Nova Notes

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

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In this issue:

Front page photo: Sherman Williams
Comet McNaught Kodak P-850
Jan 11, 2007 @ 5.36 p.m. AST
Lower Sackville

From the editor *Quinn Smith*

Welcome to the first edition of Nova Notes for 2007.

As the new editor I would like to thank the previous editor Michael Gatto for the fantastic job he has done for the centre over the last 7 years, and personally thank him for all his help in making my transition into this job so easy.

As you will have noticed the format of the Nova Notes has already changed, and will continue to evolve over the next editions. This is not as much due to the fantastic overview and foresight I have for my new role and responsibility, as for the fact that in terms of being a newsletter editor, I don't have the slightest clue what I am doing.

What I do know, however, is that in order for Nova Notes to be more than a simple conveyor of centre business, it will rely on ideas, news, articles and feedback from the membership. In that respect I thank all contributors to this, and previous, issues and look forward to a year of interesting and informative editions.

As a small piece of business Nova Notes has a new Email address: ***novanoteseditor@rasc.ca***

Meeting Announcements

Meetings begin at 8:00 p.m.

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.

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.

Executive meetings begin at 7:00 p.m., and members are welcome to attend.

Next Meeting Dates:

February 16, 2007 - Members night
Our regular meeting with several short information talks by the membership.

March 16, 2007 - Speakers night
Our regular meeting with a guest speaker. This month Dave Lane talking about remote observatories.

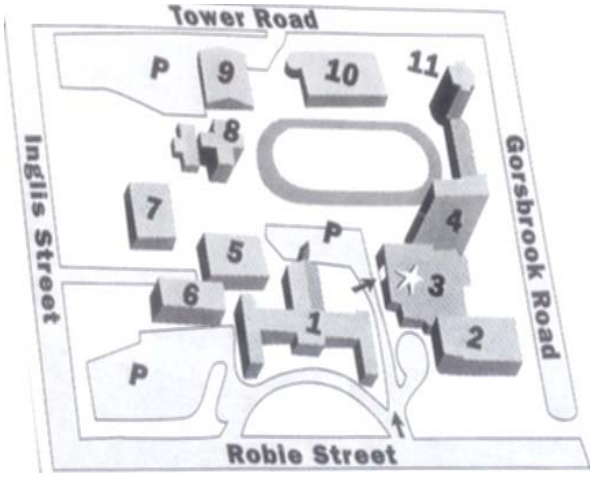
April 20, 2007 - Members night
Our regular meeting with several short information talks by the membership.

[The content of all meetings is subject to change]

Meeting Location:

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

P Parking



Halifax RASC Executive, 2007:

Honorary President	Dr. Roy Bishop	902 542 3992
President	Paul Evans	902 827 5977
1st vice-president	Gary Weber	
2nd vice-president	Alex LeCreux	404-5480
Secretary	Wes Howie	835-3966
Treasurer	Pat Kelly	798-3329
Nova Notes Editor	Quinn Smith	852 3894
National Rep.	Pat Kelly	798-3329
Librarian	Gilles Arsenault	864 6654
Observing Chairman	Tony McGrath	463-4018
Councilor	Paul Heath	457 0610
Councilor	Jim Dorey	464-8781
Councilor	— ? —	

Monthly Meeting Report
December 15, 2006
Alex LeCreux

(Editor's note: Thanks to Alex LeCreux for taking the minutes for this meeting)

1st VP Paul Evans, filling in for President Craig Levine, opened the meeting with the customary welcome and benefits of membership pitch. Executive introductions were made and the availability of items for purchase through the 2nd VP, Marc Bourque was noted. Paul announced the availability of the latest issue of Nova Notes for pick up at the meeting. He went on to talk about the Burke-Gaffney Award (http://halifax.rasc.ca/documents/bgaward.txt) and Murray Cunningham Astrophotography Award (http://halifax.rasc.ca/documents/MCAward.pdf). It was noted what the requirements are for these awards and members were asked for submissions. The Halifax RASC web site has all the particulars at the links provided.

Paul introduced Darryl Dewolfe of the Nova East committee for an update. Darryl informed everyone of the dates for Nova East 2007 which is to be held August 17th, 18th and 19th. Program development is already underway for this year's event with a return of the successful family camping site. He also informed the group that this would be the last year for himself and other NE committee members and solicited the group to think about taking up the challenge in the future. Any questions can be directed to him at qscope@hotmail.com.

Next on the agenda was the Annual General Meeting. The Presidents report for 2006 was read by 1st VP Paul Evans for President Craig Levine. This will be published in a future edition of Nova Notes. Paul thanked and congratulated Craig for his service to the Center.

Treasurer Pat Kelly was introduced and delivered an entertaining presentation of the year-end financial situation. The report generated much debate concerning accounting of NE profits assigned to MAG and NCAC. A motion to defer acceptance of the 2006 Auditor's report, till next year, was put forth by Mary Lou Whitehorne, seconded by Paul Heath and voted upon and passed by the group. (The auditor was unable to attend the meeting.)

Paul thanked outgoing Executive members and introduced the new slate for 2007. Paul Heath suggested it would be a good idea to have a youth member in the open position of Councilor, which would provide valuable input from the younger age group.

- A motion to appoint Dave Chapman as Auditor was put forth by Dave Lane. It was seconded by Larry Bogan, voted on and passed by the membership.

- A motion to adjourn the AGM was put forth by Mary Lou Whitehorne and seconded by Steve Tancock. It was voted on and passed by the membership.

Following the AGM, Daniel Majaess delivered the first talk of the evening, *Cataclysmic Footprints, an Eerie Reminder of the Inevitable!* Daniel discussed the apparent 26 million year cycle of cataclysmic events that occur on Earth and how they relate to past extinction events. He also talked about his current research on Planetary Nebulae and Cepheid variables in Open Clusters. This is being carried out in collaboration with his research partners, Professor David Turner of St. Mary's University and Observatory Director Dave Lane of Abbey Ridge Observatory. The talk was well received and prompted many questions from the group.

The next presentation was *Construction of a Personal Observatory Building* by Larry Bogan. Larry discussed the planning and construction of his new roll off design observatory. He discussed many of the considerations that dictated the final design and construction method including cost, size, comfort, materials etc…There were several innovations and on-site engineering and problem solving skills were employed. Plans for future development and additions to the structure were discussed.

The main meeting was brought to a close with refreshments, snacks and socializing by the membership.

Comments on the financial report – from the Nova Notes editor

For those that missed Pat's financial report at the December meeting, I must say that his introduction of anti matter handbooks, (to balance inventory), and the use of overlapping pie charts (thus producing a total accounting eclipse) probably pushed the limits of bistro mathematics beyond the edge of the known universe.

I never knew how much fun a financial report could be. Nice one Pat!

Read all the exciting details on the next pages

2005/2006 Treasurer's Report
(as of December 14, 2006)
Pat Kelly

2005/2006 has been a reasonably good financial year for the Halifax Centre. At our September 30th year-end, we had a profit of $239.78. Unlike last year, this year's Nova East made a slight profit. We would have had a larger profit, but there had been an unknown error in the accounting system with respect to inventory that was only discovered this year, resulting in a one-time write off of past unsold calendars, and other merchandise. This will be covered in more detail below.

Counting the observatory, we are now worth (at least on paper) just over $50,000 with no significant liabilities.

I would like to thank Johnny McPherson, our auditor for the 2004/2005 books. As usual he has raised some good points that could be used to improve the way that the books and year end report are done. I am hoping to incorporate many of his suggestions into the books over the coming year.

COMPARATIVE INCOME STATEMENT	Oct 05 - Sep 06	Oct 04 Sep 05	Increase over 04/05
REVENUE (* = net)			
Membership Fees	$3,122.91	$3,145.16	-$22.25
Life Members Grant	$484.00	$500.00	-$16.00
Donations and Obs.	$435.00	$734.91	-$299.91
Interest	$71.03	$46.31	$24.72
Handbook Sales *	$639.16	$153.70	$485.46
Sales of Merchandise *	$0.00	$437.92	-$437.92
Nova East *	$314.22	$0.00	$314.22
Miscellaneous	$0.00	$0.00	$0.00
Total Income	$5,066.32	$5,018.00	$48.32
EXPENSES			
Meetings & Newsletter	$1,547.94	$1,406.15	$141.79
Sales of Merchandise *	$858.83	$0.00	$858.83
Nova East *	$0.00	$1,546.37	-$1,546.37
Equipment & Supplies	$6.89	$0.00	$6.89
Office Administration	$173.43	$154.57	$18.86
Legal Expenses	$25.00	$25.00	$0.00
Educational Activities	$137.94	$113.85	$24.09
Insurance	$1,326.00	$1,316.00	$10.00
Awards & Donations	$653.74	$191.75	$461.99
Observatory - Operating	$96.77	$759.63	-$662.86
Miscellaneous Expenses	$0.00	$0.50	-$0.50
Total Expenses	$4,826.54	$5,513.82	-$687.28
NET INCOME	$239.78	-$495.82	$735.60

COMPARATIVE BALANCE SHEET	Oct 05 - Sep 06	Oct 04 - Sep 05	Increase over 04/05
ASSETS			
Cash	$7,990.13	$9,049.42	-$1,059.29
Nova East Profits (MAG/NCAC)	$1,264.60	$1,055.12	$209.48
Un-deposited Funds	$0.00	$0.00	$0.00
Accounts Receivable	$0.00	$0.00	$0.00
Handbook Inventory	$0.00	-$116.91	$116.91
Merchandise Inventory	$483.75	$2,241.92	-$1,758.17
Investments	$2,000.00	$2,000.00	$0.00
Accrued Interest	$835.36	$768.96	$66.40
Estimated Library	$3,633.29	$3,556.42	$76.87
Observatory Equip.	$12,131.35	$9,542.77	$2,588.58
Estimated Misc.	$452.54	$452.54	$0.00
Total Assets	$28,791.02	$28,550.24	$240.78
LIABILITIES			
Accounts Payable	$0.00	$0.00	$0.00
Fees owed to National Office	$0.00	$0.00	$0.00
Other Liabilities	$0.00	$0.00	$0.00
Total Liabilities	$0.00	$0.00	$0.00
EQUITY	$28,791.02	$28,550.24	$240.78
Observatory Investment	$21,869.64	$21,869.64	$0.00

Details of the 2005/2006 income statement

Revenue:

Membership Fees $3,122.91: Membership fees are almost the same as last year. At September 30, 2005 the Centre had 166 members (140 regular, 4 youth and 22 life. Regular membership is $55 of which $22 is retained by Centre. The Society retains $33 to provide nationally delivered services to members. For youth members, the numbers are $34.25, $13.70, and $20.55 respectively.

Life Members Grant $484.00: This amount represents the life member grant we receive from National Office each year.

Donations and Observatory Donations $435.00: This may seem lower than last year, but last year included a one-time donation of over $500 from The Atlantic Space Sciences Foundation. Donations as a result of the Society's new sustaining membership programme have almost doubled since last year.

Interest $71.03: This was earned mainly in our money market mutual fund,

Handbook Sales (net) $639.16: Handbook sales are up from last year.

Sales of Merchandise (net) $0.00: We did actually sell merchandise last year but the income was cancelled by the previously mentioned accounting problem.

Nova East (net) $314.22: As mentioned in the introduction, Nova East returned to showing a profit this year.

Expenses:

Meetings and Newsletter $1,547.94: This expense is comparable to last year. $360.24 was spent on our meeting treats. Nova Notes cost us $403.40 to print and $784.30 to send to our members.

Sa**les of Merchandise (net) $858.83:** This is the difference between the sales for this year, less the write-off of previous merchandise. This will show up again on the balance sheet, where a full explanation will be provided.

Office Administration $173.43: This includes the cost of postage for routine correspondence, office supplies, and the rental of our post office box.

Legal Expenses $25.00: This is the annual fee paid to the Provincial Government to maintain our registration under the "Society's Act".

Educational Activities $137.94: This was for the rental of the advertising sign for our summer sidewalk astronomy day events.

Insurance $1,326.00: This is entirely the insurance for the observatory. At last, there has been only a minimal change from the last year.

Awards and Donations $653.74: The bulk of this was due to the Centre returning its share of the last two membership fee increases back to the national society. This was for done just for a one-year period. Also included in this amount is $117.14 for the Centre's membership in the International Dark Sky Association.

Observatory - Operating $96.77: This figure includes the $1.15 annual land lease with the balance being for operating expenses such as batteries, cutting keys, propane for the furnace, and other operating expenses for the observatory buildings and surrounding property. There were no major expenses this year. Capital spending that has been expensed on the observatory has totaled $21,869.64 since the project was started in the spring of 1996.

Details of the 2005/2006 Balance Sheet

Cash $7,990.13: This represents the cash balance at the TD Bank in Halifax on September 30, 2006 (but not including the profits from Nova East attributed to the Minas Astronomy Group and the Nova Central Astronomy Club, see below).

Cash - Nova East Profits $1,264.60: This represents two-thirds of the total profits from the Nova East star parties (year 2000 to present) which are attributed to the Minas Astronomy Group and the Nova Central Astronomy Club. This profit is currently held in our regular TD bank account but recorded separately within our accounting system.

Handbook Inventory $0: You may recall that last year we had a negative inventory for the handbooks. That was one of the things that prompted me to look at this more carefully this year

Merchandise Inventory $483.75: This consists of our inventory of BOGS, Skyways, T-Shirts, Calendars, lapel pins, RASC stickers, RASC embroidered crests, mugs, and key chains. This number is much smaller than in previous years, as it has normally been much higher. Usually by the time that the year end figures are being prepared we still have some items left over from the previous year, but we have also already paid to purchase handbooks and calendars for the following year. This year, both of these publications had

new editors resulting in releases that were later than usual. That meant that at the year end we should have had no calendars, a few unsold handbooks, plus the BOGs, etc. and a very small number. Since that was not the case there must have been a systematic error in the past method of doing the end-of-year adjustment to calculate the cost of goods sold and that it had been applied in the "wrong direction" and had been added rather than subtracted. Thus, a one-time write-off was needed. I am very confident that this number accurately reflects our inventory and in the future it should be much easier to confirm this number at the end of each year.

Investments $2000.00: The Halifax Centre holds a money market account with the TD Bank.

Accrued Interest $835.36: Accrued interest on our money market account as reported on four quarterly statements from the TD Bank.

Estimated Library $3,633.29: This value represents an estimate of all the money invested in the library. $76.87 was spent on books for the library this year.

Observatory Equipment $12,131.35: The value of our observatory equipment is up from last year due to the acquisition of the giant binoculars using funds that were donated in memory of Bill Thurlow.

Estimated Miscellaneous $452.54: These other holdings of the Centre were unchanged this year. Historically, $250 has included a slide projector, a mirror grinding apparatus, and some slides and material available for use at the planetarium.

Observatory Investment to Date $21,869.64: This amount represents the total amount of money that the Centre has spent on the St. Croix Observatory for capital expenses (i.e. concrete slabs, landscaping,, the main observatory buildings) that are deem to be fixed and that could not be moved if we were to leave the St. Croix site.

Chairman's Report for 2005 / 2006

Craig Levine

General

Membership in the centre currently stands at approximately 160. (Please renew your membership if you have not already done so).

The Halifax Centre has almost completed it's coup d'état of the National council: Currently, Dave Lane is 1st VP, Mary Lou Whitehorne is 2nd VP, and Pat Kelly is the editor of the Handbook. It may make some sense to move the National Office to Halifax...

Congratulations to all three of them for their dedication to the health and life of the RASC.

Nova East

The organizers of Nova East ran another flawless and exceptionally well-run event this year. Attendance has continued to be very strong, and we were blessed with clear skies. The organizers put together a stellar program of featured speakers, workshops and door prizes. Observing highlights included a bright fireball, a class "C" solar flare, and many shared views through a few dozen telescopes. The Centre's recently acquired Thurlow binoculars were a "hit" with the many attendees who had the opportunity to observe through them. On behalf of the Halifax Centre, the executive committee offers a sincere "thank you" for the time and effort that it took to organize and run the event.

Public Observing

Ron Mills led the charge in organizing public observing events in cooperation with the public libraries in the Halifax region. Well attended events took place the Keshen Goodman Public Library in Clayton Park and at the library in Hubbards. Ron is currently leading the charge to hold quarterly events at regional libraries. There's a strong contingent of Centre members who faithfully show up to volunteer their time and telescopes to share the views with an appreciative general public.

St. Croix

The observatory at our dark-sky site at St. Croix continues to get much use from our solid core of dedicated observers. The Thurlow binoculars see much use there, along with our 17.5" reflector. The three buildings are in good repair, and our committee in charge of maintaining the facility is proposing some upgrades to the electrical system and other improvements to keep up with the demands that increased usage requires.

Other

We gratefully received a donation from long-time Centre member Barry Wheaton of Bedford, of an 8" Meade Schmidt-Cassegrain telescope, a collection of premium eyepieces and accessories, and an addition of over 50 quality books for the Centre's library.

Monthly Meeting Report
January 19th 2007
Pat Kelly

(Editors note: Thanks to Pat Kelly for taking the meeting notes)

The January meeting was best described by Paul Evan's when he opened the meeting: "It was a dark and stormy night.". Despite the weather there was a good turnout to hear the main speaker, Dr. Andrew MacRae, who is with the Department of Geology at Saint Mary's University. The title of his talk was "Robot Geologists from Mars".

Dr MacRae began his talk by outlining the four fundamental principles used in geology.

The Principle of Superposition: This is analogous to the piles of paper on a desk. The oldest layers are at the bottom.

The Principle of Original Horizontality: Sedimentary layers are laid down in horizontal layers. If they are no longer level, it is because some force has acted on them.

The Principle of Uniformitarianism: This was attributed to the noted geologist James Hutton. It states that the laws of physics and geophysical processes are the same over time.

The Principle of Faunal Succession: This was developed by William Smith and states that the distribution of fossil forms succeed each other in a specific and predictable order that can be identified over wide distances.

While geology has been studied for a long time, it was not until the 1950s that the time scale of the various geological events was well calibrated. Even then, it was not until the 1970s that plate tectonics was finally understood. It was then realised that the Earth had to be studied at the largest scales, and a full understanding required integrated observations of both the large and small scale.

One thing that has not changed over time are the two basic tools that geologists still carry into the field. A hammer, which is used to expose fresh, unweathered surfaces, and a hand lens to be able to see the fine detail in the rock. Both are needed to understand the sample being examined.

Dr MacRae briefly described the geology involved in the Apollo missions and moved on to the geology of Mars.

Orbiting satellites have given us coverage of Mars equivalent to aerial photography here on Earth. Despite this, small-scale information was needed. The original Viking landers, while marvels of engineering had one big drawback, they were fixed in one location.

The obvious next step was a roving lander. The Spirit and Opportunity rovers were expected to last for only 90 sols (a sol is length of the Martian day, and is slightly longer than an Earth day). Both are still going strong at over 1000 sols. Each rover is equipped with a RAT (rapid abrasion tool) used to reach a fresh surface (hammer) and a microscopic imager (hand lens). Since samples cannot returned to Earth, the rovers also have a Mossbauer spectrometer to determine the chemical composition of the rocks.

One of the rovers first discoveries was that Mars has layered rocks. These have been found to contain balls of hematite (nicknamed blueberries) which are left behind as the softer rock around them erodes away. This phenomenon is also seen on Earth, one notable example being the Moqui marbles that are found in New Mexico.

Two other interesting structures that were found by the rovers were voids in some rocks left by evaporative crystals, and structures that looked like ripple marks. At Endurance Crater, there was lots of rock from lower layers that had been excavated by the impact. There was also evidence of changes in the orientation of the layers.

Mars Global Surveyor has detected the spectral signature of hematite over large areas of the Martian surface, which implies that significant portions of the planet were covered with water in the past. The orbiter has also found evidence of ancient river channels. Now that remote sensing from the orbiter and small-scale details from the rovers can be integrated it is hoped that the geology of Mars will be better understood.

Blair MacDonald followed with another installment in his series on digital astrophotography. The topic tonight: deconvolution. Blair pointed out that for those who had been to his previous talk on convolution, de-convolution was just the opposite! It was an attempt to undo the effects of seeing. It was also the process that tends to produce large black rings around stars, especially if they have nebulosity around them.

When thought of in terms of the frequencies in an image, mathematically deconvolution is relatively simple in that it uses regular division. The problems arise because many of the values that are used in the division are near zero, which tends to make the noise worse. To avoid division by zero, an iterative method is used. This technique has actually been used in signal processing for over 70 years. Blair looked at several of the methods used: the Van Cittert method, the modified Van Cittert method, the Lucy–Richardson method, and the method of maximum entropy, which is used in the popular Maxim DL software.

The evening wrapped up with Gary Weber who did a brief "What's Up" talk that focused on Comet McNaught (for those who had been lucky enough to have seen it) and Comet McNot (for those who hadn't).
We also had a change to look at a series of images of the comet that Dave Lane had taken from his observatory. The observing challenge for the coming month was to see how small a telescope people could use, and still observe the planetary nebula NGC2438 that is located in M46.

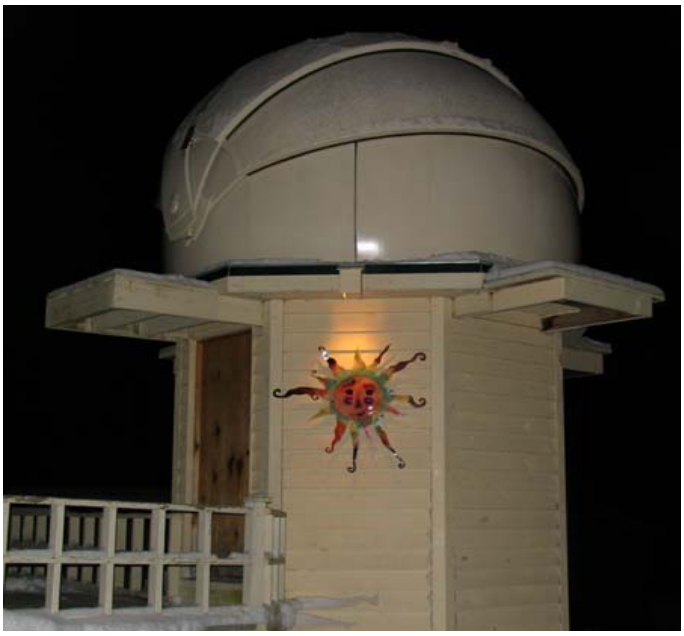
Funky Sun Festivities

Mary Lou Whitehorne

What do stars, chickens and airplanes have in common? Robert Clark, that's what! Robert is a member of MAG, the Minas Astronomy Group. MAG is an astronomy club that meets in Wolfville, and it is one of Roy Bishop's projects. There is some crossover in membership between the Halifax centre and MAG, so this reporter, as a member of both groups, thought it would be a good idea to share the doings of one group with the other.

What follows is a sort of photo-essay of the December MAG meeting. The meeting notice said, "On the invitation of Robert and Ruth Clark we shall meet at Funky Sun Observatory on December 9 for a Christmas Party! Funky Sun Observatory boasts a twelve-foot Astro Haven clamshell dome and an 18-inch (457 mm) Obsession reflector. The observatory is located at Lone Pine Farm. Refreshments, warmth, and conversation will be provided in the observatory residence. Weather permitting, photons will be available in the observatory."

The weather did not permit the free passage of celestial photons, but we enjoyed many other forms of energy, not least of which was the personal energy of Robert and Ruth! The house was filled with the warmth of friends enjoying good



The Funky Sun Observatory with its 12-ft. clamshell dome at Lone Pine Farm.

MAG members enjoy Robert and Ruth Clark's hospitality

company, lively conversation, and an abundance of provender - just the sort of thing you expect at a Christmas party.

But this was no ordinary Christmas party. This party was convened under Robert Clark's Rules of Order. And so we donned our boots and ventured out into the snow for a twenty-minute tromp under the trees. We followed Robert single file through a dark maze of snowy paths under laden trees until we suddenly came out into the clear. This was the first of three such clearings: very long and narrow clear areas, otherwise known as runways. Robert is an airplane nut and has three runways on his property. This particular one is rather special. It has on both sides, and running the length of it, two rows of young Douglas fir trees. Thus Robert declares, "I have the world's only Fir-lined runway."

It's hard to take a picture of a fir-lined runway in the dark! Look closely and you'll see four young Douglas fir trees disappearing into the distance.

"OK. How the heck do we find our way outta here?" commented someone as we blindly followed Robert through the darkness under the trees, assuming he knew where he was going.

We carried on through more snow, more trees, and more runways, eventually returning to our starting point beside the Funky Sun Observatory. Our host toured us through this unique facility, pointing out all the things that make his observatory another one-of-a-kind place.

"There's nothing more frustrating than trying to hatch chickens from eggs that haven't been fertilized!" Thus spoke out host, in yet another unique Christmas party venue: his chick hatchery. Robert is a chicken farmer by profession and runs a high-tech chick hatching business. His hatching facility was the third and final-but-fascinating tour of the evening.

There were 100,000 plus chicken embryos in "cool storage," waiting briefly for their turn to hatch in the incubators of Lone Pine Farm.

I will conclude by stating the obvious: the universe is a strange place, and there's nothing quite like an astronomy club for developing an appreciation for the universe and all that it contains and sustains. Robert Clark got his start in amateur astronomy as a student in Roy Bishop's class. We all know how persuasive Roy can be. When I joined the RASC, Roy was one of the first people I met in the group. Through him and the RASC I have met more interesting people, and been to more interesting places, than I ever dreamt possible. A chicken hatchery and a fir-lined runway for Christmas are cases in point.

Stars, chickens and airplanes go together quite well, after all!

HALIFAX CENTRE

Nova Notes The Newsletter of the Halifax Centre of the RASC

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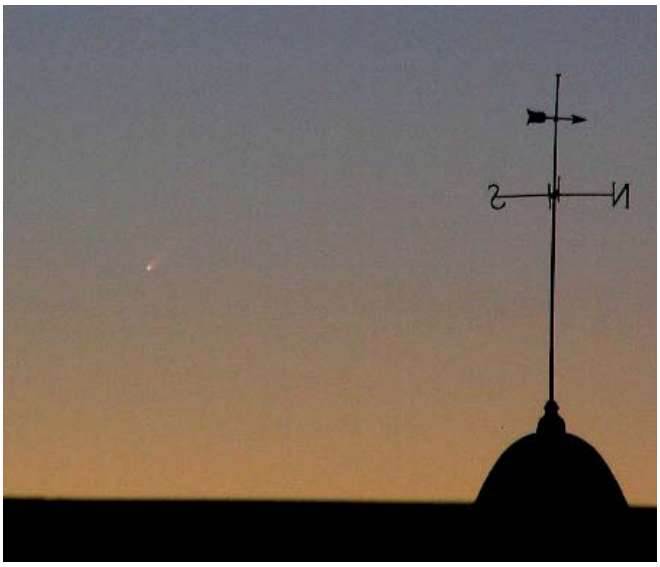
Nova Notes is published bi-monthly in February, April, June, August, October and December. The opinions expressed herein are not necessarily those of the Halifax Centre. Articles on any aspect of Astronomy will be considered for publication.

Deadline for the next edition is the 1st of the month in which the edition is published.

If you are a member who downloads the latest issue of Nova Notes from our website, then you may be interested in taking your name off of the mailing list for the printed version. If so, please E mail me at the above address, with the subject line "Remove from mailing list", and you will no longer be mailed a paper copy.

The “star” of January skies . . . . . Comet McNaught



Comet McNaught — Michael Boschat
Jan 7, 2007 @ 2115 UT — Roof of Dalhousie University
Olympus C-750 F/8 @ 1.6 seconds ISO 50 10x zoom

Comet McNaught — John Liddard
Jan 11, 2007 @ 5:36 p.m. AST — Lower Sackville

For those that have never observed it - shots of the “Werner X”

Werner X — Michael Boschat
Nov 8, 2005 @ 2043 UT — Halifax
11cm f/10 refractor @ 40x — Centrios DSC-3020 camera

Werner X — Roger Hill
Nov 8, 2005 @ 2030 UT — Milton Ontario
Telescope with video camera

Cosmic Debris

Odds & sods from the world of Astronomy and Cosmology

Dark matter mapped in 3D

(taken from an article in New Scientist)

For the first time, a 3D map of the distribution of dark matter has been produced. The map reveals how this invisible substance has changed over the lifetime of the universe.
The results seem to confirm that dark matter provides the framework that allows ordinary matter to clump together to form galaxies and even clusters of galaxies.

Although Dark Matter is invisible, its presence can be inferred by it's gravitational pull on ordinary (visible matter) It is thought to be six times as abundant as ordinary matter. Computer simulations suggest that dark matter "clumps" attract gas which condenses to form galaxies and clusters of galaxies, but this had never been confirmed by observation before.

Nick Scoville led the Cosmic Evolution Survey, which combined, for the first time, data from several sources, to produce the first 3D map of the distribution of dark matter in the universe. The key in this approach was to use gravitational lensing, where the light from distant galaxies is bent by the gravitational effect of intervening matter.

Data from the Hubble Space Telescope was combined with that from both the Subaru telescope in Hawaii and the Very Large Telescope in Paranal, Chili. More data was supplied by the XMM-Newton X-ray satellite, which helped by mapping gas within galaxies and galaxy clusters.

Although the patch of sky surveyed was small (2 degrees) the results seem to confirm the standard theories of how large structure in the universe formed and evolved over billions of years. However, several puzzling features were revealed in the 3D map. Several area showed concentrations of dark matter, but with no obvious signs of galaxies within them, while others the reverse.

Nick Scoville says it is too soon to say for sure if these discrepancies are real, since they are at the limit of the survey's resolution. The COSMOS team is collecting more data that should help resolve the matter.

The results were presented at a meeting of the American Astronomical Society in Seattle, Washington, US.

"Plutoed" Voted 2006 Word of the Year

(from the web site of the American Dialect Society

In its 17th annual words of the year vote, the American Dialect Society voted "plutoed" as the word of the year, in a runoff against "climate canary". To pluto is to demote or devalue someone or something, as happened to the former planet Pluto when the General Assembly of the International Astronomical Union decided Pluto no longer met its definition of a planet.

What has Sir Patrick Moore and Queen in common?

Probably not what you're thinking. The Queen in question is in fact the remarkable rock band formerly led by the late Freddie Mercury, and whose lead guitarist is Brian May.

Before co-founding the band in 1970, Brian May was working on his PhD on interplanetary dust at Imperial College, London. When Queen's popularity exploded he abandoned his studies, but has always retained his keen interest in astronomy. He is a regular contributor to the TV show "The Sky at Night".

Sir Patrick Moore, of course, has hosted the famous British astronomy TV show "The Sky at Night" since it started in 1957. It was here that these two, seemingly opposite men, met and became friends.

Last year Patrick Moore, Brian May, and Chris Lintott (a co presenter of the show) co-authored an astronomy book called "Bang—the complete history of the universe". At least the title is modest ……..

I haven't read the book , but with such an eclectic mix of authors, my interest has been whetted.

For more information go to www.BangUniverse.com

From the editor:

Short article for "Cosmic Debris" are welcome (encouraged I should say).

They can be book reviews, items of interest, equipment reviews, web sites, or just general rambling on Astronomy or Cosmology related items.

If articles are taken from an existing publication, please give a reference to such.

St. Croix Observatory

Observing Chair: Tony McGrath 463-4018

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 Chair.

Future dates for Members' Nights:

16 February 2007 | 16 March 2007
20 April 2007 | 18 May 2007
15 June 2007

These dates are all Fridays. If this is a meeting night, or cloudy, the alternate date will be the following Saturday.

Directions from Halifax:

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 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 Chair.

Rules for using the SCO equipment:

There are several pieces of astronomical equipment that are available for members (and guests) to use, including a 17.5" dob and a magnificent pair of tripod mounted binoculars.

If you are unfamiliar with the use of these pieces of equipment, please ask for assistance—any knowledgably member would be more than willing to help you out. Please share the equipment with other members, and treat the equipment, the facilities and the site with respect. …… Enjoy