Nova Notes

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

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In This Issue...

Letter from the New Editor

Well, here it is, my first issue as the Centre's new Nova Notes editor. Being a graphic designer by day, and a mild mannered observer by night, I guess it was inevitable that I would end up doing the newsletter at some point. It's good though because now Nova Notes is being designed where all good graphic design should be done, on a Mac! Along with updating the newsletter's look, I've also tried to incorporate some new ideas into this issue. These were ideas that I wanted to try, ideas that came out of the special executive

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Astrophoto of the Month *Michael Gatto*

That's right—I printed my own photo, because no one sent me any! Don't let this happen again!
This star trail shot was taken early in the morning, *(under the best skies I have ever experienced)* in rural Cape Breton back in mid-September. The three bright "stars" at the top of the frame are Jupiter, Saturn and Aldebaran, and the three belt stars of Orion can be found just below centre of the frame.

Letter from the editor, Continued from 1

meeting held in January and also from member's input.

One of the most noticeable changes may be the omission of What's Up. Since there is a great "What's Up" section in each issue of SkyNews, we felt it would be more rewarding to develop a column that allowed members to share what they have been up to over the past two months with other members. This informal column has been given the name eyesUp!, and was originally conceived of by Daryl Dewolfe, and further flushed out by Paul Evans and myself. Paul graciously agreed to compile the information from members in lieu of preparing the What's Up column. This is an exciting new feature that we hope will get members to contribute more on a smaller basis. Everyone may not feel like writing a full length article or story, but hopefully there would be no problem writing up a brief informal paragraph of something interesting you've seen recently. We feel this column could really grow over the next few issues and will be a way of involving a more varied participation from different members, from beginners to the more advanced. The more members we have contributing to each issue, the better.

This issue came together with the help of a great number of people, notably; Dave Chapman, Daryl Dewolfe, Paul Evans, Dave Lane, Shawn Mitchell, Mary Lou Whitehorne, the executive committee, and all members who took the time time to contribute to the issue. I thought we would be running light for the first issue, but stuff came pouring in at the end so we are left with a full issue, one that I hope will be enjoyed by all members.

I hope you will feel free to let me know what you think of this issue. We've tried a few new things here and any input, good or bad, would be greatly appreciated.

Thanks a lot, and keep those submissions coming!

Michael Gatto

As heard on hfxrasc@rasc.ca...

If you're a member with email, why not become part of the Centre's email list? The list is a great resource for people looking for other members to observe with, for reminders of upcoming astronomical events, or for sharing information. Members who observe at St. Croix usually post a notice to say if they'll be out that night. Log on to our website (www.halifax.rasc.ca) to get signed up and you too could participate in lively intellectual discussions, or at least read them! For members not on the list, here's an interesting thread that occurred over January 10 - 12.

Subject: Halifax RASCals: Interesting Moon Effect

I just returned home from walking my dog (6:37 P.M.) I saw a very nice lunar show on my walk. There seems to be a hazy atmosphere—the Moon, just cresting the horizon, appeared suspended within a tall column of light the width of the Moon's diameter. Looking around, I saw to the Moon's left a rainbow effect similar to a 'Sun-dog' about 20 degrees away from the disc. I'm assuming there was a corresponding one to the right, but it was obscured by a hill.

- Craig
(clevine@hfx.eastlink.ca)

Subject: Halifax RASCals: Interesting Moon Effect

Craig,

I saw the same thing this evening at about 6:50pm. It's the first time I have ever seen a "Moon-dog"! I was driving across the Lucasville Road on my way to Sackville. It was a nice site.

...Dave
(dlane@ap.stmarys.ca)

Subject: Halifax RASCals: Interesting Moon Effect

If the proper word for "Sun dog" is "parhelia", then "Moon dog" is....?

parselenia ????

sounds like something you would sprinkle on spaghetti

David M.F. Chapman
(dave.chapman@ns.sympatico.ca)

Subject: Halifax RASCals: Interesting Moon Effect

Paralunia???

...Dave
(dlane@ap.stmarys.ca)

Subject: Halifax RASCals: Interesting Moon Effect

And those around Uranus might be "Ur All Lunies"

Wesley Howie
(HOWIEWM@nscc.ns.ca)

Subject: Halifax RASCals: Interesting Moon Effect

Ok, but to be consistent, then "Sun dog" would have to be "parasolia" which sounds like an umbrella.

David M.F. Chapman
(dave.chapman@ns.sympatico.ca)

Subject: Halifax RASCals: Interesting Moon Effect

**May I suggest an alternate definition.....

"Parselenia" (n) the confused state of mind experienced by astronomers when abruptly asked a simple question by the general public (eg. Have you ever seen an alien??) Not to be confused (pardon the pun) with senility (adj) a state of mind a doddering astronomer feels after a lifetime of explaining the difference between astrology and astronomy. :)

Daryl Dewolfe
(maknewt@glinx.com)

Nova Notes
The Newsletter of the Halifax Centre of the RASC

PO Box 31011
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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.

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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 March 19

eyes Up!

***eyes Up!** is a forum for observing news from Centre members. This is where you can see what your fellow members have been looking at for the last two months and share your own latest discoveries.*

News may include observing reports, observational project status, witnessed daytime or nighttime astronomical phenomena, new equipment reviews, or any other notes of observational interest.

***eyes Up!** is new to Nova Notes and what it becomes is up to you the membership! All readers are strongly encouraged to contribute regardless of their observing experience. If you've observed something interesting, developed a new interest, or tried something new, let other members know. It's guaranteed that others will share in your enjoyment and benefit from your experiences.*

Daryl Dewolfe—Digging Out
Thursday, Jan. 18th St. Croix Observatory —after digging a pathway through 2 ft. of snow to the Observatory, diehard observers Dust Lane and Dewolfe observed Jupiter on a calm, cold, wintry evening. For the first time in memory it required two individuals to roll off the roof due to the extra snow weight on it.

Daryl Dewolfe—SCO Shuttle Launch!!
Dateline: St. Croix Observatory January 22, 2001
Headline: SCO Shuttle Launch !!
On this date SCO saw the inauguration of it's Shuttle Service for amateur astronomers from the end of Salmon Hole Dam Road to the Observatory. A peppy 4WD RAV4 Launch Vehicle provided the traction for RASC members and their astro-equipment through the foot deep unplowed service road to the Observatory. The driver of the SCO Shuttle was obviously familiar with such a challenge, being overheard to shout AAAIIIEEEE like in the Kia Commercials and abruptly whip the Shuttle vehicle 180 degrees sideways in the middle of the road for no apparent reason at all. Members look forward to this service being continued in times of inclement passage to the SCO. No doubt it also puts SCO on a par with many of the other major observatories in the world who also offer shuttle services to visiting astronomers.

Michael Gatto—Digital Photography Through the Eyepiece
We recently purchased a Sony Mavica digital camera at work, and after reading about using it with eyepiece projection in a past issue of SkyNews, I wanted to give it a try. I started with a big bright target, the Sun. After properly shielding the telescope with some Baader Solar Filter in a home made cell, I positioned the camera lens in front of the eyepiece and snapped away. I also took pictures that night of the Moon, Jupiter and Saturn. The Moon and the Sun turned out the best. The Sun image clearly showed a large group of sunspots, and the Moon showed many distinct craters along the terminator and what looked like mountains along the upper limb. The planets weren't as successful, Saturn did show the rings but no sign of Cassini's division, and Jupiter showed 2 distinct bands of colour, but none of the moons showed up. All in all it was a very successful experiment and I would encourage anyone to give it a try.

Paul Heath—Jupiter's Shadow During Member's Night on January 26th
You know it is a very clear night when Jupiter casts a shadow in the snow. Standing with my back to Jupiter, moving my foot back and forth over the snow a shadow was clearly visible! Thanks for the tip Mary Lou.

Paul Heath—Earth Shadow Finds Planets!
I have found that when teaching Cubs Astronomy one of the first problems is that they invariable assume that the first star they see at night is the North Star. To help remove this misconception, I have found that using the earth's shadow as a marker has helped. Provided that it is clear at sunset, I have the Cubs look to the East as they see the Sun setting. As they watch the Eastern horizon they can observe the purplish line of the earth's shadow climb above the horizon as the Sun goes below the western horizon. I then have them scan the sky for 'stars'. A 'star' that they find while the Earth's Shadow is still visible will be a planet. While watching this star as the sky gets darker, the Cubs can observe that the 'star' they first saw does not twinkle like the other stars that become visible. This then confirms that the 'star' that they saw when the Earth's Shadow was visible is in fact a planet, i.e. the first 'stars' visible at night are most likely 'planets'!

Johnny McPherson – Christmas Eclipse
I had the good fortune of being in Miramichi New Brunswick on Christmas where the skies were clear and air was still. I set up my homemade Newtonian reflector to project an image of the partial solar eclipse downward onto a white board. Many nieces and nephews ignored their toys, for awhile, to view the eclipse, silhouette of the Moon's topography against the Sun, sunspots and granulation of the Sun's surface. Interest spilled over into the evening for some planets viewing when even my nephew, not yet five years old, peered through the eyepiece for a look at Jupiter and asked, "what are those stripes?" Maybe Christmas will be remembered by a group of future astronomers as the day they had their first look through a telescope!

You may forward your submissions for eyesUp! to Paul Evans by email, mail or phone:

Email	evans@hfx.eastlink.ca
Phone	902.423.4746
Mail	26 Carrington Place Apt 403 Halifax, Nova Scotia B3S 1J8

Shadow Searching

Daryl Dewolfe

One of the pleasures of astronomical observing is locating an object which appears particularly picturesque in your telescope. It can also challenge your observing skills at star hopping, or the fact that you can even detect the object the big scopes have found is sometimes satisfaction enough. Recently, I searched for a shadow-like nebula in Monoceros (the Unicorn), commonly called Hubble's Variable Nebula (NGC 2261). Discovered by Sir William Herschel in 1783, Dr Edwin Hubble later found that this diffuse nebula varied in brightness and shape over very short periods of time. At least some of this effect was due to the variable star R Monoceros whose light was reflected in the nebula. (Actually, there is some debate as to whether R Monoceros is really a star, or a protoplanetary system!) The nebula has been observed to vary up to 2 magnitudes from its average 10th mag. rating, while R Monoceros varies from 10-13th magnitude.

Armed with a 70mm semi-apo refractor on a recent wintry night, I looked for this object from the Halifax RASC Centre's St. Croix Observatory. Star hopping to the field of view is easy. Begin in Gemini at *Tejat* (μ Geminorum – mag. 2.9) and

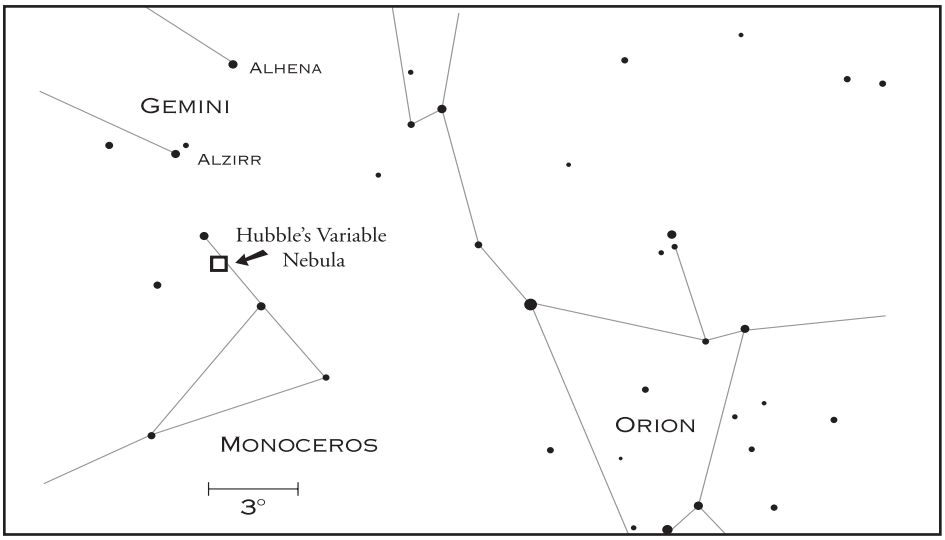
follow an imaginary line drawn from there through *Alhena* (γ Geminorum – mag. 2.0) to *Alzirr* (ξ Geminorum – mag. 3.3). From there you will see a fainter row of 3 stars all roughly mag. 4.5 pointing diagonally toward the three belt stars in Orion. Centering on the first of those three naked eye row stars will reveal NGC 2264, a 4th mag. open cluster of 20+ stars which can even be resolved in modest binoculars. Named the Christmas Tree Cluster, it appears very much like an upside down holiday tree lit by a string of electric lights.

Locating the light at the peak of the Christmas Tree is the jump-off point to finding Hubble's Nebula. By the way, I've yet to see the "Throne of God", or what is more commonly known as the Cone Nebula; a dark nebula which lies immediately South of our jump-off point. A scope of larger aperture and proper filters may reveal this object visually. On photographs, it appears as striking as the famed Horsehead Nebula in Orion.

From our jump-off star at the peak of the Christmas Tree Cluster, the Hubble Nebula, or the Shadow Nebula as it is also known, lies approximately 1 degree away to the SW adjacent to a 8.5 mag. star. My 70mm has a 3.5 degree field of view (FOV) at 20X so I can fit both the Christmas Tree and the Shadow in comfortably. Most scopes allow over a degree of FOV at low power so you should be able to place the nebula and the jump-off star together in a low power eyepiece. In my small scope the Shadow Nebula was indeed a shadow; visible averted as a tiny wispy gray smudge with no definition to it's edges. This was under fairly good seeing conditions.

Thankfully, observer Michael Gatto was nearby with an excellent quality 6 inch f-8 Dobsonian. Looking through his scope at moderate power, I saw a nice image of a fan-shaped nebula sharply defined, particularly along one edge. I was then invited to view the Shadow through the 12.5 inch Dobsonian belonging to the RASC's Observing Chairman, Paul Evans. Now this was impressive!

The edges of the nebula were sharp on two sides with a soft edge on one end like a paint brush. I could detect a slight curve to the nebula which gives it a comet like appearance noted by some observers. Brightening at one end of the nebula was very distinct. No doubt this was the heart of R Monoceros. It was during this process of observing the nebula I casually asked fellow observers what the date was. I was informed it was January 26th. I realized that on this same date in 1949 the then "giant" 200 inch reflector at the Palomar Observatory was about to take its very first photograph. This particular nebula was its first target. I was again reminded of the sense of history in astronomy, and of how I and my companions had rediscovered a road taken by other astronomers in our past. Perhaps you might also wander there someday. ✯



Stars shown to approximately mag. 5.5

Orla Aaquist's **Endless Nights Enhanced CD**

Mary Lou Whitehorne

RASC member Orla Aaquist has produced a most interesting CD as his so-called "summer astronomy project." Some summer project! It is an enhanced CD with a data track as well as eleven audio tracks. All of the astronomy-related and scientifically-correct songs are both written and performed by Orla in a friendly, folksy style, and mixed and recorded on his home computer. The data track contains images and background to go along with the songs. Together they make a unique series of multi-media educational presentations.

The data track will not open on my iBook but plays just fine in a PC environment. The sound is not exactly high fidelity and actually sounded better on my tiny laptop's speaker than it did on the stereo. Regardless, the songs are wonderful, and as the author states in the song entitled "Solar Maximum," he really can "see the music in the skies."

Orla has generously given a copy of his CD to the Centre for the Centre's and its members' private, non-profit use. I would encourage any member interested in astronomy songs to sign it out and give a listen. You'll be glad you did!

In case you're wondering where you have heard his name before, Orla Aaquist is the author of a recent series of highly entertaining articles in The Journal, under the name "The Lighter Side of Research." I always read his column first because it was guaranteed to produce a few chuckles.

You can request your own copy of "Endless Nights" by contacting Orla directly:

Orla Aaquist
17631 - 84 Avenue
Edmonton, AB, T5T 0K5
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phone: 780-486-8661

The Mini-Messier List
A Great Introduction to the Night Sky

Mary Lou Whitehorne

There are many challenges that face would-be star gazers. Some of these include light pollution, poor weather (certainly not here in the Maritimes!), no telescope, an over-abundance of other commitments, and a lack of familiarity with the night sky. Learning the sky, and all that happens therein, is challenging, but also very enjoyable. Since it takes a year for Earth to complete one orbital trip around the primary star, then it stands to reason that it will also take a year to observe the entire cycle of seasonally changing constellations. If you are really keen, you can get a full season's jump on things by observing both in the evening and the morning pre-dawn skies.

A telescope is not required to begin to learn, and enjoy, the night sky. As you start learning the patterns of the constellations, and the advancing rising times of the stars that result from the Earth's orbital motion, and that also causes the seasonal drift through the constellations, you might as well look a little deeper with a pair of binoculars and discover for yourself some of the celestial gems that lurk out there. This is a wonderful way to become acquainted with the stars: recognizing the first few constellations, noting their progressively earlier rising times, and watching for new and less familiar star patterns to clear the eastern horizon. Later on you will see these then-familiar groupings sinking in the west. At the same time that you are watching the annual cycle of the stars, you can add another dimension to your observing by hunting for celestial treasure with your binoculars.

The Mini-Messier list is an excellent way to start exploring the depths of the sky. This list of celestial objects has been compiled and tested by some of Halifax Centre's most experienced observers. It offers a wide range of types of objects, spanning the entire year, so there is something to look for no matter when you start this observing program. Once finished, you will have gained considerable familiarity with the sky and it's motions. You will also have gained in skill and confidence, and you will be well on your way towards observing the entire Messier List, should you choose to continue. What are you waiting for? Sunset? OK, wait for sunset, but then get out there and start gazing! Happy hunting! ✯

See centre spread for The Mini-Messier List.

Bump in the Night *or* Nocturnal Adventures at St. Croix

Mary Lou Whitehorne

January 27, 2001. There's no doubt about it. St. Croix Observatory is hard to get away from after a good night's observing. Last night it took three tries before I finally got out of there and on the road for home. At minus 10°C it was a nice, clear, crisp evening with good seeing and good transparency. Several Centre members were gathered around the eyepiece for a little observing. As the evening wore on and the chill began to set in, people began to drift away. First Bruce What's'-is-name (sorry Bruce, but I didn't catch your last name), then Dave Lane (Dave Lane leaving early?!?!?!), followed by Dave Croston. My frozen feet dictated that it was time to go, so I packed up the scope and hauled my gear through the deep snow out to the road where my car waited.

Once out on the road, I happened to notice that Jupiter was bright enough to cast a noticeable shadow on the snow. So I walked back in the driveway to share this bit of astronomical trivia with the remaining observers. Paul Heath had never seen his shadow cast by Jupiter before so he jumped up excitedly and came bounding out to see his shadow. We stood there for a while like crazy people waving our arms and legs to watch our Jupiter shadows. For the second time I left the observatory for the night.

When I got to my car this time, I noticed someone walking in the road carrying a red flashlight. I hailed this apparition in the darkness and it replied in the voice of Dave Croston. Apparently Dave's car had decided to make close acquaintance with a snow bank and a guard rail about a kilometre out the road. Back we went to the observatory to fetch the rest of the group to help Dave get his car out of the snow bank.

At this stage of the game it seemed like a good idea to simply close up for the night so all the gear was packed away and the observatory was "put to bed." We all proceeded out the road and arrived at Dave's foundered car. He really did a great job of it – he had plowed nicely into a good hard snow bank, smacked into the end of the guard rail, crunched his front bumper, and suspended the car on a large chunk of ice so that one wheel was hanging in the air.

We shoveled and poked around under the car until it became clear that we would have to lift the car up off of the handpicked snow. With exquisite coordination Daryl Dewolfe, Paul Evans, Paul Heath, and Michael Gatto heaved together and Dave's car came up, over, and away from the snow bank. I held the shovel and supervised. (Well, it was my shovel, so what did you expect!?)

See Daryl Run

Having successfully freed Dave's car from the snow bank, Dobserver Daryl Dewolfe made a smart-mouth comment about how "heaving the car is just like polar aligning a Meade SCT." Daryl loves to tease but he forgot that I had the shovel in my hands and it could easily be pressed into service as an offensive weapon. I, being the only SCT owner present, took the shovel and went after him. Daryl took off running. He now appreciates the wisdom of watching his lip.

Finally, on this, my third attempt to leave, I was successful in departing from St. Croix Observatory. See what you're missing by not going out to St. Croix? Fun, fellowship, and wise-acre companions.

But just exactly how did Dave Croston manage to drive off the road and into that snow bank? I think it's because he wasn't watching where he was going. I think, instead of minding the road, he was gawking up at St. Croix's beautiful starry sky! ✯

Mini-Messier List Certificate Application

Introduction:

Many observers—especially new RASC members—find the full Messier list of 110 deep-sky objects too difficult to complete for several reasons: it may be too long, they don't have the equipment, they haven't enough time, etc. To stimulate observing in the Halifax Centre and especially to improve the observing skills of novice observers, we announce a "Mini-Messier Hunt". We have selected a short list of 20 of the easier deep-sky objects, all of which can be found using binoculars. All observers who finish will receive a Certificate of Merit documenting their observational achievement. There is no time limit to complete the list.

Rules:

1. All of the columns "Date, Time, Instrument, Description" must be completed by the observer for all 20 objects.
2. The observer may use anyone's instrument, but he must find and describe the objects himself.
3. The form must be signed both by the observer submitting the observations and signed and dated by the RASC Halifax Centre executive member receiving it.
4. The completed forms will be examined and judged by the RASC Halifax Centre Executive.

Observer's Name: _____

Observer's Signature: _____

Signature of receiving RASC Halifax Centre Executive member: _____

Date: _____

Authentication:

I declare that this form has been filled out completely and correctly and that the above-named observer qualifies for a Certificate of Observational Merit for finding the 20 objects of the "Mini-Messier Hunt".

Halifax Centre Executive member: _____

Date: _____

Mini-Messier List

Object	Con.	Type*	Name	Date	Time	Instrument	Description
WINTER							
M45	Tau	OC	Pleiades				
M37	Aur	OC	—				
M42	Ori	EN	Orion Nebula				
M35	Gem	OC	—				
M41	CMa	OC	—				
SPRING							
M44	Cnc	OC	Beehive Cluster				
M3	CVn	GC	—				
M5	Ser	GC	—				
SUMMER							
M13	Her	GC	Hercules Cluster				
M6	Sco	OC	—				
M7	Sco	OC	—				
M8	Sgr	EN	Lagoon Nebula				
M20	Sgr	EN	Trifid Nebula				
M17	Sgr	EN	Omega Nebula				
M11	Sct	OC	Wild Duck Cluster				
M27	Vul	PN	Dumbell Nebula				
AUTUMN							
M15	Peg	GC	—				
M31	And	G	Andromeda Galaxy				
M34	Per	OC	—				
NGC 869/884	Per	OC	Double Cluster				

**Object Types — OC open cluster | GC Globular Cluster | EN Emission Nebula | PN Planetary Nebula | G Galaxy*

Messier Hunting

Paul Heath

To begin a hunt you first must know who your quarry is. After many years of searching the skies with binoculars and Astronomy Magazine charts I felt that I was well prepared for the "HUNT." When I finally obtained the use of a telescope (even a small one) I was quite confident that I would soon be able to complete the whole Messier List. Access to a dark sky would only make things easier to find.

As with any hunt one must practice. The Mini-Messier Hunt allowed me to practice my skills and get started with the "brightest and best" of the Messier List. My plan was to set up the telescope and quickly observe my binocular favorites, the Pleiades, Beehive Cluster and the Andromeda Galaxy. With very little effort I could easily get a good chunk of the list completed on my first night. Well as they say, "the best laid plans..."

Number One: There were too many STARS!! Where did the easily seen constellations go? It took many minutes to get my bearings.

Number Two: Setting up a telescope inside is far easier then setting it up in the dark, especially at a really dark site. And yes, Mary Lou, you can see a lot more stars when the solar filter is off!

Number Three: You must learn that up is down and right is left. Without this in mind, switching from binoculars to the telescope can be a confusing process.

Number Four: You must hold the chart in the same orientation as the stars or all your marker stars will be in some other part of the sky when you look through the eyepiece.

Number Five: You must forget every photo you ever saw of the night sky. High color images don't happen in 3 1/2" Questars. Also those detailed views from Dave's Dobsonian will not show up in the eyepiece.

As you may have guessed my Messier total for the first night was suitably small! Yet all the confusion and minor frustration was well compensated by the challenge of the hunt. Converting the mass of faint fuzzy patches seen in binoculars into specific objects was very rewarding. Realizing that a faint greyish triangle, a smudge on a window pane, is in reality the Trifid Nebula, is a literal eye-opener, a signpost to show what I am really looking for through the Questar's eyepiece. Spending half an hour looking for a rapidly setting cluster of stars, with a line of trees forming a second but angled horizon and with everyone saying "it's right there" (in their 8"+ scopes) and then finally getting the cluster in the eyepiece and having it confirmed by a big scope viewer, is very, very rewarding.

The Mini-Messier Hunt was indeed a hunt. Yet with the skills I have learned completing the Mini List, I am ready and eager to press on and complete the MESSIER LIST.

The one thing that I must remind myself of, at least in the winter, is not to talk while looking directly through the eyepiece, it is hard to see through a frosted lens.

For those of you that have been thinking of starting your own Messier Hunt, I recommend going ahead. Look for those faint smudges on the window pane. Finding them can be very rewarding.

Here's hoping for DARK SKIES! ✯

December 2000 Meeting Report

"The Star of Bethlehem"

Dave Chapman

Father Tindall gathered the flock shortly after 8 P.M. on Friday, December 15, 2000, in the Loyala Building of Saint Mary's University, for the final RASC Halifax Centre mass of the year, decade, century, and millennium. Next month, the new (OK...only slightly new) executive will be taking charge. Before the January mass, however, there will be an extraordinary executive meeting on an "off" night to discuss the future of the Centre and possible changes to the order of service.

Observing Brother Paul Evans read from the Book of ECU (Earth-Centered Universe) for the monthly What's Up: Jupiter and Saturn dominate the southern evening sky, with Venus descending in the West. The faithful were reminded about the partial eclipse of the Sun on the afternoon of Christmas Day. The dear lambs were also reminded of the Geminid and Quadrantid meteor showers, both of which have high peak hourly rates, but are often ignored due to the cold weather at this time of year. The past several Prayer Meetings at the Saint Croix Basilica (Observatory) have been successful, including the November 24 date; there will be another on December 22, all welcome.

There was much discussion about the visibility of the International Space Station, which has been making some notable passes. Brother Dave Lane remarked on seeing a dimmer object apparently in the same orbit only a few minute ahead of the main ISS body. Sister Mary Lou Whitehorne, Brother Dave Turner and Brother Paul Heath described the apparent red hue of the reflection, which may have only been seen as the craft drew near the light/dark terminator, raising the possibility that the colour arises from the reddening of the sunlight passing through long paths in the Earth's atmosphere at this point.

Brother David Turner (all the way from the Saint Mary's Department of Astronomy and Physics) ascended the pulpit. His sermon was entitled "The Star of Bethlehem: New Ideas on an Old Problem". The brother's interest in such matters dates back to his days as Director of Doran Planetarium, Laurentian University, when he was scolded by a Jesuit brother for not having a "Xmas Star Show". David has written a fictionalized account of the myth, which can be found at http://apwww.stmarys.ca/~turner/xmas.html

Brother Turner's interest in "the problem" has taken him down many roads, and into several scriptures that he brought with him. Apparently, about one new book a year appears on the shelves of bookstores, and I can testify to having seen two recent examples myself. Most of us are familiar with the various hypotheses for the apparition: a true miracle (non-astronomical, that is), a comet, a supernova, a UFO, the aurora, and so on. Planetary conjunctions are also favoured, especially when one considers the fact that educated folks at that time were much more keenly interested in the heavens than most educated folks today, and that astronomy and astrology had not yet parted company. Brother Turner discussed some very close conjunctions of Venus and Jupiter in 2 B.C. His analysis eventually focussed on the triple conjunction of Saturn and Jupiter in the constellation Pisces in 7 B.C.

The difficulty in proposing an astronomical explanation for the Christmas Star is not the lack of eligible phenomena, but the imprecise knowledge of the date of birth of Jesus. In those days, dates were reckoned relative to other historical events, such as the start of a monarch's reign, the founding of cities, etc. As useful as this was at the time, after years have passed, it is difficult to precisely pinpoint the date of an event relative to our own calendar extrapolated backward. The "new" part of Brother Turner's talk–I believe–was the discovery of a document that relates to the death of King Herod to a scientifically verifiable phenomenon: a total eclipse of the Moon on September 15/16, 5 B.C., from 9 P.M. to 1 A.M., Jerusalem time. This greatly increases the stock value of the triple conjunction of 7 B.C. as the astronomical event that triggered the journey of the magi. Brother Turner's version of the story has the magi visiting Bethlehem in mid-February, 6 B.C.

The sermon generated much following discussion, and thanks so much to Sister Mary Lou for providing cookies and juice that evening. Many of us have missed the refreshments we used to have at the end of mass, and I am sure this will be an item for discussion for the new executive. ✯

January 2001 Meeting Report

Clint Shannon

President Dave Tindall opened the meeting at 8:02 P.M. He asked for comments and suggestions as to future meeting contents. Prior to the opening of the meeting, Dave Chapman and Mary Lou Whitehorne were available as "Greeters" for approximately half an hour to answer questions pertaining to astronomy and/or the Centre. This is a new initiative which is designed in particular to offer assistance and guidance to new members and beginners.

Dave Lane gave a brief introduction of the RASC e-store and web site which was new to most members. As Dave Lane had proposed that the "Observer's Handbook Talks" be re-instituted at all regular meetings, he was "volunteered" to give the January talk. The topic of his talk was "Sky Transparency". The OHB talks are normally to be from 10 to 15 minute duration and the speaker giving the talk gets to select the OHB speaker for the next meeting. In this instance Dave gave the nod to Paul Heath. The handbook talk speaker can select any any topic in the handbook for his talk. A short but interesting discussion took place in regards to Dave's talk.

The speaker for the evening was Paul Evans, the Centre's Observing Chairman. The title of his talk was "Astronomical Observing Projects". The various observing projects that Paul covered were appropriate for different experience levels from beginner to advanced. He discussed different types of observing projects, logging your observations, a number of the different observing lists, other projects, tips and a summary.

As noted by Paul, the purpose of an observing project is to provide a long term, achievable goal, and a starting point for planning. Covered were lists suitable for most interests and levels of experience. The RASC and the Astronomical League publicize and award certificates for a number of observing lists. The Astronomical League is an association of over 250 amateur astronomical Societies from all across the United States. You must be a member to be awarded most certificates. Membership for non-US addresses is 35.00 (US) and their web site is http://www.astroleague.org

Here is a summary of a few of the lists discussed.

The Mini-Messier List
This list was developed by the Halifax Centre and consists of 20 of the easier Messier objects. All can be seen with binoculars. The observer may use other people's instruments but must find and describe the objects themselves recording the date the time and the instrument. A certificate is awarded from the Centre. (*See Centre Spread for the full list)*

The Flemming RASC Binocular List
This new list is proposed and created by Christopher Flemming (National Observing Certificate Committee Chairman). It is expected to be formally published and publicized this year. The list consists of Messier plus list, double star observing lists, and a Moon observing list for a total of 165 objects.

The Bronson List
This list was developed by Thunder Bay Centre member Ted Bronson. You must observe a subset of the following categories: Constellations, Major Stars, Planets, Double/Multiple Stars, Deep Sky and others.

RASC Messier List
This list consists of 110 objects suitable for observation from mid/northern latitudes and is published in the Observer's Handbook. RASC members who observe all objects are eligible the Messier List Certificate. *(Check with Paul for the necessary application form as well as his advice)*

RASC Finest NGC Objects
This list was compiled by Alan Dyer and is published in the Observer's handbook. It consists of 110 of the finest NGC Objects visible from mid/northern latitudes. The RASC will award the Finest NGC Certificate for successful completion of

this list. *(Check with Paul for the necessary application form.)*

The Astronomical League Asteroid Club
This is broken into two levels of award. Regular requires the observation of at least 25 asteroids and requires a telescope of at least 4" aperture Gold requires a telescope of at least 6" in aperture and each asteroid must be sketched/imaged twice to show two different locations relative to the background stars and the log must contain the location, date and time of the observation, as well as the name and number of the asteroid and the instrument used.

Double Star List
There are a number of The Astronomical League lists to choose from.

The Astronomical League Binocular Messier Certificate
It consists of 50 Messier objects. You must keep a log sheet, and the list is broken down into 3 levels of difficulty; easy, tough and challenging.

The Astronomical League Binocular Deep Sky List
This is a selection of 60 non-Messier objects. No object is below 35° declination. It is recommended that the objective of the binoculars be at least 50 mm. A log is required listing the object, date, time, seeing conditions, type of binoculars and a brief description.

The Astronomical League Lunar Club Certificate
This includes naked eye, binocular and telescope objects. 100 features must be observed on the Moon which are broken down into three groups: 18 naked eye, 46 binocular and 36 telescopic features. The list is organized as a check list with a record of the observing date and time (no detailed record keeping required) Features are grouped by the "age" of the Moon. This project can be completed with 7x35 binoculars and a 35mm refractor. A "Moon Map" is sufficient to complete this list however a more advanced Moon atlas such as Antonin Rukl's "Atlas of the Moon" is recommended.

Herschel 400 – Part I
This list was established by the Ancient City Astronomy Club (St. Augustine, Florida). The award is administered by the Astronomical League and is the only AL certificate awarded to non-members. It is named after Sir William Herschel who was born in Hanover Germany in 1738, known for discovering Uranus, the gaseous nature of the Sun, the movement of the solar system through space, nearly 1000 double stars and 2478 deep sky objects. All objects may be seen in a 6" or larger telescope, though sky conditions and observer's skill are major factors. (Halifax Centre member Daryl Dewolfe completed this list with his 5.7" scope). This list is for more advanced observers with a fair amount of deep sky experience. A log must include all observations, date time, seeing conditions, aperture of scope, magnification, and a brief note describing the observation. *(There is also a Herschel 400 – Part II list, containing 400 additional objects.)*

Hickson 100 Compact Galaxy Groups
Paul Hickson compiled and published this list in 1994. It contains 100 galaxy groups, each containing four galaxies or more. (Refer to the article "Quintets, Sextets, and Septets: Exploring Hickson's Compact Groups" in Sky and Telescope, March 1999). Very tough.

RASC Deep Sky Challenge Objects
This list was compiled by Alan Dyer and Alister Ling and is published in the Observer's Handbook. It contains 45 unusual challenge objects organized by right ascension. It included quasars, galaxies, galaxy clusters, star clusters, nebulae, supernova remnants, and dark nebula. A 10 – 12" telescope is recommended, although sky conditions and observer's skill are major factors.

Logging your observations.
Most lists suggest that at least the date, time and brief description should be recorded for each object observed. Writing detailed descriptions and/or sketching objects helps to develop an observer's skill. Maintaining a log book helps an observer remember what he has seen. Many amateur astronomers consider their log books to be a prized possession.

Additional Projects

Variable Star Observing
The scientific study of variable stars has benefitted from the participation of amateur astronomers. Millions of observations have been submitted to the AAVSO (the American Association of Variable Star Observers)

Comets and Supernova
Computers, the Internet, and computer controlled scopes have introduced massive changes to the process over the last few years. SOHO satellite images of the Sun are distributed over the Internet and are actively monitored by dedicated amateurs in order to discover comets. Halifax Centre member Michael Boschat has discovered or co-discovered over 26 comets this way. Dave Lane and Paul Gray are credited with discovering the first supernova from Canada.

Your Own Observing Lists
Paul recommends you keep an organized "stuff to look at" binder, containing information collected from books, magazines, email lists, websites, other members, etc.

Plan a list of about a dozen or so objects to try for in a night. Prepare charts and other notes, and have your equipment and observing materials organized before you get out in the dark. This will allow you to avoid frustration and enjoy your observing session.

Lots of people enjoy astronomy in different ways. Paul hopes he has shown this, and perhaps given newer members some ideas on how to decide "what should I do?"

An intermission break with refreshments followed Paul's well-received talk. At 9:45 P.M. the meeting resumed with Paul (Observing Chair) Evans giving his scheduled "What's Up" talk.

Mary Lou Whitehorne treated us all to a 14 minute video titled "Canada and the ISS" which to say the least was very interesting. The meeting adjourned at 10:25 P.M. ✭

The St. Croix Observatory

The St.Croix observatory. Pictured from left to right, the RASCan, the warm room and the roll-off roof observatory.

The roll-off with the roof partially open.

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 Friday night closest to the new Moon is 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 Paul Evans at 423-4746.

Dates for Members' Nights for the following two months are

Fri. Feb. 23rd *(rain date Sat. 24th)*

Fri. Mar. 23rd *(rain date Sat. 24th)*

Observer's Log Classic Entry

"Members' night. Clear skies and good transparency. Roll-off full of telescopes and observers. Clint Shannon, Paul Evans, Daryl Dewolfe, Steve Tancock, Blair MacDonald, Roy Bishop and Michael Gatto. You could see stars down to the treetops in the South. (dec - 41°) Observing from ~9 P.M.–1 A.M. Uranus a naked eye object. Saturn and Jupiter and Pleiades in ENE by 12:30 A.M." - *(RLB) August 25 / 2000*

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 Paul Evans at 423-4746.

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.

Meeting Announcements

February 16

"Galaxy formation and the origin of the Hubble sequence"

Dr. Francine Marleau

Abstract:
The origin of the Hubble morphological sequence of galaxy types still remains one of the unsolved problems of modern astronomy. How come some galaxies called ellipticals look smooth and featureless whereas others like our own Milky Way galaxy have spiral structure?

I will discuss recent research and observations that have produced clues leading to some answers and raised even more questions about the formation process of galaxies.

March 16

"Relativity and Black Holes"

Aidan Keane

Abstract:
At time of publication an abstract was not available. Please watch the email list and website for upcoming details on this presentation.

Members of the general public are welcome.

Time: **8:00** P.M.

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.

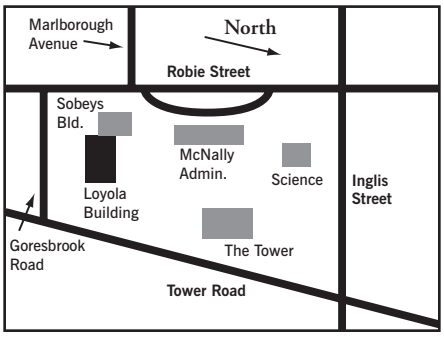
Room 176 Loyola Building, Saint Mary's University *(See Map Below)*
The Halifax RASC Executive meetings begin at 7:00 P.M., and members are welcome to attend.

Halifax Centre Executive 2001

Honorary President	Dr. Roy Bishop	
President	Dr. David Tindall	455-7456
1st vice-president	Pat Kelly	798-3329
2nd vice-president	David Croston	477-5817
Secretary	Steve Tancock	465-4092
Treasurer	David Lane	826-7956
Nova Notes Editor	Michael Gatto	453-5486
National Representative	David Lane	826-7956
Librarian	Dr. Michael Falk	422-5173
Observing Chairman	Paul Evans	423-4746
Councilor	Clint Shannon	889-2426
Councilor	Dave Chapman	463-9103
Councilor	John Jarvo	897-0529

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 of the Loyola Building at Saint Mary's University.



Astro Ads

For Sale:

Celestron Ultima 10X50 Binoculars
Excellent condition. Superb for astronomy or nature observation. Asking $300.00

Thousand Oaks Solar Filters
A pair of Binocular Solar Filters by Thousand Oaks. 60mm glass filters sized to fit 50mm binos. Asking $100.00

Contact:
Daryl Dewolfe
maknewt@glinx.com
or (902) 542-2357 evenings