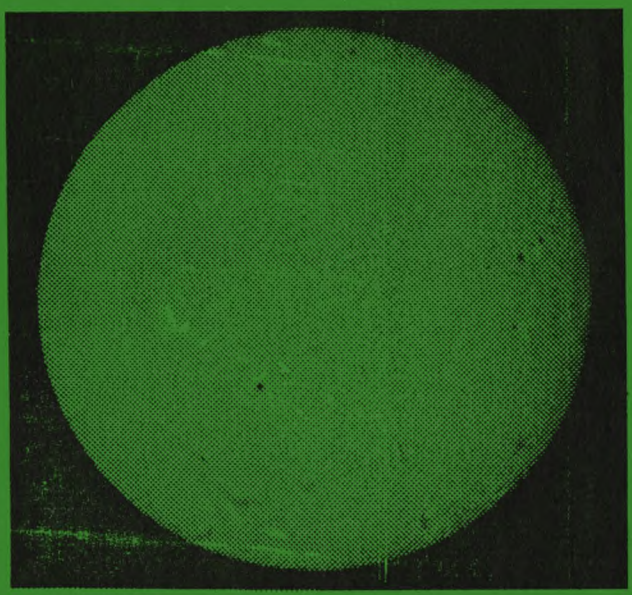
NOVA NOTES



Halifax Centre

Nov-Dec 1989
Volume 20
Number 6

1989 Halifax Centre Executive

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Centre's Address	-	Halifax Centre, R.A.S.C. c/o 1747 Summer St. Halifax, N.S. B3H 3A6	

Notice of Meetings

Date: Friday, December **15th: 7:30 P.M.** for the regular meeting
Place: Nova Scotia Museum, Summer Street, Halifax. Access from the parking lot and side entrance. Meeting to be held in the lower theatre.
Topic: The topic will be *Stellafane: A First Time Experience* by Dave Lane and Nat Cohen.

Date: Friday, January **19th: 7:30 P.M.** for the regular meeting
Place: Nova Scotia Museum, Summer Street, Halifax. Access from the parking lot and side entrance. Meeting to be held in the lower theatre.
Topic: The speaker for the main meeting has not been finalized yet.

Halifax Planetarium Public Shows

November 23rd	Things that go Bang in the Night	**7:00 P.M.**
November 26th	The Stars and Planets	**2:00 P.M.**
December 7th	The December Sky	**7:00 P.M.**
December 10th	The Stars and Planets	**2:00 P.M.**
December 21st	The Christmas Star	**7:00 P.M.**

The Halifax Planetarium is located in the Sir James Dunn Building of Dalhousie University.

Note: The above list is tentative and subject to change.

About the cover

The cover shows an image of the Sun taken by Mary Lou Whitehorne on July 13th of this year. It was taken with a Meade 2080 LX5 equipped with a hydrogen alpha filter. The film used was TP 2415 with a 1/250 second exposure at f/30. The reproduction on the cover shows a lot less detail than the original. This is mostly because the image had to be reduced considerably to fit on the cover. Nevertheless, several features such as sunspots and limb darkening are readily apparent.

Editor's Report

Patrick Kelly

You may have noticed in the notice of meetings that we have changed the format of the regular meetings. This was due to a new policy of the Nova Scotia Museum which went into effect this fall. Under this policy, societies holding evening meetings cannot enter the building until 7:00. Since we had to allow for some time to get set up, etc. we decided that we would no longer have an early presentation on a regular basis and that we would move the regular meeting up by half an hour to 7:30. We will try this for a while to see how it works out.

Our application for a second class postage permit for NOVA NOTES was refused by Canada Post on the grounds that publishing was not our main business. Under postal regulations, I was allowed to appeal the decision to the chairman of Canada Post, which I did. His decision was also to refuse the permit but based on his conclusion that NOVA NOTES is not "devoted primarily" to the sciences, which is one of the categories that would exempt us from not being an actual publisher. I'm hoping to change their minds and will let you know more next issue.

On a sadder note, I have the task of passing on the news that one of our members, Ruth Fraser, passed away recently. Her husband, Ralph, was the centre's secretary from 1984 to 1986. During that time, Ruth served as the centre's "cookie chairman" and was responsible for ensuring that there were coffee and goodies to enjoy after the regular part of the meeting was over. She was always willing to help with this task and often baked all of the cookies and squares herself. I think it is fair to say that they always tasted better than the store bought ones. On behalf of the centre, I'd like to extend our sympathies to Ralph and to let him know that we all share in his loss.

Once again, I've had more articles than pages and as a result I have had to postpone some excellent articles until next issue (and in one case, next October!). I usually give precedence to those articles which would become dated if they were left too long, so I hope that those of you who have written articles and don't see them in this issue will be patient. I'm still trying to find room for my next GAZER cartoon!

Lastly, I'd like to thank those of you who renewed your memberships so promptly. We usually don't break 100 paid-up members until the new year, but to date, we have a total paid-up membership of 114 plus four associates. For those who haven't renewed yet, please do so soon as the handbooks will be out shortly and you don't want to go too long without one!. Clear skies until next issue! Ω

An Autumn Comet

Roy Bishop

What promises to be the best comet of 1989 was discovered on the evening of August 24 by a well-known member of the R.A.S.C., David Levy. Levy was talking on the telephone to Peter Jedicke, a member of the London Centre, when he made the discovery (he has a phone in his observatory)! A native of Montreal, Levy presently lives near Tucson, Arizona. This is the fifth comet he has discovered in as many years. His latest find came after 350 hours of careful, systematic searching of the night sky with his telescope on the Arizona desert. He has discovered more comets than any other Canadian.

The official name of this visitor from the outer reaches of our solar system is Comet Okazaki-Levy-Rudenko (1989r). Levy was the first to report the comet; however, Okazaki, an astronomer in Japan independently discovered it a few hours before Levy, and another independent discovery (a day after Levy's) was made by Rudenko, an amateur astronomer in New England. Thus all three names (the maximum number permitted) have been attached to the comet. The designation 1989r indicates that during 1989 this is the 18th comet to be either discovered (in the case of a comet never recorded before, as is this one) or recovered (in the case of a known periodic comet).

The main part of a comet is a mountain-sized lump of ice and dust. There are believed to be millions of these huge, cold "dirty-icebergs" on the outer fringes of our solar system, remnants left over from the formation of the Sun and its planets some 5 billion years ago. Most are too far from the Sun to be seen, but occasionally one will pass through the inner solar system. Here the Sun's heat causes the surface ices to evaporate and produce a large cloud ("coma") of vapor and dust surrounding the comet's core ("nucleus"). The Sun's light and solar wind (an outward-blowing stream of electrons and protons) sweep part of the coma away to form a glowing tail pointing away from the Sun.

I have been observing Comet Okazaki-Levy-Rudenko since September 7. It is getting steadily brighter as it draws nearer to both Earth and the Sun; however, through September and October the come~ is still too faint to be seen with the unaided eye .

One remarkable feature of this comet is that the plane of its path is almost exactly at 90 degrees to the plane of Earth's orbit. It is coming in high over the north pole of the Sun and will plunge directly southward through our orbit on November 23rd, like a thread through the eye of a needle. In the process it will pass relatively close to Earth in late November (it will be about half the distance of the Sun from us). This will occur about two weeks

after it has passed perihelion, its closest point of approach to the Sun, and hence it should then be at its best, with a well-developed tail.

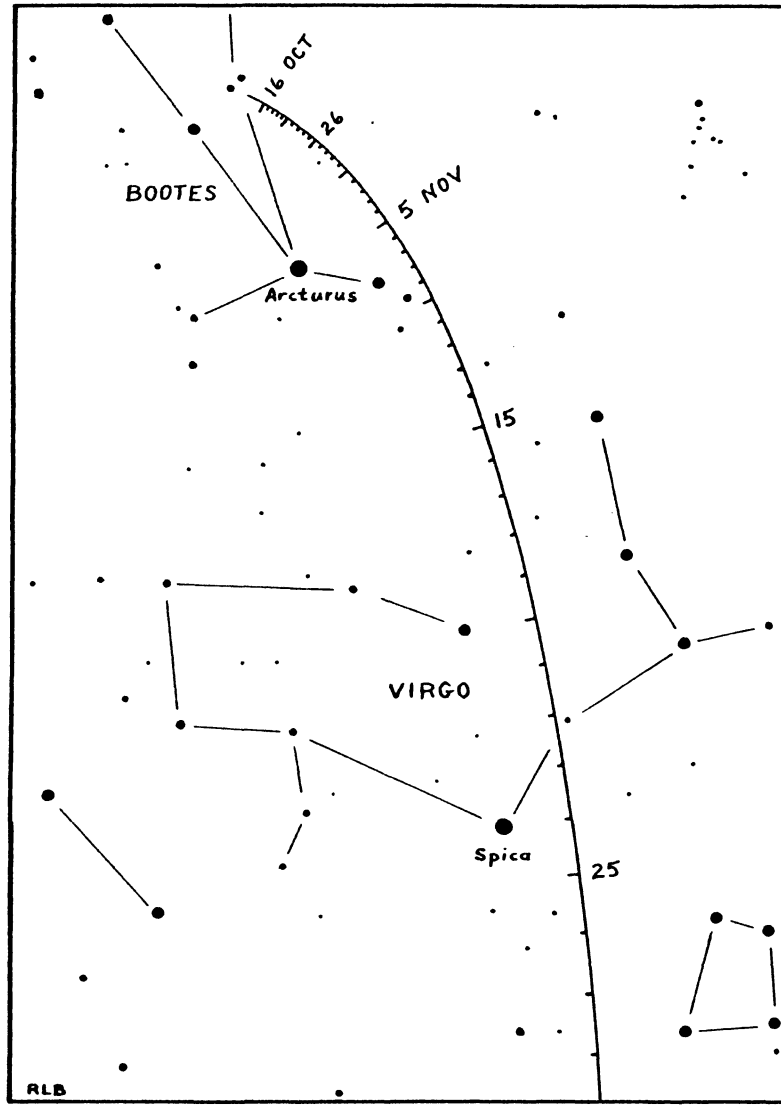
For users of binoculars and telescopes, the comet will be visible low in the northwest moonless sky at the end of evening twilight during the period October 17 to 25. It will be in the lower portion of the constellation Boötes at the time. After that it will be in a dark pre-dawn sky up until November 11 as it moves slowly to the right about 7 degrees above the bright star Arcturus. During the week of November 6 to 11th, it should be visible without optical aid provided one is observing from an area free of light pollution (i.e. far away from towns and cities). As morning twilight begins on November 11, the comet will be about 20 degrees above the eastern horizon and about 9 degrees to the right of the bright star Arcturus. (As a reference, the angular width of one's fist held at arm's length is about 10 degrees).

The brightness of comets is somewhat unpredictable. We will not know until it goes by whether Comet Okazaki-Levy-Rudenko will be brighter or dimmer than expected. It is predicted to reach nearly magnitude 4 (like a moderately dim star) in late November.

Moonlight interferes from November 12 to the 24th, but, after this, on the mornings of November 25, 26 and 27 the comet should be seen at its best. As dawn twilight begins on November 25, the comet will be about 16 degrees above the southeastern horizon and 6 degrees to the right of the bright star Spica. A slender crescent Moon about 11 degrees to the lower left of the comet will add to the beauty of the scene. A few days later Comet Okazaki-Levy-Rudenko moves too far south to be seen from our latitudes anymore.

The diagram on the next page shows the path of the comet relative to the stars during October and November. For evening viewing in October, rotate the diagram about 45 degrees clockwise to orient it to the stars; for morning viewing in November, rotate it 45 degrees counter-clockwise. Ω

Astro Ads



The path of Comet Okazaki-Levy-Rudenko (1989r) from October 16 to November 28, 1989. The comet's position is marked at one-day intervals with every 5th day having a longer mark. Through November, the positions are for the beginning of morning twilight.

An Optimal Observing Session Predictor

Dave Lane

In the Maritimes, clear nights are few and far between. Coupled with the position of the Moon relative to the Sun, the number of nights suitable for deep-sky observing are even more few and far between. Thus, in order to achieve a successful observing program year-round, it is of the utmost importance that good moonless nights are not missed while watching re-runs of old T.V. programs (except Star Trek, of course).

As you have probably noticed, the *Calendar of Events* on the back cover of NOVA NOTES has the "possible observing sessions" underlined. These are usually about two weeks in duration and are centered about the time of the New Moon. The observer's specific geographical location, the current orbital geometry of the Sun and the Moon and the habits of the observer are not considered.

What I resent in this article is a couple of computer programs which I have written in Pascal for PC compatibles to predict potential observing sessions.

The first program calculates the altitude of the Sun and the Moon for the observer's geographical location at five minute intervals for the period of interest. The results are written to a disk file for use by the second program.

The second program accepts the altitude data and outputs the dates suitable for deep-sky observing. The conditions used for determining a deep-sky observing session are as follows:

1) The session stars when the Sun is at least eighteen degrees below the observer's horizon (i.e. the end o astronomical twilight) and when the Moon is below the observer's horizon.

2) The session ends when the Moon rises above the observer's horizon or when the Sun rises above eighteen degrees below the observer's horizon (i.e the beginning of astronomical twilight).

The habits of the astronomer are handled by allowing the following parameters to be controlled:

1) the minimum observing time in hours

2) the latest evening start time (to the nearest hour) for each month of the year.

A sample of the output from the second program is shown below. It shows all the potential observing sessions for the

Beaverbank site from November 1st until December 31st of 1989. A minimum observing time of one hour and a latest evening start time of 11:00 P.M. A.S.T. was used for both months. Note that corrections must be made in the summer months during Daylight Savings Time.

SS	SR	1989/11/01	18:45	10:35
MS	SR	1989/11/02	19:15	10:05
MS	SR	1989/11/03	20:15	09:05
MS	SR	1989/11/04	21:25	07:55
MS	SR	1989/11/05	22:35	06:45
SS	MR	1989/11/16	18:30	01:20
SS	MR	1989/11/17	18:30	02:35
SS	MR	1989/11/18	18:30	03:45
SS	MR	1989/11/19	18:25	05:00
SS	MR	1989/11/20	18:25	06:10
SS	MR	1989/11/21	18:25	07:15
SS	MR	1989/11/22	18:25	08:15
SS	MR	1989/11/23	18:25	09:20
SS	MR	1989/11/24	18:25	10:25
SS	SR	1989/11/25	18:25	11:20
SS	SR	1989/11/26	18:25	11:20
SS	SR	1989/11/27	18:25	11:20
SS	SR	1989/11/28	18:25	11:25
SS	SR	1989/11/29	18:25	11:25
SS	SR	1989/11/30	18:20	11:30
MS	SR	1989/12/01	19:15	10:35
MS	SR	1989/12/02	20:25	09:25
MS	SR	1989/12/03	21:40	08:15
MS	SR	1989/12/04	22:50	07:05
SS	SR	1989/12/15	18:25	01:30
SS	SR	1989/12/16	18:25	02:45
SS	SR	1989/12/17	18:25	03:55
SS	SR	1989/12/18	18:25	05:00
SS	SR	1989/12/19	18:25	06:05
SS	SR	1989/12/20	18:25	07:10
SS	SR	1989/12/21	18:25	08:10
SS	SR	1989/12/22	18:25	09:15
SS	SR	1989/12/23	18:25	10:25
SS	SR	1989/12/24	18:25	11:30
SS	SR	1989/12/25	18:30	11:40
SS	SR	1989/12/26	18:30	11:40
SS	SR	1989/12/27	18:30	11:40
SS	SR	1989/12/28	18:30	11:40
SS	SR	1989/12/29	18:30	11:40
MS	SR	1989/12/30	19:30	10:40
MS	SR	1989/12/31	20:45	09:25

Each line of data represents one day. Each of the five columns represent the following:

1) The first column indicates the reason for the start of the observing session. SS stands for sunset (actually, the end of astronomical twilight) while MS stands for moonset.

2) The second column indicates the reason for the end of the observing session. SR stands for sunrise (actually the beginning of astronomical twilight) with MR standing for moon rise.

3) The third column gives the date in the format year/month/day.

4) The fourth column is the start time of the observing session in the format hour:minute.

5) The last column gives the **duration** of the observing session in the format hour:minute.

Comparing the program output with the *Calendar of Events* in NOVA NOTES, one finds two primary differences. The observing period stars up to four days earlier and is about two days longer in duration. Naturally, this will not be the case at all times of the year, but it is still significant. The most valuable attribute of the program is that it gives the starting time and duration of the observing session. This feature tells the observer exactly when to arrive at the site and how long they can expect to stay. Of course, one still has to allow for setup time and for dark adaptation.

Some experimentation was performed to determine the effects of varying the observer's location across the province from Sydney to Yarmouth. The dates of the suitable observing period changed in some cases by a day or two on either side of those predicted for Beaverbank (which is in the middle of the province) but overall, the same number of dates were predicted for all three sites.

There was as much as a thirty minute difference in the start time of observing between Yarmouth and Sydney (mostly due to the difference in longitude) and the duration was usually longer in Yarmouth because it is further south than the other two sites.

In conclusion, I have found the programs extremely useful in scheduling my observing sessions over the past couple of months. I will use it myself from this point on. I extend an invitation to fellow observers and centre newsletter editors who wish me to provide custom-made predictions for their geographic location and observing habits for the 1990 year. My address and phone number are on the inside front cover. I will also be placing a copy of the programs in the centre's library for those with access to a PC compatible computer. Ω

1989 Treasurer's Report

Nathan Cohen

I must confess right at the beginning that I did not apply myself to the task of being your treasurer with quite the diligence that you were entitled to expect; for no sooner having accepted the position, I took off out of the country leaving your erstwhile treasurer Joe Yurchesyn holding the fort, and to whom I and the centre owe a considerable debt of gratitude in his functioning as both president and treasurer; no mean task I assure you.

I decided to continue with the computerized system as set up by Joe, as this does give us a great deal of information which can be easily retrieved. Of course, this means that anybody assuming the position in the future will have to have access to an IMP PC or equivalent, but nowadays this is fairly common.

Now to the meat of the matter, so to speak. My two sheets (kindly remove the center page) follow the same format as in the previous two years, and so for those of you that kept copies, comparison is quite easy. In any case, the current report shows how we stand compared to last year. As is quite apparent, the result is very gratifying in that we are increasing our revenues and show a nice healthy balance. It reminds me of one of my favorite songs in the show *Oliver*, "In this life one thing counts, in the bank large amounts." As the amount we have in the bank is considerably larger than this time last year, we have reason to be pleased. Our bank balance to date stands at $4562.44.

I would like to see an increase in the sale of handbooks, as this contributes both to our income, and the possibility of prospective new members.

As has been the custom in the past, I will give a short summary of each item that appears on the sheets. I would also like to add that the books are open to any member who so desires their perusal, and I am open to suggestions that members may offer that would benefit our centre from a financial point of view.

Membership fees: We had 131 regular and youth members for 1989 from an expected number of 135. This was an increase of twenty-five over 1988. So far we have seventy-four paid up for 1990 with one transferring from regular to life membership.

Life Members' Grant: This will increase by one for this year, offsetting the loss of one in 1989.

Donations: There were no donations during 1989. I am hoping that we are able to remedy this in 1990. Any amount donated to the centre above membership dues is tax deductible for which I would be happy to issue a receipt.

Interest: This has increased by a factor of about 2.5, due mainly to keeping a larger balance in our bank account.

Royal Astronomical Society of Canada - Halifax Centre
COMPARITIVE BALANCE SHEET - YEARS ENDING Sept. 30th, 1988 and 1989

	Year ending September 30th		Amount of increase or (decrease) during 1989	Breakdown per member for 1989	Percentage of Cash		Percentage of Total Assets	
	1989	1988			1989	1988	1989	1988
ASSETS:								
Cash	$3,891.75	$1,704.22	$2,178.53	$26.66	100.00%	100.00%	51.59%	28.90%
Estimated Membership Receivable (net)	-	-	-	-	-	-	-	-
Estimated Handbook Receivable	-	525.00	(525.00)	-	-	30.81	-	8.90
Estimated Handbook Inventory	-	-	-	-	-	-	-	-
Merchandise Inventory	262.76	367.29	(104.53)	1.80	6.75	21.55	3.48	6.23
Prepaid Expenses	-	-	-	-	-	-	-	-
Investments	-	-	-	-	-	-	-	-
Estimated Library	1,882.24	1,791.82	90.42	12.89	48.36	105.14	24.95	30.38
Observatory Equipment	1,407.17	1,409.17	(2.00)	9.64	36.16	82.69	18.65	23.89
Estimated Miscellaneous	100.00	100.00	-	0.68	2.57	5.87	1.33	1.70
Total Assets	$7,543.92	$5,897.50	$1,646.42	$51.67	193.84%	346.05%	100.00%	100.00%
LIABILITIES:								
Estimated Handbook Payable	$0.00	$100.00	($100.00)	$0.00	0.00%	5.87%	0.00%	1.70%
Estimated Operating Expenses	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Total Liabilities	$0.00	$100.00	($100.00)	$0.00	0.00%	5.87%	0.00%	1.70%
CAPITAL:								
Equity	$7,543.92	$5,797.50	$1,746.42	$51.67	193.84%	340.18%	100.00%	98.30%
Retained Revenue	--	-	-	-	-	-	-	-
Total Capital	$7,543.92	$5,797.50	$1,746.42	$51.67	193.84%	340.18%	100.00%	98.30%
Total Liabilities and Capital.	**$7,543.92**	**$5,897.50**	**$1,646.42**	**$51.67**	**193.84%**	**346.05%**	**100.00%**	**100.00%**

Royal Astronomical Society of Canada - Halifax Centre
COMPARATIVE INCOME STATEMENT - YEARS ENDING Sept. 30th, 1988 and 1989

	Year ending September 30th		Amount of increase or (decrease) during 1989	Breakdown of the $25 membership fee	Percentage of Membership Fees		Percentage of Total revenue	
	1989	1988			1989	1988	1989	1988
REVENUE:								
Membership Fees	$3,175.00	$2,640.00	$535.00	$25.00	100.00%	100.00%	47.74%	54.63%
Life Members Grant	280.00	290.00	(10.00)	2.20	8.82	10.98	4.21	6.00
Donations	151.60	132.00	19.60	1.19	4.77	5.00	2.28	2.73
Educational Activities	-	-	-	-	-	-	-	-
Interest & Dividends	402.47	151.75	250.72	3.17	12.68	5.75	6.05	3.14
Sales of Handbooks (net)	1,215.84	170.37	1,045.47	9.57	38.29	6.45	18.28	3.53
Advertising	30.00	80.00	(50.00)	0.24	0.94	-	0.45	-
General Assembly (including grant)	129.50	348.00	(218.50)	1.02	4.08	13.18	1.95	7.20
Other Grants	1,000.00	1,000.00	-	7.87	31.50	37.88	15.03	20.69
Miscellaneous	266.86	20.00	246.86	2.10	8.41	0.76	4.01	0.41
Total Revenue	$6,651.27	$4,832.12	$1,819.15	$52.37	209.49%	180.00%	100.00%	98.34%
EXPENDITURES:								
Fees to National Office	$1,926.00	$1,593.00	$333.00	$15.17	60.66%	60.34%	28.96%	32.97%
Library	90.42	41.95	48.47	0.71	2.85	1.59	1.36	0.87
Meetings & Newsletter	1,792.22	1,630.86	161.36	14.11	56.45	61.78	26.95	33.75
Annual Dinner (net)	102.65	-	102.65	-	-	-	-	-
General Assembly (including grant)	259.00	696.00	(437.00)	2.04	8.16	26.36	3.98	14.40
Equipment & Supplies	-	188.17	(188.17)	-	-	7.13	-	3.89
Office Administration	73.22	118.29	(45.07)	0.58	2.31	4.48	1.10	2.45
General Expenses & Audit	-	-	-	-	-	-	-	-
Educational Activities	127.85	5.00	122.85	-	4.03	0.19	1.92	-
Insurance	-	-	-	-	-	-	-	-
Awards & Donations	82.50	58.18	24.32	0.65	2.60	2.20	1.24	1.20
Observatory	-	-	-	-	-	-	-	-
Miscellaneous	9.88	102.05	(92.17)	0.08	0.31	3.87	0.15	2.11
Total Expenditures	$4,463.74	$4,433.50	$30.24	$33.33	137.36%	167.94%	65.57%	91.65%
Surplus or (Deficit)	**$2,187.53**	**$398.62.62**	**$1,778.91**	**$19.04**	**72.13%**	**12.26%**	**34.43%**	**6.70%**

Handbook Income: Well! What c an I say about this. I think the figures speak for themselves. I only hope that we can keep this up, and indeed surpass it.

General Assembly: An expected grant from National Office is reflected in this figure. Even so, we have spent considerably less than last year.

Advertising: Unfortunately, the figure given is not a true reflection of the situation, but it only shows collected revenue up to the end of September. We do have an "account receivable" for a further $90.00, meaning that the real income from this source should read $120.00, which is an increase of $40.00 over the last year. I feel it is possible to increase our revenues from this source, and propose to pursue the matter further with your executive.

Other Grants: As in the past, $1000 has been factored in to reflect the savings by having NOVA NOTES printed by the Nova Scotia Museum. Of course, we also show this as an expense item so it cancels itself out, but there is the further expense of mailing. In past times, a "learned society" such as ours would have delegated delivery of our "papers" to the footman, or at least the messenger boy. Admittedly modern times have brought the benefit of vastly superior and affordable telescopes, they have also brought the scourge and extortion of Canada Post. Because we do not keep a specific account of mailing expenses for NOVA NOTES, I am not able to give an accurate figure for the cost of this, however, we have managed to keep the increase well below that for the year 1986/87 wherein a quantum leap occurred such as we would hope not to happen in the future.

Library: We did spend a slight amount more on this, which is offset by a diminution in **Office Administration.**

Annual Dinner: This was unfortunate, and due to the utter rapacity of the restaurant that we patronised. One would trust that none of our members would ever give them any further business, and endeavor to ensure their friends act likewise.

Merchandise Inventory: Although this is shown as an asset, in my mind, this is really an expenditure. I would far rather see this converted to a cash asset at the bank, so if you are not already suitably attired, might I induce you to repair the omission. I have hats, T-shirts, enameled lapel pins and crests, the latter being absolutely de rigueur for those with navy blue blazers, and I would be only too delighted to reduce our stock in hand to nil.

When Joe wrote his report for you for 1988, he posited the view that it had been a very prosperous year and would be difficult to top. Well, I am happy to report that our increase in revenue went from $820.65 for that year to $1,819.15 for this while at the same time our total expenditures dropped substantially. Extra money enables us to improve our programs, which hopefully will attract a larger membership. Ω

NOVA EAST '89 Report

Doug Pitcairn

For the last several years, the story has been the same. The period of time between the first cold high pressure system which heralds the beginning of fall here in the Maritimes, and the rainy month of November is the great observing window. Past records indicate that fully half of the year's good nights occur in this period. As of this writing, I have had nine observing nights in the last twelve days. This time of year is dangerous for observation addicts. I think I'm about to OD!

This year's Nova East '89, the third time for this event, was an unqualified success. As more of us become familiar with the park and its facilities, the weekend observing party's format seems to be settling down somewhat. If any of you who attended have any advice, things you'd like to see, things you'd like to add next year, things you'd like to do, let the executive know. Drop us a note and we'll see what we can do. I heard several people mention that they missed the talks for the members. I agree, and have already suggested that we bring a small Honda generator next year, and show slide presentations, **(all you photographers take note!!)** right in the camphouse at the campsite. This assures us of privacy, and will certainly fill in any cloudy nights.

Friday night was mostly clouded out, although Hugh Thompson kept insisting that it always cleared off at Fundy by 2:30 A.M. and that we should stay awake and wait it out. (We went to bed. He spent much of Saturday showing off his excellent sketches of Comet Brorson-Metcalf, which rose in a clear sky about 3:00 AM.) Many members settled around a bonfire for an excellent "chinwag" and "bull" session. Our fire was a great success, after I used a self-contained, celluloidal friction activated, pyrotechnical exothermic chemical ignition apparatus, otherwise known as a match. The background was filled in by the noises of Fundy, the yelping of coyotes, the hoot of an owl, and the banging of garbage box lids as yet another raccoon discovers that the heavy covers aren't raccoon proof after all. Several times during the evening, deer would wander out of the woods a few feet from our fire, and feed on some wild apple trees

Saturday dawned clear, and while the late sleepers enjoyed a few extra hours, Pat demonstrated the physics of apple projection while others toured some of this beautiful park's many sites.. About noon, we all gathered for a corn boil, and after a most satisfying feed, we began setting up telescopes for the afternoon display. Soon the hill was adorned with a whole variety of instruments. I wish to thank all of you who took the effort to bring the large scopes. The telescopes ranged from the trusty 60

mm. refractors up to Bill Thurlow's 17.5" monster, "Big Red". The usual half dozen Schmidt-Cassegrains, four 6" refractors, two 10" Odysseys, two 10" equatorials, a recently completed 10" f/6 Dobsonian, and a beautifully finished 13" Dobsonian. Various RFTs as well as a score of smaller instruments completed the line up. Clouds accumulated during the day, and when we arrived at the meeting hall for the public talks, the sky did not look good.

Dr. Francis Girouard of the University of Moncton gave a talk on Saturn "en Francais" for the francophone public. Pat Kelly spoke on the planets of the solar system visible that night. Mary Lou Whitehorne spoke about the Sun and solar observing., and I gave a talk on "The Things Astronomers Look At". Afterwards, the optimists in the group decided we would travel up to the high Chignecto Campsite for the public observing session. The sky remained partly cloudy, but sufficient clear spots occurred so that several hundred people had looks at various deep sky objects, as well as the planet Saturn. This devotion of one evening to public sessions is quite unusual among star parties. Most star parties are closed to the public, and many people have pointed out that it is a rarity to see such an effort being made. I don't know about everybody else, but I get rewarded every time I hear exclamations of delight from some youngster seeing Saturn's rings for the first time.

Later that evening, we all retired to the privacy of the group campsite, and once again the campfire listened to the astronomer's equivalents of the tall fish story, "The meteor that no one else saw". Previous experience suggested that it might clear later on, and those who waited up were rewarded when, at 2:23 A.M., it cleared off completely. (Having been proven correct the night before, Hugh had seven minutes grace before he would have been fed into the fire!) The skies were ideal, and those members who were still awake feasted until dawn.

Sunday everybody went about their own business. Those who had to leave did so, but most of us explored the park and its sights. That evening promised to be an excellent observing night, and it was indeed! The folks who suggested a later date for this event were right on, the sky from this site on Sunday night was about the best dark sky I have ever seen. The minimum visual magnitude hovered around 6.5. Nine or ten Pleiades sparkled high in the eastern sky. Greg Pelman from Maine treated viewers to a view of Epsilon Lyrae's two pairs of stars through his 6" f/8 refractor. Both pairs were blown wide apart with an arc second of dark sky between each. The view of the Veil Nebula through a beautifully built 13" Dob with a 24 mm Widefield and a Lumicon UHC filter drew such a chorus of "oohs and ahhhs" that a long line rapidly formed, but it was worth the wait. Those ads for the UHC filters do not lie, they make a spectacular improvement on diffuse

emission targets such as the Veil. We had to pry people away from that eyepiece with shovels (especially Hugh who had to be physically removed from the eyepiece on more than one occasion to let others have a chance!) Then there was the view of M13 at 300x in Bill's 17.5". I think everybody who was there will never forget that, I certainly won't.

This whole "window" saw so many clear nights that I'm sure there are pages of observation reports out there. Rejoice in the autumn all ye astronomers, for the cold of winter is nigh at hand! Clear skies! Ω

National Council Report

Randall Brooks

As is standard practice, the R.A.S.C. National Council met twice during the General Assembly in Sydney and a G.A. in Toronto at the end of September. I was able to attend all three meetings and wish to report on some of the items of interest to Halifax Centre members.

Perhaps the item which is potentially of most interest is the fact that the R.A.S.C. will have an insurance policy to cover members while they are participating in R.A.S.C. sponsored activities. Some centres have been required to post insurance policies of $\$1\text{-}2 \times 10^6$ before being permitted to host mall displays or public observing sessions in municipal parks. The costs were rising to the point where it makes sense to have a nation-wide policy. This will come into effect October 1st, 1990 but possibly by April 1st, just in time for Astronomy Week. This new coverage will, however, mean that membership fees will have to be increased for the 1991 membership year by ≈$1.00--but where else can you get $\$1 \times 10^6$ insurance for that! This increase will be part of a larger increase to be fixed next year.

The Halifax Centre proposal for a life membership certificate has been accepted and a note will appear in the Newsletter to this effect. The Centre has offered to prepare certificates for any current life members and will supply the National Office with sufficient copies for several years requirements.

The Winnipeg Centre was given a grant of $1500 to help purchase equipment to support an observing project employing a photoelectric photometer. About half a dozen members are participating there and the Halifax connection is Mary Lou Whitehorne. She will be attempting to get supporting spectrograms of the program stars which are Be stars--low amplitude variables.

Mike Watson and Randy Attwood reported on the solar eclipse expedition to Mexico for the July '91 eclipse. They showed slides of the area and observing site chosen in Baja California and discussed plans for accommodation in Rosario on the Mexican mainland. and sightseeing possibilities on the way to and from the eclipse site. There enthusiasm infected me so I put down a deposit for Diane and I. Departure is from Toronto, so depending on the date selected for the '91 G.A. in Vancouver, you might be able to take a side trip to Mexico on the way home from a visit to B.C. Deposits of $100/person are required to reserve a seat on the flight and the estimated cost is ≈$1000. Contact me if you want details.

Speaking of G.A.s, the Halifax Centre has put in a tentative bid for the 1993 G.A. The G.A.s in Halifax in '75 and '80 were trendsetters and we will be looking for ways of surpassing all G.A.s – even the Ottawa G.A. next year. The '90 G.A. looks to be one of the best ever as far as speakers are concerned. Doug George reported on their special symposium which will be part of the R.A.S.C. Centennial year celebrations. The G.A. will last an extra day but the 5 special speakers will make it one of the more memorable General Assemblies.

On the R.A.S.C.'s Centennial year, the Toronto Centre has serendipitously come across records of the first years of its existence from 1868. In 1890 the Toronto group became the progenitor of the R.A.S.C. I would like to remind members to consider supporting the R.A.S.C.'s Centennial Fund. You received a donation card in the April Journal. Donations may be channeled back to the Halifax Centre if you wish for general or specific purposes and donations are, of course, tax deductible.

At the second July Council meeting, the following Halifax Centre members were appointed to committees of the Society:

Roy Bishop:	Centenary, Executive, Historical, Mini-Handbook, Nominating and Publication Committees
Randall Brooks:	Finance and Historical Committees
Pat Kelly:	Mini-Handbook Committee
David Tindall:	Executive Committee (David also continues as National Secretary) Ω

A Christmas List for Good Little Astronomers

David Griffith

That magical season is upon us once again, that one time during the year when we dare justify to our loved ones the need for such necessities of life as motor drives and Oxygen III Filters. The avid skygazer is advised that Santa now has an astronomy workshop, but markets his goods through local and mail order outlets. The following is a list of some gadgetry that this writer finds particularly useful.

Dew Zapper: This little jewel from Orion Telescope Center will allow you to pull that all-nighter without fear of fog or frost. A must for SCT owners!

Hand Warmer: Available from most hardware/sporting goods stores, this nifty little stocking stuffer burns solid fuel sticks and warms frosty hands after those necessary gloveless activities, i.e. attaching filters, etc.

Nebula Filter: These enhance the views of planetary and emission nebulae. Lumicon's are highest rated but most work reasonably well.

Solar Filters: Extend your hobby into the daylight hours. Thousand Oaks Optical and Tuthill stock the fairly inexpensive white light ones. Of course if you are on Santa's "Exemplary Behavior" list, then ask for an H-alpha filter. What's a second mortgage, anyway?

A Better Finder: If you currently have a 6x30 or smaller finder you'll be amazed at the improvement an 8x50 or larger finder will make.

Telrad: This non-magnifying device aims a "bull's eye" at the part of the sky you are looking at. It's a great alternative to a conventional finder, or a nice way to augment what you already have.

A Good Atlas: "Sky Atlas 2000" by Tirion for the purist; "1000 +" for the intermediate gazer who wants an all-in-one resource book inc. charts, data base, observing hints, etc.

Color Filters: A set of these will enhance planetary and lunar views. Try blue or green for Jupiter and a polarizer for the moon.

A Large Tool Chest or Fishing Tackle: These can be easily adapted to organize and protect your eyepieces and accessories. The plastic ones are best as they absorb shock better and won't rust.

Decent Binoculars: Check ' em out first. 10x50s are ideal .

Tuthill's "Basic SCT Operation": This great videotape demystifies the workings of SCTs, covering everything from

polar alignment to indoor collimation. Should be standard equipment with every SCT sold. Renders often unintelligible owner's manuals obsolete !

Subscription to "Sky and Tel ." or "Astronomy" .

Rubber Eyecups: These stocking stuffers foster easier eye placement and help prevent unwanted light from degrading images.

Eye Patch: So what if they make you look like a pirate! These prevent squinting, thus improving your vision . Available at drug stores (or most anywhere at Halloween). Hint: Get the raised ones, as flat patches stress the eye .

Canned Air: Most photo supply shops sell this. Indispensable for keeping optics clean and preventing radical cleaning procedures.

Astro Cards: An alternate or addition to atlases, this collection of 3 x 5 cards details the Messier and NGC objects (selected) as well as the best double stars. Can be enlarged on a photocopier for great charts.

Mirror Diagonal: vastly superior to the lower grade prisms that are standard issue with most SCTs .

"Exploring the Night Sky" by T. Dickinson: It's your turn to be Santa. Give this A-1 first book in astronomy to a kid and make his ~~day~~ night !

R. A. S. C. " stuff ": You know, T-Shirts, hats, pins, whatever. Support your Society !

A Final Thought: Santa's Research and Stats. Department reports that one's success rate in obtaining astro-gadgets is directly proportional to the degree of affection accorded one's loved one(s) during the months preceding Christmas.

If you find this year's stocking to be full of such trivial items as food, clothing jewelry or family heirlooms, then resolve on January 1st to be especially affectionate for the next 12 months. Clear skies, and Merry Christmas ! Ω

XMAS WISH LIST

OMCON

815	150 mm f/8 Newtonian, visual mount	$749.00
128	80 mm f/12.5 refractor, visual mount	$669.95
811S	110 mm f/8 Newtonain, alt-azimuth mount	$299.95
Sentinal	100 mm catadioptric tube	$349.95
611	100 mm f/6 Newtonian, visual mount	$499.95

Coming Soon!

623	230 mm f/6 Newtonian, photo.mount	$1894.95
SkyMax	250 and 360 mm Dobsoninans	
104	110 mm catadioptric tube	$599.95
106	150 mm catadioptric tube	$799.95

PLUS: Ortho eyepieces, Plössl eyepieces
Barlow lenses; .965" eyepieces; Tento binoculars; planispheres
Sky Atlas 2000; Uranometria 2000 (Vols. 1 & 2); Edmund's Mag 6 ; Nightwatch; Exploring the Night Sky and other books available

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Something to sell?
We will sell it on consignment for you!

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Halifax, Nova Scotia
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(902) 477-0847

Gawker's Report

compiled by Pat Kelly

Time: Sunday, September 3rd, 1989
Place: Charleston, Queen's County
Observer(s): David Griffith
Equipment: Meade MTS SC8, 8x40 binoculars
MVM: 6.0
Seeing: Very good
Comments: A look at the Sun with the solar filter the next day revealed a huge chain of spots on the Sun, easily visible with the naked (but filtered!) eye. Looked for Comet Brorson-Metcalf before dawn. No luck.

Objects Observed:
Dark Nebulae: B142, B143
Globular Clusters: M13, M15, M22, M28, NGC 6712
Open Clusters: M11, M26, M34, M45, M103, NGC 129, NGC 654, NGC 752, NGC 957, NGC 7789, Tr 1, Stock 2, Mel 15, Coll 33
Galaxies: M33, M74, NGC 247, NGC 253 (one of the finest!), NGC 772, NGC 891, NGC 952, NGC 1003, NGC 1023
Double Stars: Albireo, Mizar/Alcor, Almach
Meteors: 7 sighted. Missed one that was so bright its reflection in a nearby window dazzled me!
Aurora: What a bonus! These all-nighters pay off. At first, at about 11:30,, I grumbled about neighbours' lights only to realize that the green light bathing the Big Dipper was, in fact, an aurora. A few spikes of light extended about 40° beyond the glow. This faded until about 3:00 A.M. when another brief show occurred.

◊◊

Time: Sunday, October 1st, 1989
Place: Beaverbank observing site
Observer(s): Jason Adams, Peter Edwards, Phyllis Kennedy, Dave Lane, Ken Ledez, Jim MacGuigan
Equipment: 10" f/5 Newtonian, Meade 2120 LX5, Jason 60 mm refractor, C8, SP-C8, various binoculars
Comments: Small aurora around the northern horizon all night. Jason and I observed a very bright fireball along the western horizon. Jason informed me the next day that there were reports of UFOs in Upper Sackville as a result. Jim was working his way through Cassiopeia following the article in the October issue of Sky & Telescope. - D.L.

Objects Observed:

Nebulae: M27, Veil Nebula, NGC 7000
Globular Clusters: M13, M71, M92
Galaxies: M51, M63, M81, M82, M101, NGC 2976, NGC 3065 Ω

NOVA NOTES INDEX

November-December 1989 Volume 20, Number 6

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HALIFAX CENTRE - R. A. S. C.
1989 CALENDAR OF EVENTS

September

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	**15**	16
17	18	19	20	21	**22**	23
24	25	26	27	28	29	30

October

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	**20**	**21**
22	23	24	25	26	27	28
29	30	31				

November

S	M	T	W	T	F	S
			1	2	**3**	4
5	6	7	8	9	10	11
12	13	14	15	16	**17**	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	**13**	14	**15**	16
17	18	19	20	21	**22**	23
24	25	26	27	28	29	30
31						

Key to calendar:

Regular Meetings: **bold and shadowed**
Special days: **bold**
Possible observing sessions: underlined

Special Days:

October 21 - Orionid Meteors
November 2 - South Taurid Meteors
November 3 - Io's shadow passes Europa's
November 12 - Saturn 0.5° south of Neptune
December 13 - Gemenid meteors
December 22 - Ursid meteors

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