

Nova Notes

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



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

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E mail: novanoteseditor@rasc.ca

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Front Page Photo: Mat Nightingale
Horsehead nebula, January 26th 2012
(more details on page 3)



From the editor

Quinn Smith

Welcome to 2012, and welcome to another year of Nova Notes, and yours truly as your editor. I have made a few minor changes to the layout of this year's Nova Notes, but will continue with my intention of documenting the events of the Halifax Centre. To this end, you will notice that a fair amount of this edition is taken up the events of the Annual General Meeting held last December, especially the financial reports and statements.

I would like to thank Richard Vanderberg for leading the Centre for the last year and welcome Robert Bussiers (our former Librarian) into the position of Centre President. We have many returning "old" faces on the Executive, but I would also like to welcome two new Executive members Chris Marriot (Secretary) and Graham Rose (Librarian).

It has been a full year since we changed to a primary electronic delivery for Nova Notes, and this saves the Centre approximately \$1,500 per year in expenses. That is the up side. The down side is that it would seem that a full 60% of the membership don't view or download Nova Notes. It is my intention to reach out to the members who do not currently download Nova Notes and encourage them to do so. As I have mentioned, Nova Notes is the primary way for members to know what is going on within the Centre (especially for those who cannot attend meetings) and I would like to see more members being aware of the Centre's activities.

That's it for my soap-box! Welcome all new and returning members, and I hope for a great year of observing, comradery and friendship for all the members of the Halifax Centre.

St. Croix Observatory

Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix, NS. The site has grown over the last few years to include a roll-off roof observatory with electrical outlets, use of the Centre's 437mm dobsonian telescope and 100mm Binoculars, a warm-room, and washroom facilities.

Enjoy dark pristine skies far away from city lights, and the company of like minded observers searching out those faint "fuzzies" in the night. Observing nights (Fridays close to the New Moon) are open to both members and guests.

If you are not a key holder and would like to become one, or need more information please contact the Observing Chairman, John Liddard (for contact info, see below).

Upcoming Observing Nights:

February	24th	2012
March	23rd	2012
April	27th	2012

Meetings begin at 8 p.m. at Saint Mary's University

Our usual room is AT 101 although check the web site (www.halifax.rasc.ca) for room changes.

February 17th 2012

A regular meeting. Member Blair McDonald will give a talk called "Astrophotography Part 1"

March 16th 2012

A regular meeting in which 4 members will give brief presentations.

April 20th 2012

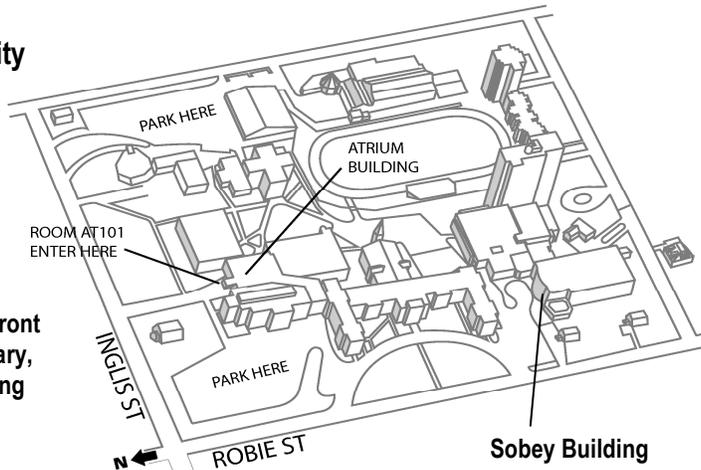
Speaker's night. Guest speaker Professor Dave Turner will talk about the origins of the constellations.

[The content and location of all meetings is subject to change]

Meeting Location: Saint Mary's University

Atrium Building Room AT 101

The Atrium is located in front of the Patrick Power Library, between the Burke Building and Science Building.



Meetings are usually held on the third Friday of the month, except for the months of July and August, when there are no meetings.

The NOVA program (an introductory course in astronomy) starts at 7:00 p.m., in room AT 305 (room subject to change).

Executive meetings begin at 7:00 p.m., in room AT 306, and all members are welcome.

Halifax RASC Executive, 2012:

Honorary President	Dr. Roy Bishop	902 542 3992	RLB@eastlink.ca
President	Robert Bussieres	902 434 4821	robertbusieres@gmail.com
1st Vice-President			
2nd Vice-President	Karl Penney	902 457 4046	karlpenney@eastlink.ca
Secretary	Chris Marriott	902 449 9347	chris@torusoft.com
Treasurer	Ian Anderson	902 678 8009	taursagroup@yahoo.ca
Nova Notes Editor	Quinn Smith	902 852 3894	quinnjem@yahoo.com
Librarian	Graham Rose		gbrosegr@netscape.net
Observing Chair	John Liddard	902 865 7607	jliddard@gmail.com
National Representative	Pat Kelly	902 472 2322	patrick.kelly@dal.ca
Councilor	Paul Heath	902 457 0610	pheath@eastlink.ca
Councilor	Sean Dzafovic	902 430 9062	sdzafovic@gmail.com

President's Report 2011

Dr Richard Vanderberg

I would say, without any reservation at all, that of the five Centres that I have been a member of, this Centre (to use a boxing analogy) is boxing above its weight class.

I am impressed with what goes on in this Centre. I just came from an Executive meeting (there is one at 7 p.m. before every regular monthly meeting). Not everyone agrees with each other, there are disagreements, but the give and take is always in a friendly manner. Unlike what goes on in the House of Commons, I have never heard a word that children should not hear. There is always good humour and levity, and this I think helps contribute to the great success of this Centre.

But this Centre is not just composed of the Executive; it is composed of all of our members. When I think back, not only over the last year, but over many years, at all that our members have contributed I am truly impressed. We only have 160 members of the Halifax Centre, but in the last years we have supplied the RASC with the past and current National Presidents. Halifax members are also the past and current editors of the RASC Observer's Handbook – for many of us the "bible" of astronomy. This Centre also hosts the yearly Nova East Star Party and lately members have produced a Centre Astrophotography calendar.

The success of this Centre has not been the result of one person, whether that person was the President or a new member attending the meeting for the first time. It has been as a result of the contributions and efforts of all the membership.

I have every indication that this membership involvement will continue, and the Halifax Centre will succeed in the future. When I look at the members standing for election, I am confident that these and other members will continue to contribute to the future success of the Centre.

So from my personal point of view, it has been a privilege to be your President. As many of you may recall I never sought out the job. I was first Vice President when our then President moved away, and I simply filled in as President for the rest of the year. After a while we couldn't find anyone to volunteer as President and so a year ago you elected me as your President. It just goes to show that the Halifax Centre is strong enough to overcome its own mistakes!

In any case, I want to thank you for the generous support you have all given me over the last year. As many of you know, my health is not good. With three bouts of pneumonia and other health issues over the last year, many of you have bent over backwards to help me. As you may have noticed our current 1st Vice President is absent due to health problems, so it should be a warning – if you value your health, don't become the 1st VP of the Halifax Centre! Maybe that explains why we do not have a candidate for that position. However it doesn't explain why we don't have a candidate for Librarian. After all, our current Librarian has been in excellent health all year! So when we get to the election part of our meeting, may I remind you that the Executive positions are open to all members, and that you don't have to accept the nominations that are put before you.

In summing up, thank you again for your support and let's continue with the progress and involvement that has defined the Halifax Centre of the Royal Astronomical Society of Canada.

Front Page Photo: Mat Nightingale

In my quest to move away from Windows, I've been trying to get my Mac to control everything when imaging. Last night was the first successful night where I had the tracking and guiding working.

As it was intended only to be a night of experimentation and no real imaging I hadn't bothered to accurately polar

align (other than to check that Polaris was roughly in the right vicinity in the polar scope), or drift align. Seeing as everything seemed to be playing nicely together I decided to take a shot at the Horsehead Nebula which is an object I've wanted to image since before I bought my first scope.

The resulting image comprises 20 x180 second shots at ISO1600 using unmodified 1000D Canon DSLR, with only a quick attempt at processing.

The logo for the Halifax Centre of the RASC. It features the word "HALIFAX" in a large, serif font, with "CENTRE" in a smaller, sans-serif font below it. A horizontal line is positioned above "HALIFAX" and another below "CENTRE".

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

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

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

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

The deadline for the next edition is March 20th 2012

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

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

2nd Vice President: Karl Penney

In October 2011 we added Google Analytics tracking code to the Halifax Centre website in order to have statistics about the visitors to the website. Since October 10, 2011 we have had a total of 1095 visits to the site, with 669 of these being new visitors and 426 being returning visitors. There were a total of 2919 page views, which includes 55 views of Nova Notes, the majority of which have occurred since Dec. 4 when the latest issue was made available.

In October 2011 the Halifax Centre purchased 35 RASC Observer's Calendars which were sold to centre members and the public with the help of David Tindall. I'm sure we can do many more next year. We were invited by the Discovery Centre Shop to offer RASC Observer's Calendars and Handbooks for sale on a consignment basis. However, it was too late to get more calendars for this year, so we decided not to pursue it.

We have been unable to get our sidewalk observing program going again this fall due to uncooperative weather and unavailability of members. Hopefully we can get some sessions going in the new year. We have a tentative agreement with the skating oval to put on some observing sessions during the last week of January and/or February 2012.

Secretary: Chris Young

Our regulations require that I inform the membership of the number of members in our Centre. At this time we have approximately 148 members of which 123 are Regular members, 3 are Youth and 22 are Life members. This is down somewhat from the 2010 count of approximately 152. The "approximately" comes from having new and renewed memberships occurring on an ongoing basis throughout the year and a number of members procrastinate for a while before renewing. I urge those members whose membership is expiring to renew, to both enjoy the benefits and to provide resources to our Centre.

I thank the Executive members for their assistance during my time as Secretary and hope the new Secretary enjoys the position as much as I have.

Nova Notes Editor: Quinn Smith

During 2011, Nova Notes continued in its primary role of documenting the activities of the Halifax Centre in a five edition format. The editorial format remained similar to the previous year with the same editor, Quinn Smith.

In 2011 the newsletter was primarily distributed electronically through the Halifax web site, and was first year in which mailed newsletters were only sent to members who had paid a subscription fee of \$12 per year. We had changed from a mailed newsletter to an electronic format during 2010, but 2011 was the first full year of electronic distribution.

Through 2011 I typically printed and mailed approximately 18 newsletters. I mailed a printed copy to out President Richard and there were also a few extra newsletters printed and mailed out if I was not sure if a subscription had been cancelled.

This is a summary of Nova Notes expenses for the last three years (may not quite agree with the treasurer's numbers as I use calendar, not fiscal year end):

Year	Cost	Income	Net Cost	Notes
2009	\$1,559.96	\$ 0.00	\$1,559.96	#1
2010	\$ 862.41	\$ 24.00	\$ 838.41	#2
2011	\$ 244.74	\$163.20	\$ 81.54	#3

(1) Full year of mailed newsletter (approx 160 per month)

(2) Newsletter went electronic for 2 editions

(3) All five editions electronic

Comments:

Year: Calendar year and not fiscal year.

Cost: Includes printing, mailing and incidentals.

Income: From newsletter subscriptions.

Net Cost: The \$12 subscription does not quite cover the printing and distribution costs

We are saving approximately \$ 1,460 per year by eliminating the free mailed newsletter to all members, and I have received only one complaint. I therefore recommend that we continue our present system of subscription at the current rate for 2012.

I would like to see if it is possible to count the number of "hits" onto the "Current edition" link on the website in order to monitor the number of members who actually view or download the newsletter (see 2nd VP report). I would also like to find a way of sending an email to all members, in order to notify them of a new newsletter edition being available. Although we notify members on the "Hfx list" when a new edition is available, I was reminded that not all members subscribe to the "list". I will request help on both these matter from the new 2nd VP

Librarian: Robert Bussieres

During the course of this year our Library suffered the substantial loss of 39 books due to some unfortunate events that happen during the course of our relocation. It was established that the majority of the lost happened during the "Great Flood" that occurred in and around our designated temporary storage location at that time. It was also acknowledged that some items must also have been misplaced during the SMU renovation and the numerous moves we had to endure at that time. There is however one positive outlook on this loss; we had duplicated copies for approximately 40% of our loss.

In spite of this loss, our Library gained an unusually large number of items this year, and a good proportion of the acquisitions were through member donations.

This year we gained:

6 DVD/Set, 5 were through donation;

19 books, 16 were donation; and

6 VHS were donated.

Observing Chair: John Liddard

The St. Croix Observatory saw reasonable use in 2011. Usage likely would have been higher but was hampered by poor weather as we had a very wet spring and summer. There are 12 documented visits in the SCO log book with September's observing night being the busiest. More than 13 people were present at SCO on Friday September 2nd. Sky Quality Meter readings delivered 21.5. Skies fogged over near midnight but to quote the logging author "A good time was had by all."

Regarding SQM readings, as of January, 2012 we will be leaving a Sky Quality Meter in the warm room at SCO and ask anyone visiting to please make a measurement and record it in the log book. Instructions on the proper operation of the meter will be included with the meter. I'd like to encourage all visitors to make an entry in the log book as it's our only record of how frequently SCO gets used.

The 444mm mirror in the Centre's Dobsonian telescope has been cleaned, providing a noticeable improvement in image brightness. Thank you to Blair MacDonald for his assistance in the cleaning and collimation of the telescope.

There are moderate improvements for SCO planned for the near future. These include simple upgrades to the 444mm dob telescope, (e.g. improved finder, focuser, rebalancing, laser collimator), improvements to the heating system and the addition of bunks for the warm room. As always, we continue to look for suggestions that will improve everyone's experience at the St. Croix Observatory so please, provide us with you ideas whenever possible.

Outreach: Quinn Smith

I would like to take the opportunity to thank all the members who have participated in the numerous Outreach activities that the Halifax Centre has put on, and in particular to the many members who have organised these events.

Excluding Planetarium shows, there have been over 60 outreach events throughout the year including Library talks, Sidewalk observing, School talks, Scout and Guide talks, Discovery Centre talks, and events at Provincial Parks. Based on reported events we have reached over 2,800 members of the public, and enhanced their enjoyment and awareness of the night sky.

As for the Planetarium, we have had several members give presentations throughout the year, and according to Stephen Payne there have been over 3,600 visitors to the Planetarium this year (up 450 from last year).

We have also continued our involvement with Keji (Nova Scotia's first Dark Sky Preserve), and this included a very successful Dark Sky weekend in August. The Dark Sky weekend event will be repeated this year on the weekend before Nova East.

In concluding I would like to thank:

Paul Heath	Chris Young	Blair MacDonald
Karl Penney	Mark Dryden	Dave Chapman
Chris Turner	Jerry Deveau	Robert Bussieres
Wes Howie	Robin Clayton	Wayne Mansfield
John McPhee	Andrea Misner	Tony Schellinck
Thomas Raddall	Stephen Payne	Sherman Williams

And everyone else I have forgotten (my apologies).
Wonderful job – Thank you all!

Nova East 2012 (<http://halifax.rasc.ca/ne/>)

Plans are well underway for the 2012 Nova East. As usual it will be held at Smily's Provincial Park on the weekend of August 17th - 19th. We have a great lineup of speakers and events. This year our guest speaker will be David Levey whose presentation is titled "A Night-watchman's Journey: David's life as a searcher of comets". The closing speaker will be Kathryn Gray.

Treasurer's Report 2011

Ian Anderson (Treasurer)

Determining the Centre's financial standing is a surprisingly elusive endeavour. As hard as I try to keep an eye on changes of value to our centre, important data escapes my notice, and I file statements describing our situation as different from reality. Add to this the frustration that anyone with a good knowledge of the Centre's activities could have brought such discrepancies to my attention so they could be corrected. Instead, I must play sleuth to find long-standing assumptions about our assets were totally off the mark. In 2011, I inventoried our "Observatory Assets" which had approached historic highs of nearly \$14,000. Here, accounting

adjustments had never been made for items sold, auctioned-away, given-away, lost, stolen, pilfered or otherwise fallen through the cracks over the years. This exercise brought us one step closer to truth and a new reality:

A compounding of decreased revenues, our increased ambition to "outreach", our penchant to provide various assistances, combined with my desire to get our balance sheet in line with this reality, has put the Halifax Centre *in the red* for the year. There have been positive highlights, notably the costs of producing our newsletter plunged 87%, and we pulled off a successful Nova East this year! Nevertheless ...

A \$203.50 Deficit for 2011: A contraction in equity stands at \$203.50 for 2011. This represents \$1.78 per regular member, or 8% of the \$23.00 membership fee. Our deficit this

year is due entirely to the write-off of our observatory assets - a prior period adjustment rather than current activity. Additionally, our loss is not reflective of our cash position. I believe after a third hit in depreciation is taken in fiscal 2012, these income statements should stabilize, and I think we will see a period of moderately quiet activity where income and expenses are well matched.

Revenue declines suggest tighter cash management and expense control combined with adherence to a budget is nec-

essary. But unless membership levels and participation in the society improve in coming years, the outlook for our Centre is probably best described in shades of grey. In short, "smaller times" are ahead.

All said, I am pleased with our performance in 2011 given these external factors beyond our control. Our profit would have been similar to 2010's without the write-off of observatory items.

Details of the 2011 Income Statement

Ian Anderson

REVENUE:

Membership Fees \$2,691.04: Revenue for fiscal 2011: 115 regular & 2 youth members. An additional \$59.07 came in from 12 associate memberships. At fiscal year-end membership stood at about 151 including 126 regulars, 22 lifers and 3 youth. These levels have dropped from a recent plateau of 164.

Life Membership Settlement \$0.00: Last year's settlement was the last from this category of revenue.

Donations \$551.46: For much of this, we have to thank the friends of Keji for their generosity.

Educational Activities \$870.00: This was the Nova Course in which 15 enrolled.

Interest \$ 76.53: In March, \$7,000 was put into a 15 month GIC to earn 1.65% pa return. Tighter cash management as suggested in the 2009 auditor's statement puts cash out of reach of short-term spending.

Sales of Merchandise (Gross) \$1,283.83: Mainly calendar sales and \$150 in Starfinder sales. We sold a number of 2012 SCO calendars at Nova East. Also, solar filter material sold for \$77.83 at NE '11.

Nova East (net) \$651.24: We actually pulled it off despite Irene! Attendance: 47 registrants. T-shirts & non-refunded camping fees made us profitable in this venture. I thought the cost of the rented tent was scandalous! The figure includes NE 2010 T-Shirt sales last fall of \$120.

Printed Nova Notes Subscriptions Earned \$134.99: As

five newsletters were produced, revenues which came in for printed editions offset from unearned revenue status in liabilities.

Miscellaneous \$ 11.20: Much of this was US \$ exchange adjustments.

EXPENSES:

Meetings (Treats) \$240.82: Our ten meetings run about \$24 each.

Meetings (Speakers) \$ 0.00: Our 2011 speakers were all in-house productions costing us nothing.

Newsletter \$206.54: Our first internet based Nova Notes has been a great success in reducing costs in this category. Many thanks to Quinn Smith for implementing this improvement and cost reduction. This is the highlight of 2011!

Asset Depreciation and Write-offs \$1,021.37: This year's expense of \$1,021 is a write-off of observatory assets - mostly donated telescopes and unwanted equipment. We raised cash when they were auctioned off in past Nova Easts. They should have been removed from inventory at historic costs at the time, but weren't - giving false impressions of the profitability of Nova East as a venture.

Cost of Goods Sold \$667.58: Cost for 50 2011 RASC Calendars sold, and 20 SCO Calendars for 2012.

Equipment and Supplies \$7.46: Expensed for 2011 was a binder.

Office Administration \$679.23: This category was higher in 2011 because in addition to normal costs, we had a full year's expense of about \$372 for computer internet services.

GA & NO Meetings in TO \$195.48: Probably this expense could be included in Administration.

Educational Activities (Outreach) \$1,384.10: Much of 2011's outreach expenses were Nova Course expenses, (\$1,098.68) and money was spent to reimbursements mileage costs for some members.

Legal Expenses \$28.03: Annual fee paid to NS to maintain our registration under the Society's Act.

Insurance \$1,138.00: Insurance for observatory up 2.4%. Costs & coverage will be reviewed in 2012.

Awards and Donations \$594.62: The Gray's trip to the Canary Islands was partially sponsored by our Centre to the amount of \$500. Also included: a handful of prizes awarded at the June Gazer meeting.

Observatory - Operating \$180.85: \$100 was again given to SCO custodian Mr. James Carmichael, \$28.21 in property taxes and \$1.15 land lease paid in June. Our ten year lease was renewed this summer continuing the \$1 lease annual tradition. Propane makes up the balance.

Miscellaneous Expenses \$129.71: The largest miscellaneous expense was the annual IDA membership fee of \$104.17. This also includes National Office processing fees and US \$ adjustments for revenues.

OTHER CASH DISBURSEMENTS: Library \$92.17: Purchases for the library this year.

<u>INCOME STATEMENT</u>	2011	2010	Change
REVENUES			
Membership fees	\$2,691.04	\$ 3,288.49	(\$ 597.45)
Life Members Settlement	\$ 0.00	\$ 2,133.00	(\$ 2,133.00)
Donations (incl. NE)	\$ 551.46	\$ 654.64	(\$ 103.18)
Educational Activities	\$ 870.00	\$ 1,500.00	(\$ 630.00)
Interest	\$ 76.53	\$ 7.72	\$ 68.81
Merchandise sales (gross)	\$ 1,283.83	\$ 2,533.29	(\$ 1,249.46)
Nova East (net)	\$ 651.24	\$ 38.24	\$ 613.00
Nova Notes Pr. Sub Earned	\$ 134.99	\$ 0.00	\$ 134.99
Miscellaneous	\$ 11.20	\$ 11.32	(\$ 0.12)
Total Revenues	\$ 6,270.29	\$10,166.70	(\$ 3,896.41)
EXPENSES			
Meetings (Treats)	\$ 240.82	\$ 249.40	(\$ 8.58)
“ (Speakers)	\$ 0.00	\$ 420.93	(\$ 420.93)
Nova Notes	\$ 206.54	\$ 1,530.26	(\$ 1,323.72)
Cost of Goods sold	\$ 667.58	\$ 1,231.14	(\$ 563.56)
Equipment & Supplies	\$ 7.46	\$ 30.43	(\$ 22.97)
Office Administration	\$ 679.23	\$ 269.62	\$ 409.61
GA & NO Meetings in TO	\$ 195.48	\$ 0.00	\$ 195.48
Educational Outreach	\$ 1,384.10	\$ 943.08	\$ 441.02
Legal Expenses	\$ 28.03	\$ 28.03	\$ 0.00
Insurance	\$ 1,138.00	\$ 1,113.00	\$ 25.00
Awards & Donations	\$ 594.62	\$ 10.45	\$ 584.17
Observatory - Operating	\$ 180.85	\$ 258.46	(\$ 77.61)
Depreciation & Write-offs	\$ 1,021.37	\$ 3,030.29	(\$ 2,008.92)
Miscellaneous Expenses	\$ 129.71	\$ 149.37	(\$ 19.66)
Total Expenses	\$ 6,473.79	\$ 9,264.46	(\$ 2,790.67)
Net Income (Deficit)	(\$ 203.50)	\$ 902.24	(\$ 1,105.74)

Details of the 2011 Balance Sheet

ASSETS:

Cash \$6,220.72: On September 30th 2011, our cash balance at the TD Bank was \$5,920.95. One cheque outstanding at \$44.28. Revenue from National Office for September was known to be \$344.05.

Investments \$10,097.08: The value of \$2,000 invested in interest bearing paper since 1997, grew \$13.23 in 2011 to \$3,097.08 and a \$7,000 GIC purchased in March which matures in June 2012.

Accrued Interest \$59.08: The interest earned on aforementioned investment GIC since March but not realized or reported until maturity in June 2012.

Estimated Library \$2,016.29: Our library's value, an estimate of money spent there since the beginning. Last year, Executive approved this asset be cut in half to reflect a more realistic appraisal of the collection. This year, \$92.17 worth of books was purchased, plus considerable materials donated.

Observatory Equipment \$12,596.84: Late in 2010, a small SkyWatcher reflector was donated from an unknown source.

It is a fair beginner scope, good for a quick look at something without setting up the 17.5". The installation of patio stones for \$338.24 was added in the fall. Otherwise, this asset class was reduced \$1,021.37 reflecting a write-off of telescopes and equipment which have not been with the Centre for years. Likely they were auctioned off at Nova East in mid decade - falsely enhancing NE profitability as these items had never been taken out of Observatory Assets at historic costs.

Estimated Miscellaneous \$45.25: Unchanged from 2010.

LIABILITIES:

Prepaid Nova Notes Printed Subscriptions \$101.57: Revenues for future editions of Nova Notes represent un-earned income, or a form of liability. As the newsletter is produced, this liability gets converted into earned income the following year. At year-end, this liability stood at \$101.57.

EQUITY:

Nova East Reserve Equity \$5,000.00: This reserve is capped at \$5,000.00.

Common Equity \$26,033.74: The difference between this and last year's \$26,237.24 is the "profitability" (or deficit) of our centre's activities including Nova East efforts.

<u>BALANCE SHEET</u>	2011	2010	Change
ASSETS			
Cash	\$ 6,220.72	\$13,235.68	(\$ 7,014.96)
Accounts Receivable	\$ 0.00	\$ 589.48	(\$ 589.48)
Merchandise Inventory	\$ 100.05	\$ 0.00	\$ 100.05
Investments	\$10,097.08	\$ 3,083.85	\$ 7,013.23
Accrued Interest	\$ 59.08	\$ 0.00	\$ 59.08
Library Est'd	\$ 2,016.29	\$ 1,924.12	\$ 92.17
Observatory Capital Equ.	\$12,596.84	\$13,278.97	(\$ 682.13)
Miscellaneous Est'd	\$ 45.25	\$ 45.25	\$ 0.00
Total Assets	\$31,135.31	\$32,157.35	(\$ 1,022.04)
LIABILITIES			
Accounts payable	\$ 0.00	\$ 849.06	(\$ 849.06)
Prepaid Nova Notes Pr.	\$ 101.57	\$ 71.05	\$ 30.52
Total Liabilities	\$ 101.57	\$ 920.11	(\$ 818.54)
EQUITY			
NE Working Equity	\$ 5,000.00	\$ 5,000.00	\$ 0.00
Common Equity	\$26,033.74	\$26,237.24	(\$ 203.50)
Total Equity	\$31,033.74	\$31,237.24	(\$ 203.50)
Total Liab & Equity	\$31,135.31	\$32,157.35	(\$ 1,022.04)

Auditor's Report for 2010

Dave Lane (Auditor)

December 16, 2011
David Lane
45 Abbey Road
Stillwater Lake, NS
B3Z 1R1

To the members of the RASC Halifax Centre,

I have examined the financial records for the period **October 1, 2009 to September 30, 2010**. I believe that the Balance Sheet prepared by the treasurer presented an accurate account of the financial position of the Centre as of September 30, 2010.

I have looked closely at the Income Statement, the General Ledger and the substantiating records and receipts and have not found anything of major concern.

I do recommend, however, one area of transparency and record keeping that should be improved. This involves the records pertaining to three sources of income – Nova East registrations, Nova program registrations, and cash sales of publications (mostly calendars). At the present time, it is not possible to ensure that all income from these sources is deposited. That is because there is either no record of this income other than the bank deposits or an incomplete record.

It would be easy for the Nova East and Nova program registrars to include a listing of names and amounts when cash and/or cheques are turned over to the treasurer. Likewise, when the vice-president handling the sales of goods turns over cash or cheques, the details of what is sold should be included. In addition, if the treasurer included in the records, a copy of the cheques, it would be helpful to the auditor.

Clear skies,
David Lane, Auditor

Auditor's Report for 2011

Dave Lane (Auditor)

December 16, 2011
David Lane
45 Abbey Road,
Stillwater Lake, NS,
B3Z 1R1

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I have examined the financial records for the period **October 1, 2010 to September 30, 2011**. I believe that the Balance Sheet prepared by the treasurer presented an accurate account of the financial position of the Centre as of September 30, 2011.

I have also looked closely at the Income Statement, the General Ledger and the substantiating records and receipts and have not found anything of major concern.

As both this audit and the audit of the prior year's books were completed consecutively, I'd like to repeat the same recommendation made in my earlier letter. Inclusion of this recommendation two years in a row should not be interpreted as inaction on behalf of the Centre's management as they are receiving both reports at the same time.

One area of transparency and record keeping that should be improved involves the records pertaining to three sources of income – Nova East registrations, Nova program registrations, and cash sales of publications (mostly calendars). At the present time, it is not possible to ensure that all income from these sources is deposited. That is because there is either no record of this income other than the bank deposits or an incomplete record.

It would be easy for the Nova East and Nova program registrars to include a listing of names and amounts when cash and/or cheques are turned over to the treasurer. Likewise, when the vice-president handling the sales of goods turns over cash or cheques, the details of what is sold should be included. In addition, if the treasurer included in the records, a copy of the cheques, it would be helpful to the auditor.

In the treasurer's written report, he expresses concern about a significant drop in membership from a recent plateau of 164 to 136. This large drop may have been just a matter of timing or how the membership count was determined. I looked at the membership count this week and it was 154, if you count those in the traditional 2-month "grace" period or 151 for those members who are current until December 31, 2011. That aside, the national office sends a report each month that provides a listing of members that have just expired, with their contact info – I would recommend that the Centre use this report to reach out personally to these members and remind them of their expiration or to at least learn why they chose not to renew.

And finally, I am mentioning again a recommended provided in the audit completed last year for the 2008/09 fiscal year that to my knowledge has not been acted on:

The Centre maintains a commercial insurance policy to provide property damage and liability protection for the St. Croix Observatory. The insurable limits represent roughly the cost of materials when the buildings were built in the late 1990s. In the meantime, the cost of construction materials has increased considerably and I believe it also unlikely that, in the event of a major loss, the free labour talent available when it was built could be mustered today. Therefore, I recommend that the management examine what it would cost to replace the buildings without relying substantially on volunteer labour and adjust the policy accordingly.

Clear skies,
David Lane, Auditor

January Meeting Report

Chris Marriot

Our President Robert Bussieres opened the meeting on January 20th to 38 attendees. The weather for the meeting was very poor and that probably accounted for the low attendance. Several of the Executive could not make it to the meeting due to the bad weather, and so there was no “What’s up” for the meeting.

Dr. Luigi Gallo of Saint Mary’s University gave the evening’s feature presented about the Japanese Astro-H project and general X-ray astronomy.

Dr. Gallo walked us through the techniques and current efforts to observe the universe in X-Ray light. His presentation included details on the Astro-H program, which will launch a next-generation space-based X-Ray telescope in 2014 via the Japanese Space Agency. Astro-H will be the sixth X-Ray satellite launched by Japan, and measures 14m in length and weighs in at 2.7 tonnes. Over 160 scientist from around the world are working on Astro-H, including a team here at St. Mary’s University. Canada will contribute a metrology system to Astro-H in record time of 18 months.

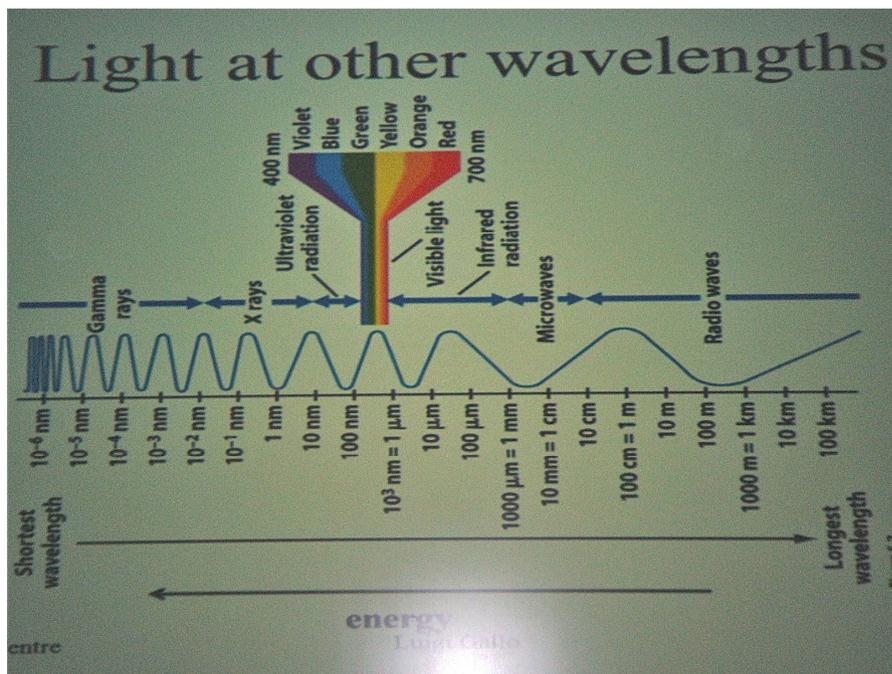
During the presentation, Dr. Gallo thoroughly captured the interest of the entire room. He explained why observing in X-Ray is one of the only ways to detect black holes, as well as how X-Rays are emitted from some of the most extreme environments yet observed in the Universe; such as ultra-powerful magnetic fields or the accretion discs of white dwarf stars, which can reach an astonishing 10 million K.

Dr. Gallo proved to be an excellent speaker. His presentation quickly educated us on the history of X-Ray observation, the difficulty in capturing and deciphering X-Ray light and the challenges of building space-based telescopes. X-Rays are completely blocked by Earth’s atmosphere and our own sun is 1 million times dimmer in X-Ray than visible light. The study of X-Ray emissions is a challenging field that continues to push the limits

of telescope design, launch systems and our understanding of the Universe.

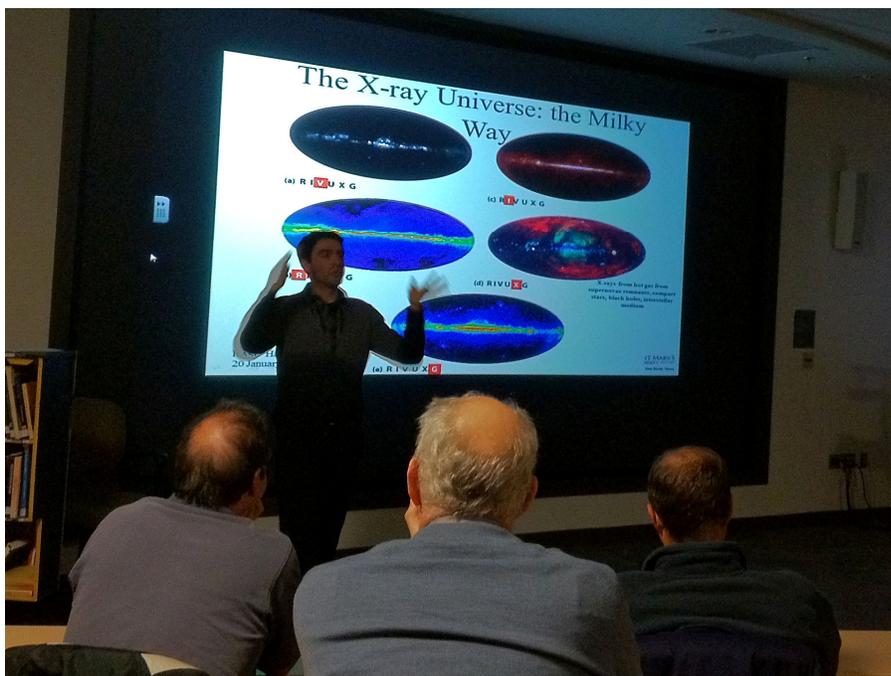
The Halifax Centre was fortunate to have Dr. Gallo available to present. His presentation was fascinating, informative and entertaining. As amateur astronomers, it’s unlikely any of us will ever operate an X-Ray telescope, but with the help of scientists

like Dr. Gallo, mere mortals can keep up with what has become a global effort to go beyond observing the Universe in visible light. We hope Dr. Gallo can spare some time from his busy schedule and bring us up to date on this exciting astronomical field in the near future.



Above: One of the many images used by Dr Gallo

Below: Dr Gallo explaining a detail of his presentation to the audience.



More Cool Facts about Asteroid 433 Eros

Dave XVII Chapman

By the time you read this, Eros will have already zoomed past Earth (see Nova Notes, 2011 December). Did anyone try to observe or photograph it?

Here are some more interesting facts about asteroid 433 Eros:

- Eros is named for the Greek God of Love, and was the first asteroid not to be named for a female deity.
- The appropriate adjective is Erotian (not the obvious one!)
- Eros is peanut-shaped, approximately 34x11x11 km; its gravity varies strongly with position, but is no more than 1/1700 g.
- Eros was visited thrice by the NEAR Shoemaker spacecraft: a flyby (1998), an orbit (2000), and a landing (2001).
- An American wingnut named Gregory Nemitz claimed ownership of Eros and unsuccessfully sued NASA for parking charges.
- During a very similar close approach 81 years ago in 1930–31, the measurement of the parallax of Eros improved the determination of the size of the Solar System.

It is still not too late to look for Eros, a most fascinating asteroid!



This incredible picture of Eros, taken on February 14, 2000, shows the view looking from one end of the asteroid across the gouge on its underside and toward the opposite end. In this mosaic, constructed from two images taken after the NEAR spacecraft was inserted into orbit, features as small as 120 feet (35 meters) across can be seen. House-sized boulders are present in several places; one lies on the edge of the giant crater separating the two ends of the asteroid. A bright patch is visible on the asteroid in the top left-hand part of this image, and shallow troughs can be seen just below this patch. The troughs run parallel to the asteroid's long dimension. (Courtesy of NASA/JHU-APL)



Roy Bishop

Moon and Venus,
January 26th 2012

My record of last evening.
(18:06 AST, 65mm, f/8, 4 s,
ISO 400, Canon XTi with 24-
105 L lens).

There is a narrow time window when skylight and moonlight provide the best aesthetic balance, and that is a difficult call because the eye has a much broader dynamic range than does the sensor chip in a DSLR. I stopped down to f/8 for a good depth of field, and increased the sensitivity to ISO 400 so as not to exceed 4 s in order to avoid trailing.

Cosmic Debris

Odds and Sods from the world of astronomy and astrophysics

Jan. 12, 2012: NASA Science News

Comets are icy and fragile. They spend most of their time orbiting through the dark outskirts of the solar system safe from destructive rays of intense sunlight. The deepest cold is their natural habitat.

Last November amateur astronomer Terry Lovejoy discovered a different kind of comet. The icy fuzzball he spotted in the sky over his backyard observatory in Australia was heading almost directly for the sun. On Dec. 16th, less than three weeks after he found it, Comet Lovejoy would swoop through the sun's atmosphere only 120,000 km above the stellar surface.

Astronomers soon realized a startling fact: Comet Lovejoy likes it hot.

"Terry found a sungrazer," says Karl Battams of the Naval Research Lab in Washington DC. "We figured its nucleus was about as wide as two football fields—the biggest such comet in nearly 40 years."

Sungrazing comets aren't a new thing. In fact, the orbiting Solar and Heliospheric Observatory (SOHO) watches one fall toward the sun and evaporate every few days. These frequent kamikaze comets, known as "Kreutz sungrazers," are thought to be splinters of a giant comet that broke apart hundreds of years ago. Typically they measure about 10 meters across, small, fragile, and easily vaporized by solar heat.

Based on its orbit, Comet Lovejoy was surely a member of the same family—except it was 200 meters wide instead of the usual 10. Astronomers were eager to see such a whopper disintegrate. Even with its extra girth, there was little doubt that it would be destroyed.

When Dec. 16th came, however, "Comet Lovejoy shocked us all," says Battams. "It survived, and even flourished." "It's fair to say we were dumbfounded," says Matthew Knight of the

Lowell Observatory and the Johns Hopkins Applied Physics Lab. "Comet Lovejoy must have been bigger than we thought, perhaps as much as 500 meters wide."

That would make it the biggest sungrazer since Comet Ikeya-Seka almost 40 years ago. With a tail that stretched halfway across the sky, Ikeya-Seki was actually visible in broad daylight after it passed through the sun's atmosphere in October 1965. In Japan, where observers spotted the over-heated comet only 1/2 degree from the sun, it was described as 10 times brighter than the Full Moon.

Comet Lovejoy wasn't that bright, but it was still amazing. Only a few days after it left the sun, the comet showed up in the morning skies of the southern hemisphere. Observers in Australia, South America, South Africa, and New Zealand likened it to a search light beaming up from the east before dawn. The tail lined up parallel to the Milky Way and, for a few days, made it seem that we lived in a double-decker galaxy.

Astronauts on the International Space Station also witnessed the comet. ISS Commander Dan Burbank, who has seen his share of wonders, even once flying directly through the Northern Lights onboard the space shuttle, declared Comet Lovejoy "the most amazing thing I have ever seen in space."

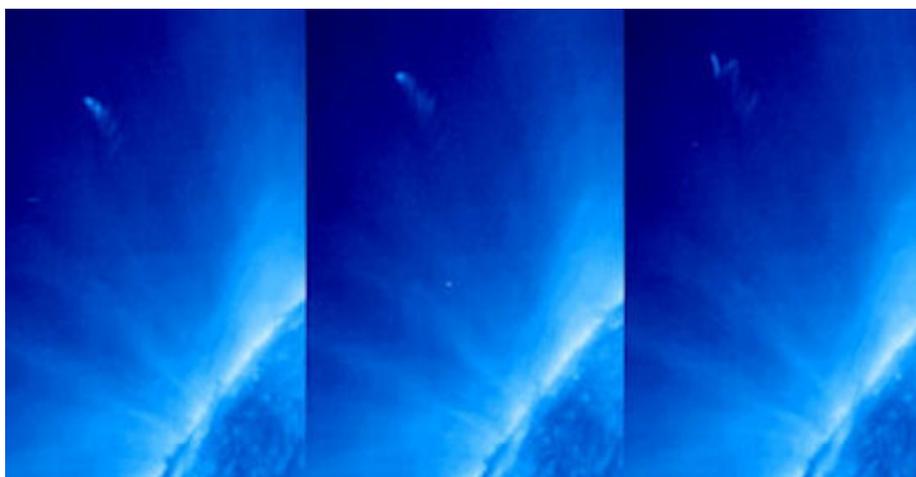
An armada of spacecraft including SOHO, the Solar Dynamics Observatory, NASA's twin STEREO probes, Japan's Hinode spacecraft, and Europe's Proba2 microsatellite recorded the historic event. "We've collected a mountain of data," says Knight. "But there are some things we're still having trouble explaining."

For instance, what made Lovejoy's tail wiggle so wildly when it entered the solar corona? Perhaps it was in the grip of the sun's powerful magnetic field. What caused Lovejoy to lose its tail inside the sun's atmosphere—and then regain it later? "This is one of the biggest mysteries to me," says Battams.

And then there is the ultimate existential puzzle: How did Comet Lovejoy survive at all?

As January unfolds, the "Comet that liked it Hot" is returning to the outer solar system, still intact, leaving many mysteries behind. "It'll be back in about 600 years," says Knight. "Maybe we will have figured them out by then."

Author: Dr. Tony Phillips | Production editor: Dr. Tony Phillips | Credit: Science@NASA



This sequence of images, gathered by an extreme UV telescope onboard NASA's STEREO-B spacecraft, shows Comet Lovejoy's tail wiggling wildly in transit through the solar corona.