

Nova Notes

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



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Astrophotos of the Month *First Light from ARO* — Dave Lane

Abbey Ridge Observatory (ARO) is named for the granite ridge in Dave's backyard that rises up above Elbow Lake and along Abbey Road. ARO sits on bedrock on the edge of this ridge giving spectacular views from the south through to northwest. The observatory is based on a Technical Innovations 10-foot Home-Dome and houses a Celestron C11 SCT and a TeleVue 4" Genesis refractor mounted on a beefy Losmandy HGM-Titan german equatorial mount. An SBIG ST9 CCD camera is used to image the heavens.



Top Right, a 15-minute exposure of M51, the Whirlpool Galaxy (fifteen 1-minute exposures, stacked). In the original image stars are detected fainter than 20th magnitude. (fainter stars may not reproduce here)

Above: Globular cluster M3, the mount slewed about 30 degrees to M3 and put it dead centre of the CCD frame. This is a 5-minute exposure (ten 30-second exposures combined).

Right: This is a nine minute shot (nine 1-minute exposures stacked) of M97, a planetary nebula also known as the Owl Nebula.



See more great shots, and learn what it took to build Dave's new observatory when he presents, *Designing and Building a Backyard Observatory for Research* at Nova East, Saturday August 2nd., 8:30 P.M.

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!



NASA/JPL/Malin Space Science Systems

Pale Blue Dot from Mars.

The Mars Global Surveyor craft orbiting the red planet took a break from its work on May 8th to aim its high-resolution MOC camera at the "evening star" shining brightly in the Martian sky. Earth was only 19 arc-seconds in diameter at the time and shining at magnitude -2.5, somewhat less brilliant than Venus appears in our own sky. The Moon next to it was magnitude +0.9. The date was chosen so that the Moon and Earth would be nearly in line with each other...

See http://SkyandTelescope.com/news/article_959_1.asp. Once you get to the site, click on the picture to see a closeup of the Earth as seen from Mars and a map showing what is been seen.

- Pat d'Entremont (pdentrem@dda.ca)

Pale Blue Dot from Mars.

Wait a minute! There's something very fishy about these images. If you look at the one that compares the image with the map (globe), then look at the Earth/Moon

picture to see how the Earth is positioned in relation to the moon, it appears as if the moon is positioned above the North Pole!

All I can figure is, that's the angle the "viewer" had from Mars, which is much lower in the solar plane than the Earth. Mars currently has a declination of -17.

I would not have thought it would make such a difference, but apparently it does!

- Pat d'Entremont (pdentrem@dda.ca)

Pale Blue Dot from Mars.

Getting back to the http://SkyandTelescope.com/news/article_959_1.asp images, I think I've figured it out. From the perspective of the camera orbiting Mars, the moon must have been closer to it than the Earth. If you look at it from that angle, given that the camera was at declination -17, it would give the image we're seeing.

Does anyone know how we can find out the position of the moon relative to Mars on that date (May 8)? If it was on the Mars side of Earth, then I think it all makes sense.

The things I spend time fretting over....

- Pat d'Entremont (pdentrem@dda.ca)

Pale Blue Dot from Mars.

Pat,

Open your Observer's Handbook.

On page 178 are the "Planetary Heliocentric Longitudes" for 2003. Interpolating these

for May 8 gives Earth at 227 degrees, Mars at 266 degrees.

On page 188 is a diagram (to scale) of the orbits of Earth and Mars. Use a protractor and the above angles to locate the positions of Earth and Mars for May 8. (The direction of the vernal equinox is 0 degrees, and longitude increases counter-clockwise). Earth is easy to locate since the months are already marked around its orbit. You will find that Mars on May 8 was directly above the 21" martian globe in the lower-right part of the diagram.

On May 8 the Moon is just one day shy of first quarter (page 85). Hence in the diagram on page 188 the Moon will be to the left of Earth just barely inside Earth's orbit, on the far side of Earth from Mars.

Now, draw a line from Mars to Earth (the direction that the camera near Mars was pointing) and you will see that the camera should have seen Earth at slightly less than a quarter phase (just as in the picture), and the Moon should be located very near Earth along the same line of sight (again just as in the picture).

Why does the Moon appear above Earth in the picture? The Handbook does not tabulate the ecliptic latitude of the Moon during the year, but the Moon's position relative to the ecliptic plane can be deduced using the Handbook:

On page 84 you will see that the Moon reaches its greatest northern declination on May 6 (+26 degrees). At that point the Moon was 5 days old (new Moon was on



Nova Notes

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Halifax Centre of the RASC

PO Box 31011
Halifax, Nova Scotia
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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.

Contact the editor at the following:

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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 July. 26

May 1) and hence about $5/27 \times 24 = 4$ hours of RA east of the Sun. Page 101 tells us that on May 6 the Sun was near RA 3h; thus the Moon on May 6 was near RA 7h. According to the JANUARY star map (page 294) RA 7h, Dec +26 degrees puts the Moon north of the ecliptic in Gemini. Two days later (on May 8) the Moon will be $2/27 \times 24 = 2$ h further east, approaching Leo. Since the ascending node of the lunar orbit is currently near longitude 60 degrees in Taurus (page 75), the descending node is near $60 + 180 = 240$ degrees, in Libra. Thus the Moon on May 8 is still well north of the ecliptic and will appear above Earth (as in the picture).

The fact that Mars was at declination -19 degrees on May 8 (page 84) is irrelevant. The ecliptic, not the celestial equator, is the reference plane for the orbits, and the orbit of Mars lies less than 2 degrees from the ecliptic (page 21).

Thus the picture makes sense.

Fun stuff.

Moral: It's all in the Handbook!

– Roy Bishop (rg@ns.sympatico.ca)

Pale Blue Dot from Mars.

Well, other than for my 5 or 6 invalid assumptions, I had it basically right!

Thanks Roy for figuring all this out for us.

- Pat d'Entremont (pdentrem@dda.ca) ★



**Don't Forget
Nova East 2003
August 1st, 2nd, & 3rd**

Register now!

March 2003 Meeting Report

Pat Kelly

There were a few extra items mixed in with the usual announcements that precede the main meeting. The insurance policy for the St. Croix Observatory has been updated to cover all of the centre-owned equipment that is kept there. The policy does not cover any equipment owned by centre members. A new award was also announced; the Murray Cunningham Astrophotography Award (see April's Nova Notes for details.) It was developed to encourage centre members in their efforts at astrophotography and to recognize outstanding achievements.

The centre's annual award for writing, the Burke-Gaffney Award, was presented to this year's winner, Andrea Misner. The selection committee reviews the articles that appeared in the previous year's issues of Nova Notes, giving the award to the writer of the article they judged to be the best in that year. Andrea won the award for her article on sounds and auroras. The only drawback was that Dave "Keeper of the Certificates" Lane was out of town so Andrea will get her certificate shortly after he gets back. While she is waiting she can think about the book that she would like to receive, as that is the tangible part of the award.

It was on to the main event. Mary Lou Whitehorne gave a presentation on Skyways, the society's new publication which will debut in the fall. Mary Lou is the author of the book and it is based on her years of experience dealing with educators who find themselves teaching astronomy in school with little experience in the field.

Visually the book is very attractive. The full-colour cover is a wide-field sky and

horizon photo that Mary Lou took herself, superimposed with some graphic elements that were added by our own Michael Gatto. The result is a cover that easily meets Mary Lou's requirement that the publication have a "friendly" look that deals with naked-eye astronomy. The rest of the book is black and white but, again thank to the efforts of Mike Gatto, the effect is that the inside is just as attractive as the cover. Mary Lou passed around the paste-ups of the cover and some of the interior pages that she had taken to the recent National Council meeting. The paste-ups were crucial to convincing the council to spend money to give the book a full professional treatment.

That treatment not only included the graphic layout of the cover, pages and text, but also extended to all of the graphics in the book. The text is filled with examples of activities and experiments that students can do to help them understand basic astronomical concepts, and the illustrations are clear and easy to follow.

One of the other events that was instrumental in making Mary Lou decide to produce the book was the recent release of a new pan-Canadian science curriculum. That document gives a listing of the expected student learning outcomes in science for each year from Primary to Grade 12. Astronomy shows up predominantly in Grades 6, 9, and 12 with fully one quarter of the science in Grade 9 being devoted to astronomy. The curriculum has been adopted by most provinces with little or no modifications, Québec being the exception. Mary Lou showed examples of the expected learning outcomes for the Grade 6 segment called "Earth and Space Sciences".

Mary Lou has learned from her years of dealing with teachers that not only do they have to try to teach the subject, but there is also a lot of time that has to be devoted to "deconstructing" many

of the mistaken ideas that students often have by the time they receive their first instruction in astronomy. These vary from thinking that light can travel around corners to the notion that gravity can be turned off on the space shuttle. The activities in *Skyways* are also designed to disprove many of these commonly-held misconceptions.

While there are other books that are aimed at elementary and secondary school teachers, they do not cover the learning outcomes of the new curriculum, and many of them have contain incorrect information. These books are also expensive. The Astronomical Society of the Pacific publication *The Universe at Your Fingertips* sells for \$US 50 and that does not count shipping. *Skyways* will be priced at \$CDN 20, including shipping. The \$20 amount is a psychological barrier for many teachers. As many of them have to purchase resources on limited budgets, any item above that amount does not tend to be obtained. In addition, many teachers are aware of the educational role of the RASC and a society publication, recommended by members, will convince many teachers that it is a worthwhile investment. It should be noted that the society does not expect to make a profit on this publication. The goal is to break even, and consider the production of the book as a major national initiative to fulfill the society's mandate to "advance astronomy and allied sciences".

The book is currently being "test driven" by a group of teachers in Ontario. Feedback from this trial will be incorporated over the summer into the final release, of what will hopefully be the first of many editions.

Nova East 2003 was the next topic up for discussion. Gary Weber and Mary Lou gave people an idea of what was going to be happening this year. The dates are August 1st, 2nd, and 3rd. This year there will be some events on Sunday morning for those who want

a last fix of astronomy before heading home. By the time you read this, the schedule of events will be up on the Nova East section of the centre's web site. There were lots of good suggestions made in last year's survey and many of them have been incorporated into this year's event.

Mary Lou has been spending this year studying marketing. (Dilbert aficionados will recall that Marketing is the department that requires a minimum of two drinks before entering.) One of the projects that she had to do was to produce a press kit for some event. (I am sure that it was a press kit, even though my notes say "medical kit".) It contained lots of neat stuff: colour pictures, background material on the centre, what a "star party" is all about, etc. You might want to register early this year, because her kit was submitted to *Saltscapes* magazine and the May issue (which contains their summer events supplement) is going to prominently feature Nova East!

After the refreshment break. It was time for "What's Up". As Dave Lane was out of town, yours truly took to the stage to do his first ever plug for astronomically interesting events that are due to occur between that meeting and the April meeting. After the usual legal disclaimers I pointed out that according to the *Observer's Handbook*, there were no events in the desired time interval which I felt were worth observing. Instead we took a quick look at each planet, which fell into one of three categories: See It!, Maybe, and Who Cares. There was one new comet that was worth trying to see, and the wrap up was a preview of the Messier marathon, which some members hoped to pull off. I was even able to add a new twist on the marathon by showing why the Messier list consisted of more than one item.

The last event of the evening was David Chapman who did a short presentation

on the Halley's Comet postage stamps that he has been collecting. He describes himself as more of a stamp accumulator than a collector, but has confined himself to stamps that are related to astronomy. Collecting stamps on a particular subject is know as topical collecting, and there are many popular topicals: birds, art, Olympics, sports, etc.

Astronomy is not considered a separate topic, so anyone interested in getting started should look for "space" as the topical area in which to find astronomy stamps. There are local sources of topical stamps (stamp dealer, stamp shows) and there are also many that can be found on the internet. He showed the catalog from Buffalo Stamps (located, oddly enough in Buffalo, New York) that specializes in space stamps. There is a large American organization, the American Topical Association (ATA), which is devoted to collecting topical stamps.

(<http://home.prcn.org/~pauld/ata>) The ATA's Astronomy Study Unit has about 40 members and it can provide a list of all of the Halley's Comet stamps that were issued.

One hundred countries issued stamps to mark the last pass of Halley's Comet. David currently has stamps from 89 of those countries and a total of about 300 stamps. There are some patterns that show up in the designs of the stamps. The image of Halley's Comet in the Bayeux Tapestry shows up on the stamps from 12 countries. Thirteen of the countries have a "generic" design that was provided by one printing company; the stamps all have the same overall layout. The only Halley's Comet stamps that David has not been collecting are those issued in souvenir sheets. These are large sheets, containing a single stamp that are not normally used for postage. The stamp on them invariably has a high value and is produced mostly to extract money from stamp collectors! ☆

April 2003 Meeting Report

Andrea Misner

Astronomy is one of the most ancient sciences there is. What sparks our fascination with the night sky? This month's main talk centered around just this very issue with, "Observastories." Past President, Mary Lou Whitehorne, introduced the evening's first speaker, Sherman Williams. His presentation of memories in astronomy was titled, "Moments From Personal Beginnings in Amateur Astronomy". For Sherman there was no real pin-point event that landed his natural interest with the science. He reflected on fond memories of smoking glass and witnessing eclipses at family events. One of Sherman's first projects in astronomy was to track the asteroid Vesta.

Next up was Clint Shannon. A late comer to Astronomy, Clint had his first taste of the cosmos with the help of the next door neighbours. With the aid of a spy scope, Clint was able to see the planets for the first time. He went on to learn more about the night sky, and all the constellations in it. Later on, Clint later became interested in astrophotography. Attending events such as star parties, and evenings at the Saint Croix Observatory, he's captured wonderful pictures of the Moon, eclipses, the Orion Nebula, and even comets.

The man who has "seen it all" in astronomy is none other than Dr. Roy Bishop. Back in the days when there was only unspoiled space and no junk in Earth's orbit, Roy recalled witnessing Sputnik in the 50's, and the last moon mission, Apollo 17, in the 70's. Roy has seen many deep solar eclipses, was editor of the Observer's Handbook, and has traveled to Mauna Kea, Hawaii, for the astronomical trip of a life time.

The main talk was wrapped up with Paul Heath's stories entitled, "The Nature of Observing". With everything from spring peepers, sand pipers on beach shores, battling mosquitoes, and the famous "bat attack" at Saint Croix, Paul has had some interesting encounters with the local wild life. We can't forget to mention the territory clash with the foxes on Main Street, where Paul spent some hungry nights after his lunch was snatched from him. All four speakers were kindly thanked for their shared memories by our president Steven Tancock.

Dave Lane took the floor next and presented the "What's Up", reminding us of the Lunar eclipse occurring on May 15th. The night came to an end with Darren Talbot's Handbook talk on the 110 finest NGC object's. He also introduced us to his well-designed personal web site on the 110 NGC Objects he has observed. ★

Slow Down Buster!

Walter Zukauskas

The Handbook is a never-ending source of surprises. The table titled "Planetary Heliocentric Longitudes, 2003" is a case in point.

Pluto this year – according to the table – will move around the Sun a total of just two degrees (rounded off). At that rate, Pluto should circle the Sun once in 180 years. Comparing that to the actual 247 year period, the effects of Pluto's orbital eccentricity jump right out at you. Pluto is currently close-in to the Sun, and whips around it at "high" angular speed. During 2002, when it was even closer, Pluto covered three degrees, making its projected orbital period even shorter – only 120 years! As Pluto recedes from the Sun, its projected period will slowly increase toward its true orbital period, and will – in less than a century – exceed it.

Another way of appreciating the situation is noting that Pluto's average annual movement should be $(360 \text{ degrees}) / (247 \text{ year}) = 1.46 \text{ degrees/year}$. The 2003 movement advances Pluto roughly a half degree (a full lunar diameter) ahead of its average movement. In 2002 that advancement would have been three lunar diameters!

Just delightful! ★

A Very Dark Experience

Darren Talbot

I was camping in the Liscomb Game Sanctuary Friday night (June 6th). It's 70 km south of New Glasgow and about 105 km east of Halifax on the HRM/ Guysborough county boundary. The only signs of civilization would be Sheet Harbour about 30 km to the south on the coast, and a few planes taking off from Halifax Int'l. There are no "campsites" or anything commercial inside the Sanctuary, it's just all

wood roads into lakes with areas you can set up a camper or tent. The road from New Glasgow to Liscomb is in pretty good condition with a few areas of potholes. Most of the dirt roads off the main road are in better shape than the road that goes to SCO. It was cloudy and misty when we arrived at the campsite but eventually started clearing off and by dusk it was perfectly clear. The flies were quite bad but good applications of bug spray kept them off. I think I found 3 bites on myself from the entire trip. The 6 day-old Moon was high in the southwest.

I knew this was going to be a super night. As it grew darker, loons started calling, the peepers were deafening and surrounded our campsite all night long. From time to time I would wander out into the clearing where I had almost a full view of the night sky and even with the crescent moon up, the Milky Way was very visible. I scanned the horizons, not one light dome, no light pollution AT ALL! It had been over 10 years since I've been in dark skies at my old observing spot in Cape Breton and I had completely forgotten what it is like to feel this type of euphoria under a

completely black dark sky. Liscomb even beat that. I was amazed. I only had a pair of binoculars to observe with and scanning the skies – even with the Moon up – revealed amazing amounts of stars. I couldn't wait until moonset!

Moonset was at 1:50 A.M. and the amount of stars that popped out – even with the moon 5 degrees above the horizon – was more than I had seen in a very long time. The Milky Way was a time exposed photograph, with numerous rifts and dark nebulae visible against the high contrast arm of stars our solar system resides in. The Sag/Scorpio region was unbelievable! The dark horse nebula was clear, distinct, and very easy to see. I could trace part of the “dark river” down into rho (ρ) Scorpii, the detail in the “steam” in Sag, up into the star clouds into Aquila, the dark rift. All so clear and breathtaking! I gave myself some time after the Moon had set to completely dark

adapt before doing a magnitude check. +5.5...then 6.0, then 6.2... 6.4 (very easy) and beyond. I was seeing stars fainter than +6.5 – 6.6. It must have easily doubled the amount of stars I could see in the sky. Constellations were indistinguishable there were so many stars!! I could go on and on. I was having an astronomer's daydream but yet wide awake! I wished I had my scope – I wished I had the 17.5" SCOpe – I wished I had my camera!! The true dark horizons and sky were an astrophotographer's idea of perfect conditions. Mars was well up in the southeast when twilight started to take away the stars around 3:45 A.M. “Wow” was all I keep saying to myself.

The next day I was all smiles, seeing the sky like that, it had been so long and it was well overdue. Today I'm thinking of how soon I can see that type of sky again! While driving in

and out of the area I was scoping out many good-looking roads that were off the main road into various areas of the wood harvested clearings. I saw a few prospects and without a doubt would be easy to find an ideal spot to camp or just observe and photograph from. I had always been planning in the back of my head about packing all my gear and going down near Keji or someplace where I could look up and not see any man-made light pollution. I think I've found just as good a spot if not better. If anyone else would like to see these skies maybe in the form of a mini-star party with some roughing-it camping or even a one night trip, we should make some plans and do it. I plan on going back there during a new moon period, better equipped astronomically and any company would be much welcomed. If the sky is clear you would be easily spoiled, I know I am! ★

Humble Beginnings, Departures, and a Homecoming

David W. Griffith

It is one of my fondest memories, that Christmas morning when I opened up the package containing my first-ever telescope. It was an event that was to have a profound impact on me for the rest of my life.

Like most ten-year olds, I had a fascination with space, its vastness, its mysteries, and its grandeur. My parents recognized this budding passion, and consulted the Sears catalogue for that telescope that would help vault me deeper into my explorations of the celestial realm. Yes, I did say “Sears catalogue”, and yes, that scope was a little 60mm Tasco refractor, complete with spindly alt-azimuth mount and a ridiculously high power eyepiece capable of rendering the loveliest smudges of light.

Funny though. Despite the limitations of that little tube, it was enough to keep

me interested and lay the foundation for a life-long hobby, one that I have had the privilege of sharing with numerous others as a teacher. For much of my childhood the scope worked its magic on me, revealing lunar vistas, Jovian moons, Saturn's rings, the mighty M-42 and the like. Sadly however, as is often the case with children and their interests, my priorities changed and the scope was eventually relegated to a new and different darkness – the attic. To this day I don't know what happened to that little scope; it disappeared long ago. The seed it planted however, was not to remain dormant forever.

Years later the old passion returned. I'm not even sure what precipitated it, but I just had to get back into the noble hobby. Perhaps it was something I read, something I saw on television, or perhaps just a nice long walk on one of those clear, crisp nights where the stars, siren-like, seem to call out across the distance. Whatever the reason, I was back, and with a vengeance. I purchased an 8" SCT and all the trappings, joined the RASC, and eventually started up a school planetarium and astronomy club at the school where I taught. For many

years I delighted in the joy of stargazing, but once again, other interests and circumstances crept in and resulted in another departure. The SCT was sold, the books shelved, and the hobby abandoned once again.

Just a few days ago, I accidentally came across an old observing journal that I had kept, and a few old issues of Nova Notes, circa late 80's. I thumbed through my old journal, those pages filled with the joy and awe all we stargazers share. They spoke to me, voices from my own past, and they were very persuasive. Why on earth did I give it up? Temporary insanity perhaps? Time to right this wrong.

A few days ago, I visited the Halifax Centre's web site, rejoined the RASC, and once again look forward to those monthly meetings and the friendly and fascinating people who share this passion for the skies.

Despite its faults, I owe that little Tasco of yesteryear an awful lot. And mom and dad? Thanks once again! It's nice to come home again. ★

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:*

Fri. June. 27th (*Rain date, Sat. June 28th*) **July/Aug. — See you at Nova East!**

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

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



There are no meetings for the Summer months of July and August

Nova Notes accepting commercial ads!

After some serious inquiries the Centre executive has approved a proposal to allow commercial advertising in Nova Notes. Three ad sizes are being offered, a 1/6th page (2.5" x 5"), a 1/3rd page (5" X 5") or a 1/2 page (7.5" X 5"). Prices per ad are \$25, \$35, or \$45 per insertion/per issue. Ads will run on a space available policy and inclusion is at the discretion of the editor. Ads should be of an astronomical interest, or at least deemed of strong interest to most of our members. Please contact the editor (*See page 2*) regarding suitable artwork files, to submit artwork or with any questions.

A sad farewell.

It is with a heavy heart that I write this note, a long-time friend of mine, who I've known since I started observing at SCO, has moved away. We shared many great nights under the dark St. Croix skies, and he always amazed me with his ability to show me things I hadn't seen before. He was an avid planetary observer, but was never afraid to tackle the faint stuff, sometimes going far beyond what his small stature might lead you to expect. Mak Newt was truly one-of-a-kind, and he will be missed. Good luck under your new dark skies!

- Michael G. :)

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

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

