seeing and home about midnight (thanks Dave!). No mosquitoes, but I was glad I had long johns.

Dave Chapman

Chris Young and I live around the corner from each other in Dartmouth, so we naturally have become observing "buddies," taking turns to drive each other to SCO and back for a night's observing. It also gives us a chance to catch up on activities and to hatch plots for future exploits. Plus he always brings snacks! This time, we took a very small detour to rendezvous with Quinn Smith at the Sunnyside Mall—a great spot for car-pooling.

As the three of us rode out along Highway 103, I noticed with some satisfaction the clear night and the lovely crescent Moon (see previous article). I also noticed some high, thin cloud, which I was not happy to see. It has been a superb week in Nova Scotia for nighttime weather and this was our second SCO outing, the first one being the previous Wednesday. None of us had been available to go out on the "official" Friday observing night, but Blair pointed out that Saturday might even be better, so we took the chance and waited.

Paul Morris was there when we arrived, setting up for wide-field photography. We discussed some potential targets, including the Scutum star cloud—hope to see some photos, Paul! Blair MacDonald arrived shortly after to do some serious imaging. Jim Millar arrived to work with Chris on the mini-Messier list of objects, using the Thurlow binoculars. Mark Dryden set up his marvellous refractor in the fourth corner of the observatory while Quinn busied himself with the 400-mm Go To dobsonian. It was getting crowded! I did not set up a telescope, but I enjoyed scanning the skies with my 12x36 Canon image-stabilized binoculars and peeking through telescopes and Thurlow binoculars here and there.

I believe Jim and Chris had a satisfactory experience star-hopping to the various deep sky objects on their list. There was some hesitation over the Lagoon vs. Trifid nebulae, but that

was swiftly sorted out. I believe the Wild Duck cluster and the great globular cluster in Hercules were viewed. Quinn had a tip for finding the keystone of Hercules (which does not have any stars of first or second magnitude): look halfway between Vega and Corona Borealis (which has a second-magnitude star and somehow just stands out!).

In the sillier part of the evening, Quinn and I observed the Double Double in Lyra (which he calls the Tim Horton's stars) and then the Ring Nebula, which we have renamed the Donut nebula, in honour of the proximity of the Double Double. Thereby, we hatched a plot to have the IAU rename the entire constellation Tim Horton, and we hope to raise significant sponsorship funds to build a new planetarium in Halifax. In an even sillier part of the evening, Blair thought he heard one of us say "Life's too short for a Push To telescope." What he might not have heard was the actual start of the sentence: "My remaining..."

If the truth be told, the "new" Centre telescope is very good for Push To and Go To alike; however, there is a huge advantage to orienting the telescope and synching with the GPS: tracking. If the telescope is even crudely oriented, it will track pretty well once you have located an object. For accurate Go To, some care is required in the set up. As one of the ringleaders of this telescope acquisition, I am pleased to see that telescope being used as much as it is. Having it at SCO makes it easy to prepare for and carry out an evening of observing, where I just need to take a few small things with me (eyepieces) and I am good to go!

The skies were not as good as Wednesday, but they were good enough! The "challenge" object for us that night was the so-called "bright" Crescent Nebula. I swear Blair can see this with his eyes closed. We looked, and failed, then decided to de-fog the secondary! That's better! I could see it, by jiggling the telescope and watching the texture of the background to

the stars. A UHC filter seemed to help. The second quotable quote from the evening was "there's more to deep-sky observing than meets the eye." I think the take-home message is that even with good optics and good conditions, there is a certain amount of eye-brain training that needs to take place to develop one's observing skills. Oh yes, and it helps if those eyes are young! So, don't delay, get out and start observing while you can still see something!

At some point in the dark of the evening John McPhee arrived. Paul and Jim left; then Quinn, Chris and I packed it in, leaving Blair, Mark and John in the observatory, imaging and observing. All in all, a great night. There was talk of purchasing a couple of Zero Gravity chairs (Roy, avert your gaze!) as cots / observing lounges, in time for the Orionid (Oct. 21) and Leonid (Nov. 17) meteor showers.

Roy Bishop "Distant Moons"

After darkness fell and the crescent Moon set on the night of 2014 September 27/28, I climbed the stairs to my observatory. I opened the shutter, but before uncovering the optics of the 444 mm Newtonian, I spent several minutes collecting and ejecting a few dozen flies that had taken refuge inside the dome on these cool autumn days. Flies and telescope optics need to be kept apart!

I first swung the telescope to the magnificent globular cluster, M22, already low in the southwest, to have a look before it got any lower. Despite the low altitude, at 200x the stars of M22 were pinpoints and unmoving, indicating a night of superb seeing! I went higher in the sky to M11. Again, steady, incredibly-tiny star images. I love the optics of that big Newtonian! The sky transparency was not optimum, but the seeing was perfect.

Having located Uranus and Neptune a week earlier in preparation for an up-

coming public observation session, in a few seconds I swept up each of them again and began taking advantage of the remarkable seeing. At 200x each planet was a small, sharp disc. 300x darkened the sky more and revealed a faint point of light close to and north of Neptune, probably Triton. Still nothing apparent near Uranus. It took 400x to bring out hints of two points of light near Uranus, one north of Uranus, the other further away and east of south, probably Titania and Oberon, respectively. 600x (a 6.7 mm eyepiece plus a 2x barlow on the 1981 mm focal length of the newtonian) made the points of light definite. 1000x (5 mm eyepiece with a 2.5x barlow) made all three points of light accompanying the planets easy to see, visible 100% of the time.

Needless to say, manually tracking the telescope at 1000x on its alt-azimuth mount was not easy. A few times I lost the image and had to revert to the 127 mm, 22x finder to recover it in the main telescope. After studying both planets for some time, and committing the views to memory, I sketched what I had seen, fired up my StarryNight planetarium program, and electronically zoomed in to confirm what I thought I had seen. Yes, Triton for Neptune, and Titania and Oberon for Uranus, as in my sketch!

The seeing was good enough and the aperture large enough to make those high magnifications useful. Magnification darkens the obscuring, background sky glow and increases the angular separation between a planet and its satellite. Less than perfect seeing spreads the light of a faint star or satellite, making it invis-

ble irrespective of the magnification.

Having confirmed what I was seeing, as midnight approached, I went back in the observatory and gazed upon those three satellites of the remote gas giants. While viewing Oberon I thought of the Star Wars movies, but this was for real. What about Uranus and Neptune? Both were featureless disks, making me wonder how much those Voyager images were photo-shopped.

Someone with younger eyes likely could have made the satellite sightings at lower magnifications. With good seeing, the problem in seeing Triton, Titania, and Oberon is glare from the planets: their light is scattered by Earth's atmosphere, by less-than-pristine telescope optics, and especially by the cornea, aqueous humor, lens, and vitreous humor of the eye. As a person ages, light scattering, particularly in the lens and vitreous humor, increases. The lens tends to develop cloudy regions (cataracts), and the vitreous humor slowly accumulates cellular debris.

Moral: Enjoy your vision today. It will be worse tomorrow! As Dave XVII put it: "Don't delay, get out and start observing while you can still see something!"



**Quinn Smith searching for the "on" switch on the 16" Dob!
Photo: Efrain Araque**



I created all of these individual planetary images with my Canon T3i at the prime focus of my 8" SCT. To increase the focal length I put a 3X Barlow between the telescope and the camera. As for the processing, I used the T3i to record video of the planets, which I then frame-stacked to arrive at the final images. I first ran the video through PIPP to centre and keep the best 25% of the frames, and then I stacked and performed further processing in Images Plus (primarily RGB alignment, sharpening, and colour enhancement). And of course I tried to capture video on almost every night when the CSC said the seeing would be good! (Art Cole)

SCO Additions

Chris Young

At the September Meeting the Executive purchased Richard Vanderberg's eyepieces and 10" reflector scope for SCO for the use of the members (our cost is \$400).

Below is a list of the equipment. I am going out to SCO this evening and I will leave the eyepieces there. I think building a DOB base for the reflector is the best use of it. I will hang on to it for the short term.

Equipment:

- 1 - 10" Meade reflector on a GEM mount (right ascension drive only).
- 1 - aluminum briefcase with mount related items.
- 1 - aluminum briefcase for eyepieces.

Eyepieces & related gear:

- 1 - Televue 2" 32 mm Wide Field, eye relief 20, AFOV 65
- 1 - Televue 1.25" 26 mm Plossl, eye relief 17, AFOV 50
- 1 - Televue 1.25" 19 mm Wide Field, eye relief 20, AFOV 65
- 1 - Televue 2/1.25" 13 mm Nagler, eye relief 10, AFOV 82
- 1 - Televue 1.25" 9 mm Nagler, eye relief 12, AFOV 82
- 1 - Meade 1.25" 6.4 mm Super Plossl, eye relief 3, AFOV 52 ??? (has a small chip in the glass towards the edge, does not appear to affect the view.
- 1 - Televue 2.5x Barlow (not a Powermate)
- 1 - Lumicon 1.25" UHC filter
- 1 - Meade 1.25" #908 O-III Nebular filter
- 1 - set of 5 filters 1.25" various shades
- 1 - small flashlight

I did an initial cleaning of the eyepieces and Dave Chapman and I looked through all them in Dave's 12" scope. Views were pretty good, including the one eyepiece with a small chip which was not visible in the view.

As noted these are all early Televues and are quite decent and will serve us well. There is a good spread of sizes in the collection. I believe the Naglers are Type 1, the Wide Fields came before the Panoptics, and the Plossl is a first edition. I have considered ordering caps for the eyepieces so they go out into the world prepared.

If you have any other suggestions for equipment that we should consider for SCO, please contact any of the Executive (see page 2 for contact info.



Photo Sean Wearing: The Cocoon Nebula.

C11 at f6.1 on a CGEM guided w/OAG and a ASI120MM camera. Main camera, Canon T3i (lp2 removed)

Cosmic Debris

Odds and Sods from the world of astronomy and astrophysics

June 3, 2014: A spacecraft from Earth is about to do something no spacecraft has ever done before: orbit a comet and land on its surface.

Right now, the European Space Agency's Rosetta probe is hurtling toward Comet 67P/Churyumov-Gerasimenko. The spacecraft's mission is to study the comet at close-range as it transforms from a quiet nugget of ice and rock, frozen solid by years spent in deep space, to a sun-warmed dynamo spewing jets of gas and dust into a magnificently evolving tail.

News flash: The metamorphosis has begun. "Comet 67P is coming alive," says Claudia Alexander, project scientist for the U.S. Rosetta Project at JPL. "And it is even more active than I expected."

Launched in 2004, Rosetta has spent the past few years in hibernation as it chased the comet across the Solar System. In January of 2014, with its destination in sight, Rosetta woke up and turned on its cameras. At first, the comet looked like a dimensionless pinprick, inactive except for its quiet motion through space. Then, on May 4th a bright cloud appeared around the nucleus.

"It's beginning to look like a real comet," says Holger Sierks of the Max Planck Institute for Solar System Research in Germany where Rosetta's OSIRIS science camera was built. "It is hard to believe," he says, "that only a few months from now, Rosetta will be deep inside this cloud of dust and en route to the origin of the comet's activity."

Spacecraft from NASA, ESA and other space agencies have flown by comets before. A whole armada of



Artist impression of lander Philae approaching the comet

spacecraft visited Comet Halley in the mid-1980s, an international event which still serves as a touchstone of comet research. Other notable examples include NASA's Stardust mission, which flew through the tail of Comet Wild in 2004 and returned the samples to Earth two years later; and the Deep Impact spacecraft, which in 2005 dropped a projectile into Comet 9P/Tempel, blowing a hole in its nucleus so that researchers could look inside.

Flybys are informative, but Rosetta will do much more.

"A flyby is just a tantalizing glimpse of a comet at one stage in its evolution," points out Alexander. "Rosetta is different. It will orbit 67P for 17 months. We'll see this comet evolve right before our eyes as we accompany it toward the sun and back out again."

The most exciting moment of the mission will likely come in November when a European-built lander descends from the spacecraft and touches down on the comet's surface. The lander's name is "Philae" after an island in the Nile, the site of an obelisk that helped decipher—you guessed it—the Rosetta Stone.

Because a comet has little gravity, the lander will anchor itself with harpoons. "The feet may drill into something crunchy like permafrost, or maybe into something rock solid," Alexander speculates.

Once it is fastened, the lander will commence an unprecedented first-hand study of a comet's nucleus while Rosetta continues to monitor developments overhead.

Although Rosetta is a European mission, NASA has contributed some important instruments to the spacecraft, and US scientists are just as eager as their European counterparts for Rosetta to arrive. The recent photos have helped mission controllers pinpoint 67P and start a series of maneuvers that will slowly bring the spacecraft in line with the comet in time for an August rendezvous.

"Our target is ahead," says Alexander, "and Rosetta is chasing it down!"

Author: [Dr. Tony Phillips](#) | Production editor: [Dr. Tony Phillips](#) | Credit: Science@NASA