

# 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](http://www.halifax.rasc.ca) [halifax@rasc.ca](mailto:halifax@rasc.ca)

Volume 45 Number 1 of 5

February 2014

E mail: [novanoteseditor@rasc.ca](mailto:novanoteseditor@rasc.ca)

## In this issue:

Meeting Announcements	2
John Dobson	3
President's Report	4
December Meeting Report	5
Treasurer's Report	6 / 8
Executive Reports	9
Auditor's Report	10
Nova East Report	10
Outreach Report	10
January Meeting Report	11
Cosmic Debris	12

### Front Page Photo: Art Cole

Jupiter taken from Halifax on January 30th 2014. Cannon 3Ti at prime focus of a 8" SCT using a 2X Barlow. All of the processing was done in Images Plus.



## From the editor

*Quinn Smith*

It is always my intention to make Nova Notes an interesting, enjoyable, and informative newsletter. As such I have always encouraged articles, reviews, comments, and photos from members, as well as including items of I think will be of interest to members (such as Cosmic Debris). I have a general "rule of thumb", that there should be at least one picture on each page (I don't always succeed on that score!). As I look through this edition I realize that this rule has been seriously broken!

As I mention in my Nova Notes report in the Executive Reports page, an important function of Nova Notes is archival—to leave a recorded history of the events and decisions that happen within the Centre, as well as to keep the membership informed about some of the inner workings of the Centre. Well I'm afraid that the latter function of the newsletter won out on this edition—there is a LOT of information about the inner working of the Centre, as a result of reporting our Annual General Meeting.

All I can say in my defence is that I will try to make the next edition a lot more fun, with a lot more pictures!

Clear skies!

## 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 new Go-To 400-mm Dobsonian telescope and 100-mm 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 their guests. If you are not a key holder and would like to become one, or need more information, please contact the Observing Chairman, Alex LeCreux (for contact info, see below).

### Upcoming Observing Nights:

Feb.	28th	2014	May	30th	2014
March	28th	2014	June	27th	2014
April	25th	2014	July	25th	2014

**Meetings begin at 7:30 p.m. at Saint Mary's University in room AT 101.**

### February 21st 2014

Members of the Halifax Centre will discuss several topics including DSPs and the impact of light pollution.

### March 21st 2014

A member's night where Halifax Members will discuss a number of topics including the use of the RASC Handbook, planetarium software, and new gadgets.

### April 17th 2014 (Thursday—note day change)

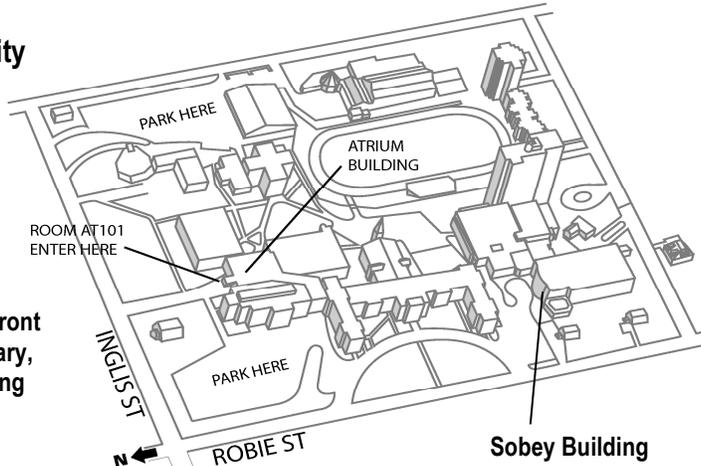
Our guest speaker will be Dan Falk who will talk about the "Science of Shakespeare".

**All meeting location and contents 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.

Executive meetings begin at 6:30 p.m., usually in room AT 306, and all members are welcome. In April we will meet in SB 153

### Halifax RASC Executive, 2014:

Honorary President	Dr. Roy Bishop	(902) 542 3992	RLB@eastlink.ca
President	Paul Heath	(902) 457 0610	pheath@eastlink.ca
1st Vice-President	Graham Rose	(902) 406-014	gbrosegr@netscape.net
2nd Vice-President	Karl Penney	(902) 457 4046	karlpenney@eastlink.ca
Secretary	Chris Young	(902) 441 6861	cjy@eastlink.ca
Treasurer	Ian Anderson	(902) 678 8009	taursagroup@yahoo.ca
Nova Notes Editor	Quinn Smith	(902) 852 3894	quinnjem@yahoo.com
Librarian	Megan Milner	(902) 448-6196	milzner83@gmail.com
SCO Observing Co-Chair	Alex LeCreux	(902) 253-2173	alecreux@eastlink.ca
Observing Co-Chair	Sean Dzafovic		sdzafovic@gmail.com
National Representative	Pat Kelly	(902) 472 2322	patrick.kelly@dal.ca
Councilor	Wesley Howie	(902) 448 3966	wes@lightimages.org

## John Dobson

### The Editor

It is with great sadness that I must report on the death of John Dobson, who many members will have met when he was our guest speaker at the 2005 Nova East. Almost every astronomer knows his name as the inventor of the Dobsonian mount for Newtonian telescopes.

Mr. Dobson was born in Beijing in 1915, where his parents were Methodist missionaries. They later moved to California, where he received a degree in Chemistry. After leaving University, Mr. Dobson joined the Ramakrishna monastery in Sacramento, California. The head swami assigned him the task reconciling ancient Hindu scripture with modern physics. Mr. Dobson once said, "I don't know what your problems are, but that was mine".

As part of this task, Mr. Dobson decided to make a telescope to study the sky, using material that was to hand. The mirror was hand ground from glass from ship portholes, the tube from cardboard, and a simple alt/az mount utilizing a turntable for the azimuth axis. The Dobsonian telescope was born!

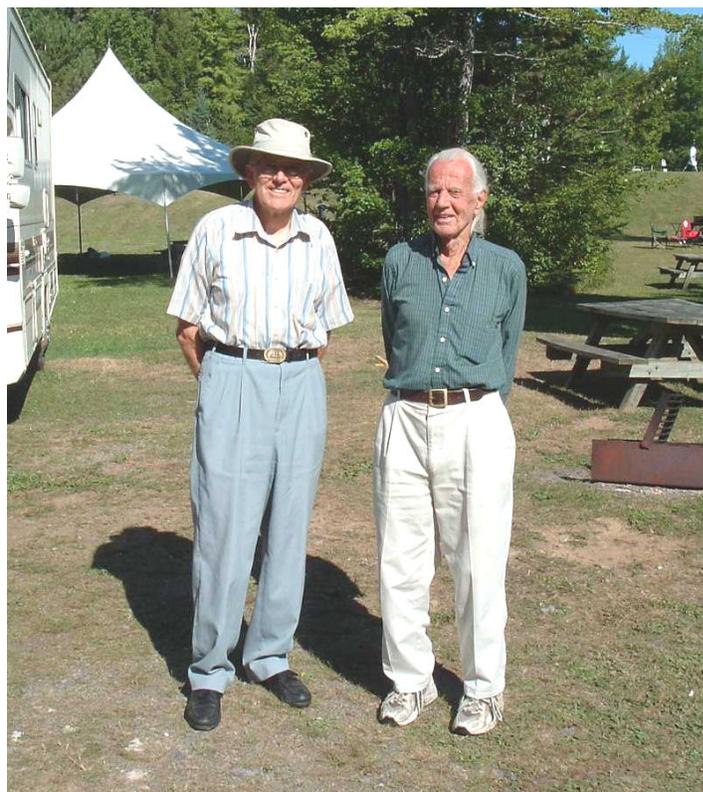
Mr. Dobson would sneak out of the monastery, and use his telescope for sidewalk outreach on the streets of Sacramento. In fact, he spent so much time with astronomy outreach, that he was asked to leave the monastery in 1967. So began a lifetime engaged in outreach, and sharing the joys of sky and telescope making. He never sought a patent on his design or a copyright for the name, saying he did not care about money and wanted the telescopes distributed as widely as possible.

When in 2005 we approached Mr. Dobson to be our guest speaker at Nova East, he jumped at the opportunity. He was 89 at the time and it was a joy and honour to spend time talking with him, and hearing his ideas on cosmology. He was not a conformist, and his ideas were, to say the least, unconventional. Fascinating, but unconventional. One of his conditions to attending Nova East, was that he have accommodation on site. He didn't want to be a guest at Nova East—he wanted to be part on it. He was definitely part of it!

Mr. Dobson had a knack for phrasemaking that delighted audiences at the national parks he often visited. At Yellowstone, he was asked if the sky was part of the park. "No," he said, "the park is part of the sky."

When showing an audience a nebula through his telescope, Mr. Dobson said "We are all made of stardust. If you give this cloud another 10 billion years it will go to school and chew gum".

John Dobson was indeed a major contributor to astronomy and outreach. As he might have put it, he passed away on the 123rd day into his 99th orbit around the Sun.



*John Dobson and Roy Bishop at the 2005 Nova East  
Photo: Roy Bishop*



*Mr. Dobson signing the log book at the SCO in 2005  
Photo: Tony McGrath*

## President's Report

Paul Heath

It has been a busy, but enjoyable year as the President of our Centre. As a Councilor I had usually just helped the Executive where I could, but I stayed out of the politics. As you can imagine that changed when I became President, and with the major changes within the National organization, it has been a job to catch up. But overall it has been a good mix of challenges and rewards. The assistance of the other Executive members was invaluable.

I have introduced a few changes with our meeting format, such as beginning each meeting with a poem, and the start time.

In the last year, we had a series of great guest speakers, who provided us with excellent presentations.

- **January:** Dr. Michael Palmer, gave a presentation on "Star Formation in Merging Galaxies".
- **February:** Mary Lou Whitehorne gave a presentation titled "The Big Eclipse Gamble".
- **March:** Dr. David Turner spoke on the "Origins of the Constellations, and why Ursa Major does not look like a Bear!".
- **April:** Professor Robert Deupree, the director of Computational Astrophysics of Saint Mary's University, spoke on RR Lyrae Variable Stars.
- **May** was a member's night with a variety of topics.
- **June** we met at the St. Croix Observatory for a social meeting at our observatory.
- **September:** Prof. Dave Turner spoke about variable stars, their observation, and his involvement with the AAVSO (American Association for Variable Star Observers).
- **October:** Art Cole did a presentation on iPhone photography and his trip to Mt. Wilson.
- **November:** We had a presenta-

tion by our latest SN discoverer, Nathan Gray, then a talk by Jeff Donaldson on his BOO Observatory and a talk by Chris Young "One Sky, Many Stories".

- **December:** The Annual General Meeting followed by the quiz "Who Wants to be a Gazer?".

All in all, we had a good mix of subjects and captivating speakers.

We have partnered with a number of groups, both old friends and new, for some great events this year. We joined with the Halifax Music Co-op for their presentation of Holtz Planet Suite. Daniel Majaess introduced RASC to a younger audience, by having his students at SMU and MSVU, participate in our meetings and events.

Atlantic Photo Supply again sponsored us at the Saltscapes show, hosted an Astrophoto workshop, held sidewalk observing events at their store, and helped with presentations and photo judging at Nova East. The partnership we have with Brian Giffin and Atlantic Photo Supply has been a tremendous boost for our Centre. We received a great price on our new "baby" at the St Croix Observatory—namely a 400-mm Sky-Watcher SynScan (Go-To) Dobsonian telescope.

Our partnership with Kejimikujik, Dark Sky Preserve, has continued to be a great success.

Our GA committee, chaired by Quinn Smith and Pat Kelly, is well on its way to a great GA in July 2015.

This year Nova East, Atlantic Canada's regional star party, was a very special one (CLEAR SKIES!). Many thanks to the Nova East Organizing Committee, Blair MacDonald, Quinn Smith, the Minas Astronomy Group, and Smileys Provincial Park staff, for their hard work in planning, organizing and holding this year Nova East. Also special thanks to this year special guest speakers, Dr. Luigi Gallo and Brian Giffin. Dr. Gallo's topic was "Seeing the Universe in X-rays" and Brian Giffin spoke about the capabili-

ties of his store, Atlantic Photo Supply, before the judging of the Astrophoto contest.

I would like to acknowledge the following organizations and people for their continue support:

- Minas Basin Pulp & Power Company for the outstanding support they provide toward St Croix Observatory, also many thanks to Jamie Carmichael for his daily security checks at SCO.
- Saint Mary's University, who provide us with meeting rooms and logistic support each month.
- Stephen Payne Dalhousie University for running the Halifax Planetarium program.
- Brian Giffin at Atlantic Photo Supply for having graciously provided us free space and logistic support at the Saltscapes East Coast Expo.

I would also like to express our appreciation to the Cathy, Paul, Jill, Jen, Lesley and Ashley Moffat (Supervisor) of Parks Canada, who worked hard to sustain and enhance Kejimikujik National Park Dark Sky Preserve certification. In that regard, I will like to thank, in particular, Dave Chapman and Quinn Smith, for their continued work to maintain the DSP.

I would also like to recognize a few Halifax Centre members, whose presence, advice and support was greatly appreciated. In no particular order, Dr. Roy Bishop, Dave Lane, Mary Lou Whitehorne, Chris Young, Blair MacDonald, Dave Chapman, Wesley Howie and Robert Bussieres, whose organized notes made the start of my term so much easier.

Special thanks to John Liddard. It is with great appreciation that the Executive of Halifax Centre, would like to thank you for your years of dedication and hard work in managing and developing our observatory at St. Croix. Your common sense approach to problems and your conscientious effort to improving our facility have made it a great observing site for all our mem-

bers. Your offer of guidance to the future Observing Chair is greatly appreciated. John has stepped down due to family medical concerns.

Personally, I have maintained a busy outreach schedule. Library talks, school presentations, park presenta-

tions, sidewalk International Observe the Moon Night, and summer camp presentations. Also, as President, I have done a number of press interviews, especially related to the Russian meteor strike in February. Nathan Colman from the Weather Channel has done several pieces on our Centre.

Before I close, I will like to thank all the Executive, Councils and the Membership, who have supported our Centre and have made possible another successful year. And, of course, apologies to all the people and organizations, I have missed.

## December Meeting Report

### Editor

our President Paul Heath. As has been the case recently, the meeting started at 7:30 p.m.

The weather was not co-operative and probably accounted for the low attendance of only 25 members and guests. After all, who in their right mind would want to battle through snow and cold weather in order to make it to a monthly meeting?

Paul, as is his policy, opened the meeting with a poem titled "At Cycles Turning" from his series "Food for the Soul".

Most of the evening was taken up by AGM business, including various Executive reports (all published throughout this newsletter), and the nomination and election of the 2014 Executive. Due to personal matters, our Observing Chair, John Liddard had to step down, and his Executive position was split into two roles, namely SCO Observing Co-Chair, and Observing Co-Chair. Thank you Alex LeCreux and Sean Dzafovic for taking on these positions. Graham Rose moved from Librarian to 1st VP, and we would like to welcome Megan Milner into the fold as our new Librarian. All contact information can be found on page 2.

After the business of the AGM, we were entertained by another "Who Wants to be a Gazer" hosted by Ian Anderson. This quiz is loosely based on the TV quiz show "Who Wants to be a Millionaire?" Thanks Ian for some great (and tricky) questions.

The meeting closed about 9:30 p.m. and we headed out into the cold to (in my case) start preparing for Christmas.

The December meeting, held on the 13th was our Annual General Meeting, and was hosted by

### *AT CYCLES TURNING*

*We gather at the Cycles turning  
So soon to be renewed.  
We gather alongside the Cycles turning  
And wait, the mirrored pool's refilling.  
We gather with Hearts and Minds  
To greet the twilights darkening.*

*Yet, not yet to look upon the SKY.*

*We stand, looking forth upon the filling pool  
With hopes that mirrored fires will light our eyes,  
And burning swords will march apace, across the  
skies.*

*We await, the filling to the shore  
The mirrored calming of the Bore,  
The quiet opening of the Door.*

*Yet, not yet to look upon the SKY.*

*We stand, within this special place and special time  
Between the Sky and Sea and Mind.  
We wait, as the Cycles turning renews  
And mirrored fires fill the pool.*

*Tis then with frosted breath, we raise our Eyes  
To find those Crystal Clear and fire studded Skies.  
Tis then we toss our Soul's on high  
To rest between mirrored Space and mirrored Time.*

*For now, we're filled by Wonder  
To hold forever, within our Minds.*



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

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

**E-mail: [novanoteseditor@rasc.ca](mailto: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 15th 2014

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.

## Treasurer's Report

Ian Anderson (Treasurer)

### Surplus of \$315.34 for Fiscal 2013

With another year in the record books, the Halifax Centre continues to enjoy strong financial footings under steady membership.

Our year started on the heels of a very successful Nova East 2012 which set the tone for the Centre's focus. Sitting on our highest mountain of cash ever, we chose to concentrate on our Observatory at St. Croix. We commissioned an appraisal of the current replacement values of the facility for insurance purposes. Later in the year, we decided the 17.5" scope we've had as our main asset at SCO lacked 21<sup>st</sup> century performance so we purchased a new 16" which will be the observatory's principle scope.

Early planning for the GA for 2015 was also a feature of the year just passed. The biggest story of these times has been the explosion of interest, time, and members' capital in astrophotography and imaging techniques—a theme that was very

much a part of the most recent Nova East 2013 which was again a big success and major source of our income.

Fiscal 2013 would largely depend on the outcome of Nova East, as spending had outpaced a tight revenue stream to the end of August. But it wouldn't be until the September membership fees in the last days that we'd finish in the black! The new telescope was capitalized, with shipping costs expensed. Merchandise sales improved somewhat although not enough to replace lost income of the dropped NOVA course in the education sector. Our routine costs are slowly pushed by inflationary pressures, and the generator was reduced to a realistic valuation.

With these factors in mind, a \$315.34 surplus year is very satisfactory—nothing like last year, but it more than offsets the \$203.50 deficit of two years ago.

Respectfully submitted,

*Ian R Anderson*

Ian R. Anderson  
Treasurer, Halifax Centre RASC

## Highlights of the 2013 Income Statement

### REVENUE:

**Membership Fees \$3,084.36:** Membership income exceeded \$3,000 for the first time since 2010. By the year-end, 133 regular, 1 youth, and 13 associate members had signed for the year—a bit over 2012.

**Donations \$129.53:** 3 individuals donated to the Centre, but we had no bestowments as we did in 2012.

**Interest \$253.89:** Four investment certificates earned just over 1.5% on up to \$18,000 invested—the best interest income since 1996.

**Sales of Merchandise (Gross) \$1,042.00:** A limited-run poster of astrophoto marvels plus calendar and solar filter sales at Nova East kept merchandise revenues healthy.

**Nova East (net) \$1,074.05:** A “slightly subdued” effort still pulled off a four figure surplus thanks to a good last minute turnout, and a feature guest speaker who refused his honorarium. Thanks to Dr. Gallo.

**Printed Nova Notes Subscriptions Earned \$143.91:** Printed newsletters earned less this year since fewer members subscribed to hardcopy. (Until the end of the year.) 61 printed copies were credited here.

### EXPENSES:

**Meetings (Treats) \$186.43:** Cookie chair Pat Kelly (among other hats he wears) keeps our grocery bill well within budget. This total is for 9 meetings. June's BBQ party was charged to SCO expenses.

**Newsletter \$156.10:** Quinn Smith's costs for preparing Nova Notes printed version. This item is down 40% from last year perhaps because I suspect we never paid him for issue 44.1 (February 2013).

**Cost of Goods Sold \$871.08:** Costs to the Centre of 40 RASC calendars, 10 limited edition astrophoto posters, 4 Society T-shirts, and solar filter film sold at Nova East.

**Equipment and Supplies \$65.31:** Shipping costs for handouts from National Office.

**Office Administration \$213.54:** A 20% rise in PO Box rental. Other admin costs were held in check.

**GA & NO Meetings in TO \$230.00:** The cost to send one of us to Thunder Bay for the 2013 G.A.

**Educational Activities (Outreach) \$206.00:** \$179 of this was gas money to send Halifax based members to Keji to attend DSP functions there. The R. Simmonds *youth enhancement* dinner was \$27.

**Insurance \$1,188.00:** Insurance for SCO has climbed about 2.2% each year since 2006.

**Awards and Donations \$308.60:** December's Gazer awarded much of this, as did our representation by our longest standing regular Sherman Williams to the honorary dinner of Dr Bishop. Another \$70 was a flow-through from NE donut breakfast donations and a reinstating of a lapsed membership.

**Observatory—Operating \$1,563.10:** We spent much at SCO this year. Our largest cost was the valuation assessment at \$575. Shipping of the new scope was expensed for \$445.05. Last October the generator was repaired for \$135.30. June's BBQ treats and SCO Birthday Cake were included here as well costing \$148.62. In addition were the usual repairs, consumption, and annual gift certificate.

**Asset Depreciation \$295.39:** Our generator overvalued at \$695.39 in 2012 has now been set to \$400.

**Miscellaneous Expenses \$109.56:** Almost all of this was our annual membership fees to the IDA.

<b>RASC Halifax Centre Income Statement</b>		<b>For the Year Ending September 30<sup>th</sup> 2013</b>	
	2013	2012	Change
<b>REVENUES</b>			
Membership fees	\$3,084.36	\$2,904.18	\$180.18
Donations (incl. NE)	129.53	660.00	(530.47)
Educational Activities	0.00	510.00	(510.00)
Interest	253.89	163.18	90.71
Merchandise sales (gross)	1,042.00	871.00	171.00
Nova East (net)	1,074.05	2,296.62	(1,222.57)
Nova Notes Pr. Sub Earned	143.91	186.51	( 42.60)
Miscellaneous	9.30	1.40	7.90
<b>Total Revenues</b>	<b>\$5,737.04</b>	<b>\$7,592.89</b>	<b>(\$1,855.85)</b>
<b>EXPENSES</b>			
Meetings (Treats)	\$186.43	\$211.29	(\$24.86)
Nova Notes	156.10	261.97	(105.87)
Cost of Goods sold	871.08	506.26	364.82
Equipment & Supplies	65.31	237.31	(172.00)
Office Administration	213.54	200.72	12.82
GA & NO Meetings in TO	230.00	0 00	230.00
Educational Outreach	206.00	158.00	48.00
Legal Expenses	28.59	28.59	0.00
Insurance	1,188.00	1,164.00	24.00
Awards & Donations	308.60	110.95	197.65
Observatory—Operating	1,563.10	192.49	1,370.61
Depreciation & Write-offs	295.39	1,259.58	(964.19)
Miscellaneous Expenses	109.56	118.28	(8.72)
<b>Total Expenses</b>	<b>\$5,421.70</b>	<b>\$4,449.44</b>	<b>\$ 972.26</b>
<b>Net Income Surplus</b>	<b>\$315.34</b>	<b>\$3,143.45</b>	<b>(\$2,828.11)</b>

## Treasure's Report (continued)

Ian Anderson (Treasurer)

### Highlights of the 2013 Balance Sheet

#### ASSETS:

**Cash \$4,962.99:** On September 30<sup>th</sup> 2013, our bank balance was \$4,757.23. Outstanding cheques were \$191.37. September membership revenue known to be \$397.13 was paid to the account October 2<sup>nd</sup>.

**Investments \$13,000.00:** The Centre held 3 GICs on September 30<sup>th</sup>, two worth \$4,000 and one having a \$5,000

principle. Accrued interest on these certificates stood at \$158.92.

**Estimated Library \$2,077.28:** No purchases or adjustments were made in this asset in 2013.

**Observatory Equipment \$14,322.25:** The new 16" SkyWatcher DOB cost us \$2,525.40. Otherwise, \$295.39 was devalued on the generator for a net change of \$2,230.01 from 2012.

**Estimated Miscellaneous \$205.07:** We added an extension cord to the purchases made over the years.

#### LIABILITIES:

**Accounts Payable \$120.75:** Owed to

Atlantic Photo Supply for canvas print gift to Dr. Gallo for NE.

**Prepaid Nova Notes Printed Subscriptions \$113.23:** 48 printed copies remain to be prepared before this obligation is discharged. Subscriptions to printed issues were steady in 2013.

#### EQUITY:

**Nova East Reserve Equity \$5,000.00:** This reserve has been capped at \$5,000.00.

**Common Equity \$29,492.53:** Common equity grew by \$315.34 or the difference of revenues over expenses. It is equivalent to about \$1.99 per member for a \$23 "investment".

#### RASC Halifax Centre Balance Sheet

As of September 30<sup>th</sup> 2013

	2013	2012	Change
<b>ASSETS</b>			
Cash	\$ 4,962.99	\$ 6,715.04	(\$1,752.05)
Merchandise Inventory	0.00	118.92	( 118.92)
Investments	13,000.00	13,000.00	0.00
Accrued Interest	158.92	65.78	93.14
Library Est'd	2,077.28	2,077.28	0.00
Observatory Capital Equ.	14,322.25	12,092.24	2,230.01
Miscellaneous Est'd	205.07	176.33	28.74
Total Assets	\$34,726.51	\$34,245.59	\$480.92
<b>LIABILITIES</b>			
Accounts Payable	\$120.75	0.00	\$120.75
Prepaid Nova Notes Pr.	113.23	68.40	44.83
Total Liabilities	\$233.98	\$68.40	\$165.58
<b>EQUITY</b>			
NE Working Equity	\$5,000.00	\$5,000.00	\$0.00
Common Equity	29,492.53	29,177.19	\$315.34
Total Equity	\$34,492.53	\$34,177.19	\$315.34
<b>Total Liab &amp; Equity</b>	<b>\$34,726.51</b>	<b>\$34,245.59</b>	<b>\$480.92</b>

## Executive Reports

### Halifax Executive

#### **2nd Vice-President: Karl Penny**

There were a several group outreach activities co-ordinated through requests from the Astronomy Nova Scotia website in 2013. A total of 40 RASC calendars were sold at the recent Halifax RASC meetings, as well as at the Minas Astronomy Group, and at the Dal physics department.

#### **Secretary: Chris Young**

“Paul has given such a comprehensive report, I’ve nothing to add!”

#### **Nova Notes Editor: Quinn Smith**

I would like to take this opportunity to thank all the members who have submitted articles, reviews, photos, and other content for the newsletter. Without your active support and contributions, Nova Notes would not be as interesting and informative, and would be far less relevant to the Centre members. Nova Notes is after all, a newsletter for the Centre, by the Centre.

Back in 2007, when I took over as editor of Nova Notes, the newsletter was delivered to members as a printed copy by mail. This incurred an annual cost to the Centre of over \$1,500 annually. Today most of our 160 members receive the newsletter via the internet, with a considerable saving in expense and a significant reduction in environmental impact. This fiscal saving has allowed the Centre to direct funds into other areas of the Centre, mainly towards the St. Croix Observatory. Electronic delivery also allows the newsletter to be read in colour – not cost effective for the previous printed versions.

2013 marks my completion of seven years as Editor of Nova Notes. The general format and purpose of the newsletter has remained much the same in those seven years. The primary purpose of Nova Notes is not

only to keep the Halifax Centre members informed of the activities and events of the Centre, but to be an archival reference for future members who might be interested in the history of the Centre.

2014 will be my last year as Nova Notes Editor – and I will be actively reaching out to members for my replacement, however I don’t plan on leaving the Executive.

#### **GA 2015 Committee: Quinn Smith**

The Halifax Centre will be hosting the 2015 General Assembly of the RASC. The event will be held on July 2nd – 5th 2015 at Saint Mary’s University, and our Centre will host over 100 members of the RASC from across the country.

We submitted our application to host the 2015 GA to National in the spring of 2013 and received a positive response. Since that time the members of the GA 2015 Committee have been working steadily in the background, securing accommodations for the delegates, locations for the events, and planning social events. We have picked a theme for the GA and are working on our GA 2015 promotional presentation, which will be given at the 2014 GA in Victoria.

2014 will be a busy planning year for the Committee. By the end of 2014 most of the major planning will have to be completed, and we must be well on the road to finalising details. We have 18 months to go, and a lot to do, so if you want to participate, now is the time. THIS IS GOING TO BE FUN!

Thanks to all the GA 2015 Committee members:

Pat Kelly, Quinn Smith (Co Chairs)  
Ian Anderson, Paul Evans, Michael Gatto, Paul Gray, Paul Heath, Wes Howie, Dave Lane, Graham Rose, Mary Lou Whitehorne, Chris Young, Roy Bishop, Dave Chapman

**Librarian: Graham Rose**  
“No Issues in the library”

#### **Observing Chairman:**

**Alex LeCreux and John Liddard**

The most significant event was the purchase of the new 16" telescope for use at SCO.

I have done some checks out at SCO over the past couple of months, checked the furnace operation and refilled the 'spare' propane tank which is on the BBQ. I also noted a number of improvements/maintenance items that will be required over the coming year and plan to hold a spring maintenance work party early next year.

I believe some money will need to be spent over and above the usual to replace/repair the door to the warm room as an example which is in quite bad shape as well as the warm room window, previously broken, which should be filled in properly and resided. The sign out front needs to be refurbished, siding needs cleaning, roof needs cleaning, solar panel supports and roof screws are rusting and need to be cleaned and repainted and there are a few trees that are causing much of the problems with the siding and the roof that should be removed in my opinion.

The tie down eyebolts for the roll off roof really need to be replaced with something more robust as the current ones are bent up pretty good. There are many items I will be able to address on my own due to my close proximity and am looking forward to doing so either as the 'manager' or as an assistant.

I have put together a list of Observing Night dates including backup nights for 2014 which has been forwarded to the exec shortly for review. The past couple of Observing Nights were clouded out.

The annual gift to Jamie Carmichael, who assists in keeping an eye on SCO and plowing the road, will be presented to him on behalf of the Centre.

## Auditor's Report

Dave Lane

December 10, 2013  
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, 2012 to September 30, 2013. I believe that the Balance Sheet prepared by the treasurer presents an accurate account of the financial position of the Centre as of September 30, 2013.

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

And finally, I am pleased that a recommendation made in prior years was completed – this related to ensuring that St. Croix was appropriately insured. My understanding is that the club executive obtained an appraisal of the site buildings and it was determined that the replacement cost was within the current insured amounts.

Clear skies,



David Lane, Auditor

## Outreach report

Quinn Smith

The entire Executive (and me in particular) would like to thank the many members who worked so hard in giving the Centre another outstanding year of outreach. All in all Centre members interacted with over 4,400 members of the public, via outreach activities.

Members hosted and participated in public observing, school and library talks, events at Keji, and planetarium shows at the Halifax Planetarium. We also teamed up with Atlantic Photo Supply at the Saltscapes Show held this spring. A new venture for us was in joining with the Halifax Music Co-op for their presentation of the Holtz Planet Suite. That was quite a treat!

I would like to particularly thank Stephen Payne who runs the Halifax Planetarium located at Dalhousie University. The Planetarium hosted 132 shows to over 3,200 visitors in 2013. Of these shows, 22 were hosted by RASC members, representing over 600 visitors.

There has been much discussion on the pros and cons of outreach. For me (and I suspect most members) it's about sharing the joy and passion of our interest in astronomy. Nothing beats seeing the thrill of discovery found by people visiting our outreach events.

I am hesitant to list members who took part in outreach activities because I will inevitably leave some people out. So for those of you I leave out, my apologies:

Paul Heath, Dave Chapman, Karl Penny, Chris Young, Pat Kelly, Tony Schellinck, David Tindall, Dave Lane, Chris Turner, Wayne Mansfield, Blair MacDonald, Sean Dzafovic, Bruce and Melody Hamilton, Liz Greenough, Paul Gray, Royce MacRae, Ian Anderson, Martin Helmich, Andrea and Julius, Roy Bishop, Mark Dryden, John McPhee and the many, many others I have forgotten.

Thank you all!

## Nova East Report

Blair MacDonald

**General:** This year's event featured Dr. Luigi Gallo as our guest speaker. Dr. Gallo's talk was about observing the universe in X-rays and Canada's contribution to a new X-ray space telescope.

**Observing:** Friday evening was a spectacular night with many of those in attendance observing well into the wee hours of Saturday morning. Saturday evening brought some cloud, but there was still some observing to be had and scopes were busy showing members of the public various objects until midnight.

**Financial Details:** Financially this year's event was successful, continuing the positive balance sheet of previous Nova East events. The final balance sheet is detailed below.

	#	Price	Revenue	Costs	Margin
<b>Registration</b>	<b>52</b>	<b>\$30.00</b>	<b>\$1,560.00</b>	<b>\$1,108.95</b>	<b>\$451.05</b>
<b>T Shirts Sold</b>	<b>31</b>	<b>\$25.00</b>	<b>\$775.00</b>	<b>\$279.00</b>	<b>\$496.00</b>
<b>Camping Nights</b>	<b>57</b>	<b>\$25.00</b>	<b>\$1,425.00</b>	<b>\$1,298.00</b>	<b>\$127.00</b>
<b>Total</b>			<b>\$3,760.00</b>	<b>\$2,685.95</b>	<b>\$1,074.05</b>

## January Meeting Report

Chris Young

The Centre President, Paul Heath, opened the meeting with his poem “Brown Paper Wrapping”. Paul opens each meeting with a poem to open our hearts and minds.

Paul then pointed out the benefits of membership to the 6 guests and 38 regulars at the meeting.

The President then had the honour and pleasure to offer congratulations to the winners of 3 different RASC National Awards, to members of the Halifax Centre. Paul Gray linked up to the National website to provide background and importance of the awards.

Dr. Roy Bishop FRASC has received one of the first Fellowships of the RASC (<http://www.rasc.ca/awards/fellowship>). This honour “...acknowledges the work of long-serving members. It recognizes those outstanding members who have made extraordinary contributions to the Society over the long term, much of which service has been rendered at the national level.”

Mary Lou Whitehorne has been awarded the Service Award (<http://www.rasc.ca/awards/service>). “The Service Award is a major award of the Society given to a member in recognition of outstanding service, rendered over an extended period of time, where such service has had a major impact on the work of the Society and/or of a Centre of the Society.”

Kathryn and Nathan Gray have been awarded the Ken Chilton Prize (<http://www.rasc.ca/awards/chilton>) “in recognition of a significant piece of astronomical work carried out” for their independent discoveries of a supernova after searching thousands of astro photos. Paul Heath noted that their greatest contribution to astronomy has been their inspiration to other young people to become involved in science.

There was great applause and many congratulations from the members and guests for each of the award recipients all of whom well deserved these honours.

Dave Chapman then gave two Observer’s Handbooks to two guests in the audience, Bill & Daniel, for each answering a skill testing question.

Paul then introduced the evening’s presenters, all being Centre Members, who suggested internet resources available (many free!). Each presenter in turn gave a description of the application, website or program, the operating system it runs on (Apple, Microsoft, Android), its uses, and features, and how the presenter rated it. With each App, screenshots were shown of the program and where it came from. It was a whirlwind tour!

First up was Sean Dzafovic who spoke on Star Walk, Night Sky 2 Lite, Sky Walk.

Next Chris Young went through his collection of Podcasts, all available on Apple, Android or Microsoft: 365 Days of Astronomy, Planetary Radio, Jodcast, Silicon Valley Astronomy Lectures, Awesome Astronomy, Cheap Astronomy, Astronomy Cast and AstroMcGill.

Mary Lou Whitehorne followed with an excellent tour of the new National RASC Site (<http://www.rasc.ca/>), just scratching the surface on all the resources and references available on



*From left to right: Mary Lou Whitehorne, Kathryn and Nathan Gray, Dr. Roy Bishop*  
*Photo: Chris Young*

what looks to be an entirely new site. Well worth visiting.

Art Cole then took us on his tour of “The Good, the Bad and the Ugly”, syncing his iPhone with the main screen and covering Star Walk, Planets, Sky Guide, Moon Globe HD, Mars Globe and Sky Safari.

This series of presentations was an extensive and thorough tour of what’s out there, and many members jotting down links and titles to follow up on (visit the App Store or just Google!).

Paul Heath then announced the results of the survey requesting the preferred meeting start time. The early 7:30 p.m. start will continue, as the majority of the voters indicated a preference for this start time.

Sean Dzafovic finished up the evening with “What’s Up” in the night sky, coordinated with the Explore the Universe Certificate challenges. Of note was the “Polar Diamond Ring” in Ursa Minor and the “Heavenly ‘G’” which is a variation on the Winter Hexagon with a link to Betelgeuse.

The meeting ended after 9:00 p.m. with our customary refreshments and much discussion. It was a non-stop evening, well done everyone!

## Cosmic Debris

### Odds and Sods from the world of astronomy and astrophysics

#### Jan. 14, 2014: Are we there yet?

One of the fastest spacecraft ever built—NASA's New Horizons—is hurtling through the void at nearly one million miles per day. Launched in 2006, it has been in flight longer than some missions last, and it is nearing its destination: Pluto.

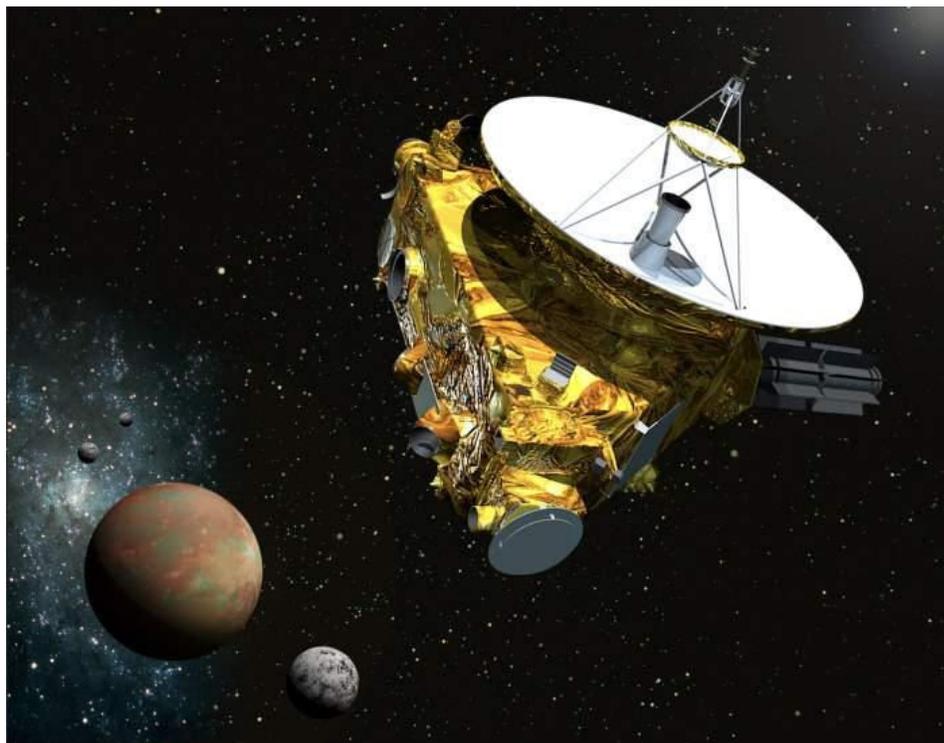
“The encounter begins next January,” says Alan Stern, of the Southwest Research Institute and the mission’s principal investigator. “We’re less than a year away.”

Closest approach is scheduled for July 2015 when New Horizons flies only 10,000 km from Pluto, but the spacecraft will be busy long before that date. The first step, in January 2015, is an intensive campaign of photography by the Long Range Reconnaissance Imager or “LORRI.” This will help mission controllers pinpoint Pluto’s location, which is uncertain by a few thousand kilometers.

“LORRI will photograph the planet against known background star fields,” explains Stern. “We’ll use the images to refine Pluto’s distance from the spacecraft, and then fire the engines to make any necessary corrections.”

At first, Pluto and its large moon Charon will be little more than distant pinpricks—“a couple of fat pixels,” says Stern—but soon they will swell into full-fledged worlds.

By late April 2015, the approaching spacecraft will be taking pictures of Pluto that surpass the best images from Hubble. By closest approach in July 2015, a whole new world will open up to the spacecraft’s cameras. If New Horizons flew over Earth at the same altitude, it could see individual buildings and their shapes.



*An artist's concept of the New Horizons spacecraft.*

Stern is looking forward to one of the most exciting moments of the Space Age.

“Humankind hasn't had an experience like this—an encounter with a new planet—in a long time,” he says. “Everything we see on Pluto will be a revelation.”

He likens New Horizons to Mariner 4, which flew past Mars in July 1965. At the time, many people on Earth, even some scientists, thought the Red Planet was a relatively gentle world, with water and vegetation friendly to life. Instead, Mariner 4 revealed a desiccated wasteland of haunting beauty. New Horizons’ flyby of Pluto will occur almost exactly 50 years after Mariner 4’s flyby of Mars—and it could shock observers just as much.

Other than a few indistinct markings seen from afar by Hubble, Pluto’s landscape is totally unexplored. Although some astronomers call Pluto a “dwarf” planet, Stern says there’s nothing small about it. “If you drove a car around the equator of Pluto, the

odometer would rack up almost 5,000 miles—as far as from Manhattan to Moscow.” Such a traveler might encounter icy geysers, craters, clouds, mountain ranges, rilles and valleys, alongside alien landforms no one has ever imagined.

“There is a real possibility that New Horizons will discover new moons and rings as well,” says Stern.

Yes, Pluto could have rings. Already, Pluto has five known moons: Charon, Styx, Nix, Kerberos, and Hydra. Numerical simulations show that meteoroids striking those satellites could send debris into orbit, forming a ring system that waxes and wanes over time in response to changes in bombardment.

“We’re flying into the unknown,” says Stern, “and there is no telling what we might find.”

#### **Credits:**

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