

Nova Notes

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



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Inside...

Astrophoto of the Month – <i>Shaun Lowe</i>	1
Photo award reminder – <i>Pat Kelly</i>	1
Twilight at Partridge Island – <i>Roy Bishop</i>	2
Skyways is here! – <i>Pat Kelly</i>	2
Mars Gallery, an eyesUp! special	3
Speers-Waler eyepieces – <i>Chris Beckett</i>	4
Sept. Meeting Report – <i>Pat D'Entremont</i>	5
Oct. Meeting Report – <i>Andrea Misner</i>	6
Saint Croix Observatory Info.	7
Meetings / Announcements	8

Astrophotography Award Reminder

Pat Kelly

The Centre has started a new award for astrophotography, and the deadline for submissions is quickly approaching!

Details on the award can be found either at the centre's web site (<http://halifax.rasc.ca/Cunningham.html>) or page 2 of the April issue of Nova Notes.

Submissions must be received, or postmarked, no later than February 28, 2004. Submissions can be sent directly to the centre, or to the first vice-president:

Patrick Kelly

RR#2
159 Town Road
Falmouth NS
B0P 1L0



Astrophoto of the Month *Shaun Lowe, A Roadway to the Stars*

St. Croix, Nova Scotia. Pentax K1000, Pentax 28mm, 10min +/- @ F3.5, Kodak E200 colour slide film. Visit Shaun's online portfolio for more great shots at <http://www.pbase.com/shaun>

Twilight at Partridge Island

Roy Bishop

Have you explored the region from Five Islands to Advocate? It may be the most spectacularly beautiful part of Nova Scotia. Yet few tourists see it. The combination of islands, headlands, hills, ravines, rivers, and tidal currents is unique. Geologically this shore owes its beauty to the major fault that cuts across Nova Scotia, from Canso through the Bay of Fundy. Astronomically this shore has what are probably the most impressive tidal currents on our planet.

On October 9 this year, the evening of the Hunter's Moon, I happened to be in Parrsboro, the largest town along this shore. With the Sun low in the west, a transparent sky, and spectacular scenery nearby, I drove 3 km south of Parrsboro to Partridge Island Beach to view the onset of night. (Like many highlights along this shore, if you stay on the main highway you will never realize that such a beautiful place as Partridge Island Beach exists).

I drove the full length of the double-sided beach and parked near its south end, below the looming bulk of Partridge Island. Toward 7 P.M., after watching our spinning planet raise West Bay and Cape Sharp to cover the Sun, I turned around and watched Clarke Head, Five Islands and Minas Basin drop away from in front of the Moon. As reflected moonlight began dancing on the water and Earth's purple shadow grew higher in the eastern sky, I turned back toward the west and spotted Venus in the red evening twilight, only half a degree above the Bay of

Fundy, framed between Cape Split and Cape d'Or. A few minutes later Venus vanished behind the waters. This was my first sighting of Venus on this evening apparition, an apparition that will end with a transit next June.

Impressed by what I had witnessed, in the frosty darkness of the next morning I returned to Partridge Island Beach. After watching the western hills behind Cape Sharp cover the Hunter's Moon, I turned around and, through 15-power binoculars, watched Minas Basin uncover the Sun. My first glimpse of our star was a bright fluorescent green flash, flickering through a low, distant fog bank. It lasted no more than two seconds before the photosphere became too bright to view.

If you visit the Five Islands-to-Advocate shore on a clear day, be sure to drive in Blue Sac Road at Five Islands, see the view from the Parrsboro Golf Club, and look at the setting of a new exclusive subdivision on the hill east of Two Islands. Drive south of Parrsboro to Ottawa House, Partridge Island Beach, and Black Rock. Visit the Diligent River wharf, and drive up the hill above Yorke Settlement (keep right). Turn into the lookout at Port Greville Harbour, and visit the lighthouse at Spencer's Island. Take the road to Cape d'Or and have a meal at the restaurant on the point. Walk on the beach at West Advocate, and if you have a 4-wheel drive, take the road to the New Yarmouth Fire Tower, which lies within Cape Chignecto Provincial Park.

The influence of the Moon is more evident along this shore than probably anywhere else on Earth. The vertical tidal range is among the greatest

anywhere, and at mid-tide the current in the channel past Partridge Island, Black Rock and Diligent River equals the combined flow of all the streams and rivers on Earth (about 4 cubic kilometers per hour). It is astounding to aim tripod-mounted binoculars at the water in the deep, 6-km-wide channel and watch so much mass in motion. On the flood tide, particularly during a perigeon spring tide, the rips off Cape Split and Cape d'Or are awe inspiring.

Some of the most memorable astronomical views do not require a telescope. ★

Skyways is here!

Pat Kelly

The society's latest publication, *Skyways*, is now available. This book, produced by our own Mary Lou Whitehorne, covers all of the teaching outcomes in astronomy that are required by the new pan-Canadian science curriculum. The book is full of classroom exercises that are geared to help students under the all of the basic concepts of astronomy. If you know anyone who teaches astronomy in the K-12 school system, you should make them aware of this publication. The best part is that the cost is only \$19.95 + tax, including shipping. (Or \$16.95 for RASC members.) Purchase can be made through the RASC web store (www.store.rasc.ca) or by calling 1-888-924-RASC. This resource would also make a great Christmas present for anyone involved in teaching astronomy. ★



Nova Notes

*The Newsletter of the
Halifax Centre of the RASC*

PO Box 31011
Halifax, Nova Scotia
B3K 5T9

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

Nova Notes is published bi-monthly in February, April, June, August, October and December. The opinions expressed herein are not necessarily those of the Halifax Centre.

"Letters to the Editor" or letters to our resident expert "Gazer" are also most welcome.

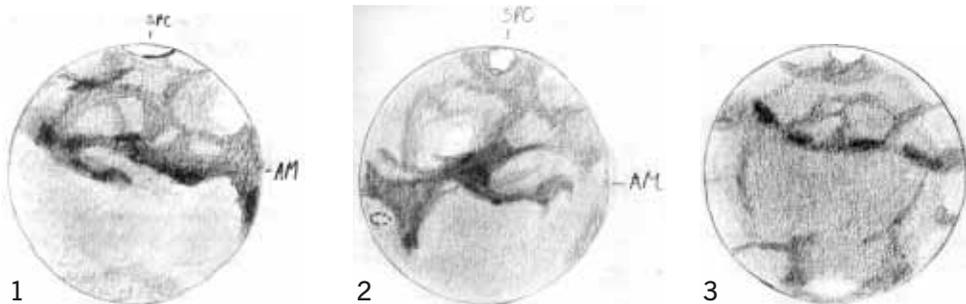
Contact the editor at the following:

Michael Gatto
michael@allura.com
453-5486 (Home) 482-1013 (Work)

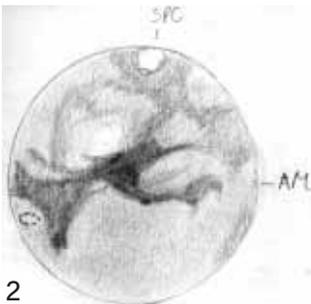
Nova Notes is also available as a PDF file on our centre's website at www.halifax.rasc.ca

Material for the next issue should reach the editor by Dec. 19

Mars Gallery, an eyesUp! special edition.



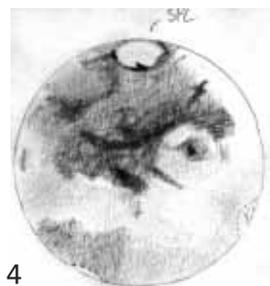
1



2



3



4



5

Here are 5 sketches of Mars that I've made that cover the entire planet. All sketches were made through a 200mm f/6 Dob. at up to 342x with a variety of colour filters and with/without an apodizing mask. – Graeme Hill

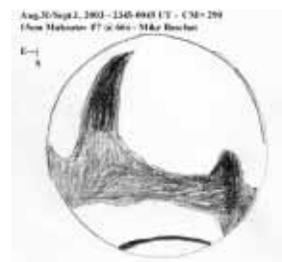
1. Oct. 15
Cm=244°
d=17.72"
Phase=0.92

2. Oct. 9
Cm=326°
d=19.06"
Phase=0.9323

3. Sept. 15
Cm=228°
d=23.53"
Phase=0.9818
(#38 dark blue filter only)

4. Aug. 26
Cm=60°
d=25.07"
Phase=0.9978

5. Aug. 16
Cm=158°
d=24.51"
Phase=0.9891



Aug. 31/Sept. 1
23:45-00:45 UT
Cm=290°



Sept. 2/3
00:00-00:10 UT
Cm=290°

Here are 2 images I made in Aug. and Sept. Notable is Syrtis Major in the top image, and Hellas in the lower image. Both images were through a 15cm Maksutov at 66X.

– Mike Boschat



August 1, 3:35 UTC
CM=260°



August 24, 3:35 UTC
CM=60°

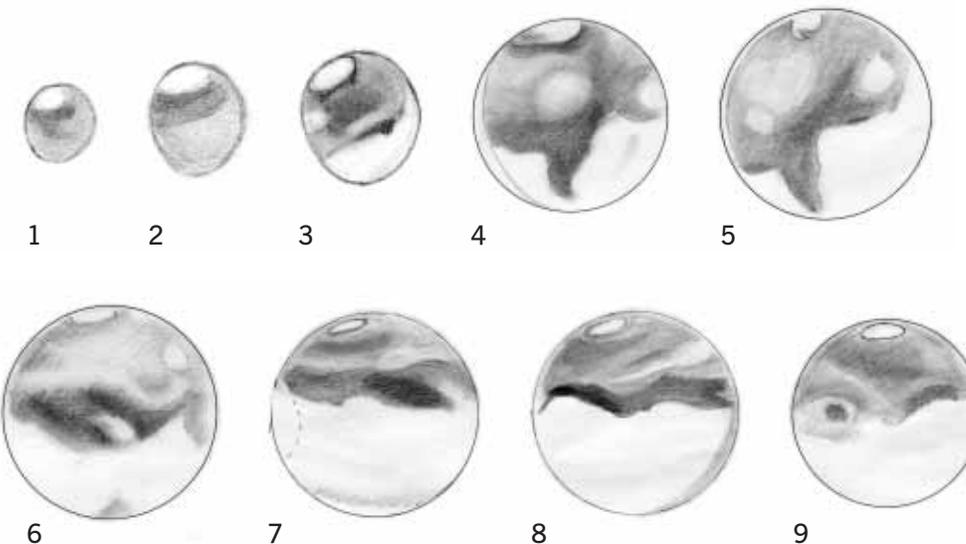


October 14, 01:14 UTC
CM=274°

Here's a series of images I took of Mars over the period of the opposition. All were taken with a 70mm refractor, 25mm plössl and a Canon PowerShot A60 digital camera. All are multiple frames, stacked with Registax 2.0.

– Calum Ewing

Editor's note, the printing process usually does not capture the subtleties in these smaller digital images that are present in the actual files.



1. May 4/03 9" 4:30 A.M.
2. June 7/03 13" 3:45 A.M.
3. June 21/03 15" 3:35 A.M.
4. Aug 1/03 22" 2:30 A.M.
5. Sept 3/03 24" 11:55 P.M.
6. Sept 10/03 24" 11:00 P.M.
7. Sept 14/03 23" 10:30 P.M.
8. Sept 17/03 23" 10:45 P.M.
9. Sept 21/03 21" 11:40 P.M.

Here is my complete set of Mars sketches, I had a great time working on these, I just wish the weather in July/August was more co-operative. These were done at the eyepiece with an 8" f7.5 reflector, using combinations of a neutral density moon filter, #25 red and #56 green filters. Most of the magnifications are around 170X - 210X, using an Ultima barlow/Takahashi LE 18mm, and a Tele Vue 7.4mm plössl. —Michael Gatto

Speers-Waler Eyepieces

Chris Beckett

After a few observing sessions using Graeme Hills' 10mm wide-field (70° apparent field of view) old-style Speers-Waler eyepiece, I purchased a 10mm, 82° version from the new line, as well as the new 5-8mm Speers-Waler zoom. I bought them used on Astromart but they were both in mint condition and contained no internal dust, which was a problem in the first series of this design. The original series consisted of a 10mm, 14mm, 18mm, and a 24mm, all around 70°. The new series consists of a 7.5mm, 10mm, 14mm, and an 18mm, all 82° apparent field of view. The old zoom line has also been updated with a new 5-8mm zoom (80-89°), 7mm 84° and 12mm 80°, the latter two can be purchased from Glen Speers directly.

I like these eyepieces because they are inexpensive compared to other wide angle designs and they seem to perform well in moderately fast scopes. The two 10mm's and the Zoom outperformed my Tele Vue Plössls. I wouldn't compare them to a Nagler or a Pentax, but I think the Speers fill a gap. Put another way, I bought the 5-8mm zoom and the 10mm 82° for less than the cost of one average Nagler.

10mm 70° – I've read specs on this eyepiece, really it is 9.7mm with a slightly larger than 70° field. It felt sharp and wide to the edge with great eye relief of 16mm. However, it required a lot of rack-in to achieve focus. Planets looked great but I found there were some internal reflections, though deep sky objects did not suffer from the reflections. It was great on galaxies and clusters at Liscomb through my 80mm f5 refractor and Graeme's 8" f6 reflector.

10mm 82° – One thing I noticed right away was that it didn't have as much eye relief, only 13mm. In side by side comparisons I didn't find it

had a significantly larger field. If I kept my glasses on, the fields were identical in both eyepieces, and I had to take my glasses off to gain any field size in the newer model. On the up-side, the extra rack-in focus issue was definitely fixed as the newer 10mm required about 1/4" more out-focus than the older version. The newer version is also much smaller and easily handled both in and out of the scope and is comparable to a 32mm Tele Vue Plössl in size. The coatings are the best feature of the new line, we found the contrast and sharpness well worth the extra \$20 CDN (\$169 for the old 70° \$189 for the new 82°). Mars showed more detail and there was noticeable less scatter light with the new ocular.

5-8mm Zoom – I thought the original 10mm was tall, but I was shocked at the zoom. When zoomed out it is about 9-inches long! But it is light and well balanced and performed well at 86x on my 80mm f5 even on a tripod. There is a lot of online chat about the actual FOV, 80-89° or 78.5°, depending on who reviews it. Neither the eyepiece or box give an indication of the field. In comparison with the 10mm 82° (at 41X), it appeared to have nearly an identical field zoomed out to 7.9mm (51X). When zoomed in to 4.7mm on a waning crescent moon early on Oct. 20th/03, I could make out the entire disk with lots of black velvet sky around it. This eyepiece is SHARP and CONTRASTY right to the edge. I put Mars, Saturn, and Jupiter all at the edge several times and let them drift across the field and I

couldn't detect any edge distortion. Additionally I noticed that eye placement isn't as critical with the zoom as with the other Speers, it seems to have a larger "sweet spot" and more eye relief than the 10mm 82°. I could also see more detail in the M42 complex with the zoom, it showed fainter stars in the nebula, as well as fainter stars near the moon and planets. Once the slide bolt is installed you can zoom while at the eyepiece and then refocus, you don't need to remove the eyepiece from a diagonal or focuser to change the focal length. There was even less light scatter than the 10mm 82° and external stray light sources didn't effect it as much as either.

I'm eager to try the new 14mm 82° eyepiece, and plan to order one in the near future as I've heard they perform much like the original 10mm 70°. On the downside I've read in several posts that the 18mm 70° and 24mm 67° are very poor performers. Many reviews are not yet available for the new 18mm 82°. ★



September 2003 Meeting Report

Pat D'Entremont

Off To a Good Start

Our new venue, Room 255 of the Sobey Building at St. Mary's University, was buzzing with excitement. By some counts, there were around 120 people present at the September meeting of the Halifax RASC, the first since the summer break.

President Stephen Tancock called the meeting to order at 8 P.M. sharp, and made a few announcements. One that drew an enthusiastic applause from the audience was that two of our own, Mary Lou Whitehorne and David Chapman, are finalists for the Discovery Awards' Science Champion Award, sponsored by Genome Atlantic. It is awarded to a working scientist for the promotion of science and technology to the public, above and beyond what is normally expected within a person's workplace. (A third nominee is Dr. Richard Wassersug, a Professor in the Department of Anatomy and Neurobiology at Dalhousie University.)

Also the fundraising campaign for improvements to the St. Croix Observatory are showing good early results. (Anyone wishing to donate to this worthy cause may contact the Observing Chair Dave Lane at 420-5633, or online at <http://www.halifax.rasc.ca/donate>.)

Cosmos versus Canvas

We were then treated to an outstanding presentation by Dr. Jayanne English, an assistant professor in the Department of Physics and Astronomy at the University of Manitoba. Her talk was entitled *Cosmos versus Canvas: Tensions Between Art and Science in Astronomy Images*.

Dr. English was introduced by Dr. Adam Sarty of the SMU department of Physics and Astronomy. An Associate of the Ontario College of Art, and a PHD graduate from the Australian National University (Astronomy and Astrophysics), Dr. English's many accomplishments include former

astronomy columnist on CBC Radio's "Quirks and Quarks" program, coordinator of the Hubble Heritage project, and author of the Hubble Heritage website.

Public Outreach Images.

Dr. English started off by talking about images used in magazines, textbooks, etc., which are meant to be a bridge between the scientists and the public. Some of these images come from heritage projects, others are appropriated research images, and still others from scientists' data. Some of these images are made specially for surveys.

Not Snapshots.

She told us not to believe it when we read of the Hubble Space Telescope "snapping" an image, because HST images are not snapshots. Rather, they are a combination of digital images. These images are collected on CCD (amazingly only 1,500 pixels across) by light passing through coloured filters to get one colour at a time, and combined on computers later. These are not montages, so what you see is a true representation of what's out there. In fact, they are a truer representation colour-wise than what the eye would see if we could look at these objects directly.

Images can also show much more than visual light. Radio telescopes can gather electromagnetic radiation at non-visible wavelengths, and we can then assign colours to these non-visible wavelengths, something Dr. English called "not true colour, but true science". In other words, we can image the invisible, and make out the different regions of our images by using different colours to portray specific wavelengths. One example of this is to use colour to show the rotation of a galaxy, as she demonstrated in her "galaxy dance", a slow rotational movement whilst moving backward, her arms extended – one in "redshift" and the other in "blueshift". (The crowd liked that one.)

In such examples, the artist helps the scientist learn the science of what he or she is observing. Unfortunately, image makers are often left out of the list of credits when an image is published.

This Battle Between the Cultures Of Science and Visual Art.

Sometimes, an image is merely to show off a discovery, and the art of the image is not important. Therefore, even if these images are scientifically quite literate, they do not go over well with the public. Science wins over Art. Another place where Science wins is that for an artist, blue is cool, and red is hot, but in science the reverse is true, and scientific images are shown with the scientific interpretation for the use of these colours.

Dr. English showed us some examples of paintings by Van Gogh, including the famous *Starry Night*, and demonstrated how the artist draws the eye to exactly where he wants his audience to focus. In Science, you do not have such liberty; however, there are things you can do to appeal to the observer of a particular image. One image she showed us seemed to take on a whole new dimension when she oriented it such that North was down.

Her point was, who cares which way is North – scientifically it is irrelevant – yet if the image is more appealing, it will be more interesting to more people. The release of this "upside-down" image was an outrage to many in the scientific community, until *Life Magazine* chose it as one of its images of the year. Art clearly won over Science on that one.

Other reasons for orienting images in different ways are for showing off some feature, or for getting them to look three-dimensional.

Wish List.

In the future of astronomy imagemaking, Dr. English had a few things she would like to see. One was to have more artists on imagemaking teams. Another was to have visual literacy as part of scientific education. She hopes to see artists and amateur astronomers raid public archives, and work with images in much the same way as she does. And she wants to see a greater variety of images – from different telescopes, different parts of the electromagnetic spectrum, animation, and three-dimensional displays.

She also left us with a good tip: a downloadable software package

called GIMP serves as a free alternative to Photoshop for stacking and manipulating images. [See <http://www.gimp.org>.]

Nominating Committee

The nominating committee was struck for selecting next year's executive. (Actually, they weren't struck, only arm twisted.) This committee consists of the Daves; Lane and Chapman, as well as Pat Kelly. Anyone wishing to nominate someone for the executive should contact one of these people.

Aperture Masks

After the break, I got up to talk about my experience with aperture masks, and to show some samples – one for my 8-inch SCT and one, yet to be used, for the 17.5-inch reflector at SCO. There was quite a lively discussion as to why aperture masks can improve seeing, and all kinds of suggestions as to how to make them and what materials to use.

Dave Lane offered four reasons why aperture masks enhance seeing. All four were summarized by Dave

Chapman, and here's my plagiarism:

1. less light-collecting area, reducing the glare
2. creation of an unobstructed light path, leading to reduced scattering and diffraction, improving the contrast
3. smaller turbulent air mass to pass through, improving the coherence of the incoming light waves (Dave Lane somewhat disparaged this idea)
4. reduced effective area of mirrors and correction plates, reducing wavefront distortion due to imperfect surfaces.

(Is it really plagiarism if you admit it?)

Based on Reason #4, it follows that by rotating an aperture mask, you might be able to stumble on a particularly "sweet spot" on your primary mirror, something I'll have to try.

Supernova!

Dave Lane then gave us the What's Up report. Mars is still in excellent viewing position, only slightly smaller

than at its closest approach a couple of weeks back, but high in the sky earlier in the evening than it has been. Mercury will be visible early in the morning in the East the last week of September. Jupiter is currently low in the East during morning twilight. Saturn rises just after midnight, so will soon be in prime viewing position.

The ISS is scheduled for a few passes in the near future. The zodiacal light will be observable for a two-week period starting around September 24th. Look to the Eastern sky in the morning, just before twilight begins. Members Night at SCO will be September 26.

There is a magnitude 12.9 supernova in NGC1201. This galaxy is in Fornax, which is low in the early morning sky. [See <http://www.rochesterastronomy.com/snimages> for further details.]

Oh yes, and Venus is currently not visible.

Adjournment

The meeting ended at 10:35, and many people hung around to chat. ☆

October 2003 Meeting Report

Andrea Misner

"From no fixed address...", Dr. David Turner introduced Dr. David Crawford – who is traveling the world at the moment – as the main speaker of the October meeting. The talk entitled; "Protecting Our Night Environment", gave a detailed look at how poor lighting not only effects human health, but also the plants and animals that surround us. Flashing up grizzly night photos of before and after poor light fixtures had been installed, Crawford commented on what a shame it is that people are learning more about the night sky on their televisions than looking up for themselves. One factor in the increase of light pollution comes from population growth. A photo of LA taken in 1908 compared to 1988 showed a dramatic increase in light pollution. Dr. Crawford pointed out that we live in an unhealthy 24 hour

"day", seven days a week. So much light is simply wasted, draining taxes and money. In the US alone about 2 billion dollars is wasted per year in light pollution! The night is essential, Crawford said, for fun, security, safety, marketing and utilities. 90% of the energy in cheap light bulbs is heat, just radiated heat. It all sounds like common sense. Use good lighting, and reduce the existing bad lighting. Through lack of awareness in the public, government, builders, and operators; bad lighting has crept up on us over the years. The hardest job is to educate people, Dr. Crawford stressed as he went into the myths of good lighting. Having success in the years he has worked on this project, David knows that the world works by networking, and he continuously is thinking long term. It is possible with time and education that the world's light pollution can be diminished. Someone once said that people who are crazy enough to think they can change the world, (or small parts within it), are the ones who do.

More on Dr. David Crawford can be found at www.darksky.org.

Thanking Dr. Crawford for his time, Dave Lane was up next with What's Up? Dave started off by informing us of a lunar eclipse scheduled to take place on November 9th, 2003.

A book that introduces astronomy to upper elementary and high school students, called *Skyways*, by Mary Lou Whitehorn was introduced at the end of the meeting. Look for it in a bookstore near you! ☆



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, 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.

Members' Night

Every weekend closest to the new Moon there is a Members' Night at St. Croix. The purpose of members' night is to attract members from the centre to share an evening of observing with other members. It's also a great night for beginners to try out different scopes and see the sky under dark conditions. For more information or transportation arrangements, please contact the Observing Chairman Dave Lane at 826-7956. *Dates for Members' Nights for the following few months are:*

Saturday. Nov. 22nd

Fri. Dec. 19th (*Rain date, Sat. Dec. 20th*)

Directions from Halifax

(from Bayers Road Shopping Centre)

1. Take Hwy 102 (the Bi-Hi) to Exit 4 (Sackville).
2. Take Hwy 101 to Exit 4 (St. Croix).
3. At the end of the off ramp, turn left.
4. Drive about 1.5 km until you cross the St. Croix River Bridge. You'll see a power dam on your left.
5. Drive about 0.2 km past the bridge and take the first left (Salmon Hole Dam Road).
6. Drive about 1 km until the pavement ends.
7. Drive another 1 km on the dirt road to the site.
8. You will recognize the site by the 3 small white buildings on the left.

Become a St. Croix Key Holder

For a modest key fee, members in good standing for more than a year who have been briefed on observatory can gain access to the St. Croix facility. For more information on becoming a key holder, contact the Observing Chairman Dave Lane at 826-7956.

RULES FOR THE 17.5" SCOPE (OR ANY RASC SCOPE AT SCO)

On Members' Nights the 17.5" scope must be shared by all members. The 17.5" scope can be used by anyone, but all views have to be shared with anyone interested in taking a look.

On non Members' Nights the scope can be used by individuals wishing to work on personal observing projects. Members should try to limit their use to under 45 minutes when other members are waiting to use it. Preference will be given to members who send an email to the hfxrasc list, or call the observing chair on the night they want to go out. If no one else wants to use the scope then feel free to use it all night, but it would be considerate every so often to ask members there if anyone has been quietly waiting to use it.

Please contact the Observing Chairman Dave Lane for more information or to book the scope at 826-7956.

Meeting Announcements

Halifax Centre of the Royal Astronomical Society of Canada



Friday, Nov. 21, 2003

Annual General Meeting

Speaker: Daryl Dewolfe (and guests)

Title: "New astro equipment showcase"

Abstract: After the always riveting Annual General Meeting, Daryl will head up an all-star cast of characters sharing ideas and reviews of new astronomy products with members. Have you had your eye on a new eyepiece, telescope, software, or filter – you may get a first-hand account here!

Friday, Dec. 12, 2003 Note the date change!

The December meeting is being held one week early to avoid the holiday rush. The meeting topic is yet to be determined at time of publication, watch the email list and website for details closer to the meeting date.

Meetings begin at **8:00 P.M.**

Members of the general public are welcome.

All members—but especially new ones—are invited to come to the meetings 20 - 30 minutes early to participate in our new informal "Meet and Greet". It's a chance to ask questions about astronomy, the RASC, memberships, or to just say hello.

Room 176 Loyola Building
Saint Mary's University (See Map Below)

The Halifax RASC

Executive meetings

begin at 7:00 P.M.,

and members are

welcome to attend.



Halifax RASC Executive 2003

Honorary President	Dr. Roy Bishop	
President	Steve Tancock	465-4092
1st vice-president	Pat Kelly	798-3329
2nd vice-president	Pat d'Entremont	497-1153
Secretary	Craig Levine	852-1245
Treasurer	Paul Evans	423-4746
Nova Notes Editor	Michael Gatto	453-5486
National Representative	Pat Kelly	798-3329
Librarian	Dr. Michael Falk	422-5173
Observing Chairman	Dave Lane	826-7956
Councilor	Clint Shannon	889-2426
Councilor	Dave Chapman	463-9103
Councilor	Andrea Misner	491-8668 ext: 4493

Meeting Location

Meetings are held every third Friday of the month, except for the months of July and August. Meetings take place in room 176, Loyola Building (#3 on map) at Saint Mary's University.

1. McNally
 2. Sobey Building
 3. Loyola Academic Complex
 4. Loyola Residence
 5. Patrick Power Library
 6. Science Building
 7. Burke Building
 8. Bookstore
 9. Alumni Arena
 10. The Tower
 11. Rice Residence
- P = Parking

