

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA



ANNUAL REPORT 1999 RAPPORT ANNUEL

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA — 1999

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Executive Secretary

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Beginner's Observing Guide Editor

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CENTRE REPRESENTATIVES ON NATIONAL COUNCIL

Calgary Centre	Glen Hawley	Quebec Centre	Yvan Bourassa
Calgary Centre	Susan Yeo	Regina Centre	LeeAnne Beck
Edmonton Centre	Franklin Loehde	Sarnia Centre	Brendan Fleming
Edmonton Centre	ShirLee Adamson	Saskatoon Centre	Sandy Ferguson
Halifax Centre	David Lane	St. John's Centre	Chris Stevenson
Hamilton Centre	Mark Kaye	Thunder Bay Centre	Ted Bronson
Kingston Centre	Susan Gagnon	Toronto Centre	Ralph Chou
Kitchener-Waterloo Centre	Bernd Mueller	Toronto Centre	Heide DeBond
London Centre	Christopher Fleming	Toronto Centre	Anthony Horvatin
Centre Francophone de Montréal	Michel Auclair	Toronto Centre	Tim Hunter
Montreal Centre	Carole Talbot	Vancouver Centre	Dan Collier
Niagara Centre	Brian Pihack	Vancouver Centre	Duncan Munro
Okanagan Centre	Jim Tisdale	Victoria Centre	Bill Almond
Ottawa Centre	Robert Dick	Windsor Centre	Tim Bennett
Ottawa Centre	John Thompson	Winnipeg Centre	Stan Runge



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On The Cover: Total Lunar Eclipse of January 20, 2000. Meade 12" LX200 @ f/6.5 on Fuji Super G800 film. Photo taken by Stephen Barnes, Sky Optics, Burlington, Ontario. Website: <http://skyoptics.net>, email: sbarnes@skyoptics.net

Frontpiece: Cygnus Star Cloud. Photo by David Lane, Halifax Centre; 50mm f 2.8 hypered Technical Pan 2415 film, 10 minute exposure.

PRESIDENT'S MESSAGE

As the world prepared to enter the 2000s, the RASC spent much of 1999 positioning itself for the next century. This year, our National Office in Toronto underwent a major overhaul. The office was redecorated and new furniture was purchased. A new computer system was developed to handle our membership processing, *Journal* subscriptions and product sales. This integrated system ties the membership and customer database to the publications and product database, making it easy to handle membership renewals and product orders at the same time.

These changes will benefit the Society greatly in the future. By handling our own processing, we are able to provide better service to members and customers. The National Council will find reports generated from the data useful in planning the future of the Society. Our databases will expand, resulting in increased sales and subscriptions. We are already seeing positive results from this transition. Our 1999 sales were greater than sales in 1998.

The changes made to the Society over the past few years have resulted in the highest membership count in our history. I think the main reason for this is that we are offering members more of what they want from an amateur astronomy organization. Members enjoy receiving each issue of the *Journal* and can't wait to receive their copy of the *Observer's Handbook* in the mail. Those beginning amateur astronomy find *SkyNews* a big help in learning the night sky. At the local level, centres continue to provide interesting programs and observing activities.

The person who holds the Society together Monday to Friday (and sometimes on weekends) is our Executive Secretary, Bonnie Bird. I have seen first-hand what is required to keep the National Office running, and I can tell you it is a monumental job. Bonnie has handled the challenging transition well. We are all indebted to her and her assistant, Isaac McGillis for competently breaking in the new system.

Looking at Society finances, over the past few years, we have experienced substantial surpluses. The large deficit we incurred in 1999 is at first misleading. Our accounting system bundles capital expenses with our regular expenses. We made several capital expenditures in 1999: office improvements and new computer hardware and software. Since these will not occur in 2000, we should expect things to get back to normal. In the meantime, I have asked the Finance Committee to look into changing our accounting practice so that future councils are not dissuaded from making such important capital expenditures that result in such a large deficit. As I have stated before, by bringing membership handling in-house, our service will improve but we will have to pay extra for it. Unless we can find alternative sources of revenue, our membership fees will have to rise.

The 1999 General Assembly in Toronto was a great success. This year the RASC held its annual convention with two other

organizations, the Astronomical Society of the Pacific and the American Association of Variable Star Observers. Along with the three-day GA, we held a two-day lecture series called Universe '99, and a three-day symposium on Amateur-Professional Partnership in Astronomy Research and Education.

In 1999, there were four National Council meetings held to deal with the business of the Society. In between these meetings, the Executive Committee met seven times, via conference calls, to attend to business items and to ensure the success of the National Office overhaul.

At a National Council meeting in July, a Public Education Committee was created. This is an important step since one of the Society's mandates is "to stimulate interest and promote and increase knowledge in astronomy and related sciences."

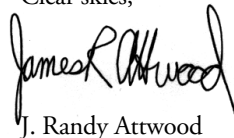
I want to thank all the people who worked on the preparation of this Annual Report. Reports and lists from all centres were collected by Bonnie Bird and then prepared for printing by our graphic designer, Brian Segal. Several years ago there was a suggestion that the Annual Report be terminated. I fought hard against this movement and I am glad that the Annual Report continues to be published. It looks great and it will be a very useful reference for all members. It will be especially useful in the future when members want to look back and read about the activities of the Society.

The Society would not be able to function without the tireless efforts of key individuals. First, there are all the members at the Centre level who organize and run Centre activities with great enthusiasm. Next, there are the members chosen from each Centre who serve as representatives to National Council. At the National level, there are committee members who look into improving all aspects of running the Society. There are our tireless editors who put in hundreds of hours producing high-quality publications. Finally, there are the members of the Executive who over the past two years have worked very hard to get the Society through a difficult and potentially risky period. To all, I extend my warmest thanks.

I would like to encourage members to volunteer and help out at the Centre and National level. If everyone does a little, no one has to do a lot and the Society is better for it. I would also ask that members continue to send feedback to the National Executive on what you like and dislike about the Society.

This is my second and final opportunity to communicate with members in the Annual Report. I have enjoyed my term as your President very much. During my visits to centres from coast to coast, I have seen that all members share the same passion for the sky and desire to share it with others.

Clear skies,



J. Randy Attwood

NATIONAL SECRETARY'S MESSAGE

The constellations have almost made their yearly trek across the sky, which means that another year has come and gone. It is hard to believe that a year has passed since I became the National Secretary. Though I have been in the RASC for over 10 years, and have served at the local and the national level for over 8 of those 10 years, it is always interesting to have the opportunity to go into a new position and learn what our Society is all about.

I have enjoyed receiving, by mail and email, many letters from people around the world. It is exciting to see the enthusiasm of the children who are wide eyed and full of imagination, wanting to learn more about astronomy, and share what they already know. In a world that is so busy and has no time for the simple pleasures, it is like a breath of fresh air that reminds one to go out, look up, and marvel at the endless beauty of the night sky.

The RASC is a great Society in which we have many people, from coast to coast and country to country, who are so eager to help others to learn, and to demonstrate what our past, present and future is about. We can all help in trying to promote our hobby and love of astronomy, by sharing a little knowledge with someone. It may turn out that you were the mentor in a young child's eyes that moved them into a great scientific career in astronomy or the allied sciences. All it takes is a little knowledge and a gentle guiding hand to a telescope or binoculars to share the night sky, and be a part of something wonderful.

Perhaps this is why, this year, we have seen the RASC grow in membership numbers. This has not come without some growing pains at the National Office and at the Centre levels. With a new computer system up and running, and working out the small kinks and bugs like any new computer software, Bonnie and Isaac have demonstrated great enthusiasm and diligence in overcoming the obstacles that have risen. I would like to personally thank all our members for their understanding during the small delays, and for helping the RASC during its growing phase.

Below is a chart showing our membership numbers over the last four years. This includes the membership totals to December 31, 1999 for all Centre's, Unattached Members and Honorary Members.

Centre	1999	1998	1997	1996
Calgary	270	267	272	256
Edmonton	217	166	152	138
Halifax	157	164	135	127
Hamilton	79	65	45	50
Kingston	176	136	152	142
Kitchener	80	51	32	32
London	78	65	49	45
C.F. de Montréal	46	46	33	11

Montreal	105	113	108	103
Niagara	83	72	60	48
Okanagan	53	40	35	16
Ottawa	394	298	246	216
Quebec	36	50	51	47
Regina	27	31	18	23
St. John's	36	41	39	35
Sarnia	19	10	2	13
Saskatoon	77	75	54	54
Thunder Bay	37	31	17	20
Toronto	723	720	687	682
Vancouver	271	229	233	218
Victoria	148	144	126	100
Windsor	94	71	66	52
Winnipeg	06	97	77	64
Unattached	457	413	357	365
Honorary	14	15	15	15
Total	3783	3419	3071	2862

As our past Secretary has stated in the 1998 Annual Report, there are special memberships that may be awarded yearly. To date, for 2000, there have been no special memberships awarded, although there is correspondence between several candidates as this goes to press.

Though it is good to see our numbers grow and know that somehow the word of astronomy is getting out to people, it is also a sad time to loose those friends we have made over the years. In 1999 we lost many astronomy friends and acquaintances. Let us take a moment to remember those who have left us but who have travelled on:

Dr. R. Ammons (Unattached); James Fish (Calgary Centre); Edwin Greenwood (Toronto Centre); Peter Grigg (Calgary Centre); Dr. Gerhard Herzberg (Ottawa Centre); Jack Horwood (Ottawa Centre); Dr. W. Iwanowska (Honorary Member); Lothar Jung (Toronto Centre); Father Lucian Kemble (Calgary Centre); Dr. J. Edward Kennedy (Saskatoon Centre); Douglas Middleton (Montreal Centre); Marie Mills (Windsor Centre); Kathleen Molloy (Toronto Centre); Klaus Plauschinn (Toronto Centre); John Rozca (Niagara Centre); Peter Sim (Calgary Centre); Frederic L. Troyer (Toronto Centre)

I have enjoyed working with the present Executive, and all the committees and their representatives. I am looking forward to my second year of my term in office, and would like to hear from our members on any concerns you may have, or if you would just like to chat. You can always reach me by e-mail at kimhay@kingston.net or contact me through the National Office.

Kim Hay
National Secretary

RASC ACTIVE MEMBERSHIP (RASC DATABASE)

30 DECEMBER 1999

Membership by Centre

Centre	Number	% of Total
Calgary:	270	7.13%
Centre Francophone:	46	1.21%
Edmonton:	217	5.73%
Halifax:	157	4.14%
Hamilton:	79	2.09%
Kingston:	176	4.65%
Kitchener-Waterloo:	80	2.11%
London:	78	2.06%
Montreal:	105	2.77%
Niagara:	83	2.19%
Okanagan:	53	1.40%
Ottawa:	394	10.40%
Quebec:	36	0.95%
Regina:	27	0.71%
Sarnia:	19	0.50%
Saskatoon:	77	2.03%
St. John's:	36	0.95%
Thunder Bay:	37	0.98%
Toronto:	723	19.09%
Vancouver:	271	7.15%
Victoria:	148	3.91%
Windsor:	94	2.48%
Winnipeg:	106	2.80%
Unattached:	476	12.57%

Total: 3788 100.00%

Complimentary: 51

Total (incl. Compl.): **3839**

Membership by Category

Category	Number	% of Total
Regular:	3240	85.65%
Life:	344	9.09%
Youth:	199	5.26%
Sub-Total:	3783	100.00%
Compl:	51	
Other:	5	
Total:	3839	

Unattached Members

Country	Number	% of Total
Canada	265	55.67%
USA	162	34.03%
Other	49	10.29%
Total:	476	100.00%

Life Members

Country	Number	% of Total
Canada	271	77.21%
USA	51	14.53%
Other	29	8.26%

Total: 351 100.00%

Membership by Country

Country	Number	% of Total
Canada:	3455	90.00%
USA:	286	7.45%
England:	0	0.00%
Other:	98	2.55%
Total:	3839	100.00%

Membership by Province

Country	Number	% of Total
Alberta:	494	14.39%
Br. Col.:	532	15.49%
Manitoba:	114	3.32%
New Bruns:	21	0.61%
Nfld:	37	1.08%
Nova Scotia:	127	3.70%
Ontario:	1777	51.75%
PEI:	7	0.20%
Quebec:	210	6.12%
Sask:	110	3.20%
NWT:	4	0.12%
Yukon:	1	0.03%

Total (Can.): 3434 100.00%

(Non-Canada) 405

Grand Total: 3839



1999 National Executive

Front Row: Dr. Robert Garrison (First Vice-President), J. Randy Attwood (President), Dr. Rajiv Gupta (Second Vice President)

Back Row: Bonnie Bird (Executive Secretary), Michael S.F. Watson (Treasurer), Kim Hay (National Secretary)

TREASURER'S REPORT

The first place in the annual financial statements to which most RASC members turn is the last line of the Revenue and Expenditure statement. In 1999, for the first time in a decade, this line shows a deficit for the year, and the amount (approximately \$35,000, or 12% of total revenues), may be startling at first glance. This is especially so for a year in which the Society's total revenues actually increased by \$14,500 over 1998. Obviously expenses increased by a far greater amount (\$360,000 in 1999 as compared with \$290,000 in 1998), and it is this matter that deserves some extensive comment.

Dealing first with revenues, the Society's membership fee income increased by 16%, reflective of the continuing increase in the level of membership in recent years. Publications revenue increased slightly, although income from both the *Journal* and the *Observer's Handbook* declined. The decrease in *Journal* revenue is more apparent than real, however, because some \$15,000 in 1998 revenue resulted from a one-time

copyright payment in that year. The decline in *Observer's Handbook* revenue was attributable chiefly to a change in the exchange rate between the U.S. and Canadian dollars. Income from the *Beginner's Observing Guide* was up substantially, but the big winner among the publications was the *Observer's Calendar*. This publication, which was both conceived several years ago and continues to be produced almost single-handedly by former Treasurer and new *Observer's Handbook* editor Rajiv Gupta, can now be considered as its own profit centre for the Society. Revenues for the *Calendar* increased by an impressive 225%, while expenses went up by only 77%. The only other revenue category to show a significant change from the prior year was interest on investment, which declined by \$4,000 (27%). This resulted from the need to cash in several tens of thousands of dollars in investments for use in general operations.

It is the expense side of the Revenue and Expenditure

TREASURER'S REPORT

statement in which we see a 24% increase from 1998 to 1999. There are three main reasons for this large change. First, the increased membership numbers and level of service at National Office now require in two full-time employees for the Society, instead of only one as in the past. Second, in 1999 the Society spent \$38,000 for a new membership handling computer system (hardware and software) following the decision to remove membership handling from University of Toronto Press and bring it in-house. The full amount of this system appears as an expense in 1999, although realistically it should be capitalized and the cost spread over approximately five years. Third, increased membership numbers have increased the cost of providing *SkyNews* by \$9,000 over the 1998 level.

On the subject of Society expenses, I can do no better than quote from the report of the Finance Committee to National Council at the March 2000 meeting in Toronto:

It seems clear to us that the Society has moved into an era of increased costs, attributable to the higher level of service that our members are both expecting and receiving, and the sheer volume of new members. Our revenues are not keeping pace with the increased costs. This is reflective of the fact that the marginal cost of servicing a new member exceeds the fee revenue that a new member generates by a substantial amount. For example, every new member receives (1) an *Observer's Handbook* (marginal cost, including mailing and handling, of about \$4), (2) six issues of *SkyNews* per year (\$7.75), (3) a copy of the Annual Report (\$1.00), (4) membership handling services, mailing and database maintenance (\$4); (5) six issues of the *Journal* (\$6.60). The total marginal cost of servicing a new member is therefore a minimum of \$23.35. The fee revenue to the Society from such a member is \$21.60 for an ordinary member, and \$13.50 from a youth member, for an average of \$21.10.

Another way of looking at the adequacy of fees is to compare the per member cost of certain specific, important services that a member receives with the revenue received from the member. The net cost (expense less revenue) of the *Journal* is \$38,500 per year; the Annual Report, \$10,500; *Observer's Handbook* (marginal printing cost plus mailing), \$15,000; *SkyNews*, \$31,000; membership handling, \$10,500. The total is \$105,500, compared with total fee revenue of \$92,000. In order to pay for just these services, annual fees for an ordinary member would have to increase from \$36 to a little more than \$41.50 per year.

It is not at all surprising either that current fee revenues are insufficient to cover the marginal cost of servicing a new member, or that total costs now exceed total revenues. The

last time that fees were raised was in 1993. Since that time, the *Journal* has been revitalized, *SkyNews* has been added to the benefits of membership, and a smoothly-running membership handling system has been instituted. Since 1994, furthermore, fees have remained steady, while the Consumer Price Index has increased by 8.8%¹. The 1999 deficit of \$35,000, combined with a projected deficit of \$19,000 for 2000, means that, in these two years, the Society will have had to divert \$54,000 from its investment asset base to current operations. This, in turn, reduces interest income into the future.

For the past several years, National Council has operated on the principle, which the Finance Committee considers to be very prudent, that the Society's revenues should exceed its expenses by a modest proportion of between five and ten percent. This historic policy has produced a reasonable asset base that has enabled the Society to absorb the large 1999 deficit, and will also enable us to withstand the anticipated somewhat smaller deficit in year 2000. In combination, these two deficits will have resulted in a decrease in the Society's net assets, by the end of 2000, of more than \$50,000.

It was for this reason that the Finance Committee recommended to Council, and Council agreed, that membership fees should be increased from \$36 to \$40 for ordinary members, from \$22.50 to \$25 for youth members, and from \$720 to \$800 for life members. We hope and expect that the membership will approve this fee increase at the Annual Meeting to be held at the Winnipeg General assembly in July. The only alternative to a fee increase now, and both additional revenue-generating initiatives in the immediate future and possible additional fee increases as well, will be the elimination of some benefits of membership (such as *SkyNews*, for example), a reduction the level of service provided by National Office, and the depletion of the Society's asset base. None of these options is at all attractive.

The Society's overall financial condition remains healthy, but one of major tasks of the Treasurer, the Finance Committee and National Council is to restore much needed balance to the Society's finances. We need your help and support to achieve this goal.



Michael Watson
National Treasurer

¹ Canada, all items: 1992 = 100; 1993 = 101.8; 1999 = 110.5

AUDITORS' REPORT

Tinkham & Associates

CHARTERED ACCOUNTANTS

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To the Members of
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

We have audited the balance sheet of The Royal Astronomical Society of Canada as at December 31, 1999 and the statement of revenue, expenditures, and equity for the year then ended. These financial statements are the responsibility of the company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In common with many charitable organizations, the Society derived revenue from donations, the completeness of which is not susceptible of satisfactory audit verification. Accordingly, our verification of these revenues was limited to the amounts recorded in the records of the Society and we were not able to determine whether any adjustments might be necessary to donation revenues, excess of revenue over expenditure, assets and equity.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Society as at December 31, 1999 and the results of its operations for the year then ended in accordance with generally accepted accounting principles.

TORONTO, Ontario
March 20, 2000


Tinkham & Associates
CHARTERED ACCOUNTANTS

BALANCE SHEET

December 31, 1999, with comparative figures for December 31, 1998

	1999	1998
Assets		
Current		
Cash and short term investments	\$ 185,008	\$ 257,358
Accounts receivable	50,870	45,654
Prepaid expenses	2,188	2,188
Accrued interest receivable	17,893	14,157
	255,959	319,357
Special purpose funds (note 1 (c))		
Cash	1,022	1,259
Accrued interest receivable	5,997	5,212
Investments	281,464	275,685
	288,483	282,156
Capital assets		
Office building, furniture, equipment, library (nominal value)	1	1
	\$ 544,443	\$ 601,514
Liabilities		
Current liabilities		
Accounts payable and accrued charges	\$ 34,102	\$ 54,573
Deferred revenue		
Membership fees for ensuing years	73,782	65,284
Journal subscriptions	4,323	20,696
Unamortized life membership fees (note 1 (b))	45,127	41,362
	157,334	181,915
Special purpose funds (note 1 (c))	288,483	282,156
Equity		
Equity	98,626	137,443
	\$ 544,443	\$ 601,514

On Behalf of the Board:



 President



 Treasurer

See accompanying notes to financial statements

STATEMENT OF REVENUE, EXPENDITURE AND EQUITY

Year ended December 31, 1999, with comparative figures for December 31, 1998

	1999	1998
Revenue		
Membership fees		
R.A.S.C. Centres	\$ 64,293	\$ 56,037
Individual members	17,408	14,240
Life membership: annual appropriation	2,068	1,908
	83,769	72,185
Publication revenue		
R.A.S.C Journal	37,456	50,26
Observer's Handbook	122,219	128,413
Beginner Observer's Guide	14,061	6,63
Observer's Calendar	34,367	15,279
Other	899	—
	209,002	200,588
Miscellaneous income		
Interest on investment	14,841	18,828
Rent	13,832	13,751
Other income	4,173	5,656
	32,846	38,235
	325,617	311,008
Expenditures		
Publication costs		
Journal	60,178	65,798
Annual report	8,292	8,249
Distribution costs	10,186	16,144
Observer's Handbook	36,336	33,232
Beginner Observer's Guide	2,004	10,669
Observer's Calendar	21,352	12,036
Operating costs		
Office salaries and employee benefits	45,834	26,800
Membership services	24,576	13,435
Handbook distribution to members	10,221	6,617
Grants to centres	5,600	3,398
Life membership allotment to centres	3,773	3,786
SkyNews bundling	30,924	21,835
Office expenses	57,556	13,973
Advertising	1,700	2,079
Financial services	11,957	11,542
Insurance	4,015	4,086
Committees/Promotion	5,276	2,497
Travel expenses	12,718	23,532
Building	8,052	10,600
	360,550	290,308
Excess (deficiency) of revenue over expenditures	(34,933)	20,700
Equity, January 1	137,443	119,445
Less: Transfer to Endowment Fund	(3,884)	(2,702)
Equity, December 31	\$ 98,626	\$ 137,443

See accompanying notes to financial statements

NOTES TO THE FINANCIAL STATEMENTS

December 31, 1999

1. Accounting policies

(a) Financial statements

The financial statements have been prepared by management in accordance with generally accepted accounting principles. The preparation of the Royal Astronomical Society of Canada financial statements in conformance with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the balance sheet date and the reported amounts of revenue and expense during the reporting period. Actual results could differ from such estimates.

(b) Membership fees

Members' fees are recognized as revenue for the fiscal year in which the membership primarily falls. Accordingly, fees received for ensuing years are recorded as deferred revenue. Life memberships are credited to deferred revenue when received. Five percent of the life membership fund is transferred at the beginning of each year to membership fees revenue. At the end of each year, the amount of interest earned during the year by the monies in the life membership fund is added to the fund.

	1999	1998
Life membership fees as of January 1	\$ 41,362	\$ 38,151
Add: Life membership fees received in the year	1,440	2,828
Interest earned	4,393	2,289
Deduct: Amortization	2,068	1,906
Balance, December 31	\$ 45,127	\$ 41,362

(c) Special purpose funds

The special purpose funds of the Society are managed in accordance with directives issued by Council. Income is recorded on the accrual basis.

	P.J. Millman Endowment Fund		Ruth Northcott Fund	
	1999	1998	1999	1998
Fund value as of January 1	\$ 228,499	\$ 225,197	\$ 53,657	\$ 51,603
Add: Donations	—	600	—	—
Add: Interest	—	—	2,679	2,734
Add: Inflation adjustment	3,884	2,702	—	—
Deduct: Expenses	—	—	237	680
Balance, December 31	\$ 232,383	\$ 228,499	\$ 56,099	\$ 53,657
Funds, comprised of:				
Cash	\$ —	\$ —	\$ 1,022	\$ 1,259
Accrued interest	—	—	5,997	5,212
Term deposits	232,383	228,499	49,080	47,186
	\$ 232,383	\$ 228,499	\$ 56,099	\$ 53,657

(d) Publications

R.A.S.C. Journal subscription revenues are amortized into income over the subscription period.

(e) Investments

Investments are stated at cost. Investment income is recorded on the accrual basis.

(f) Fixed assets

The office furniture, equipment and the library of the Society are carried in the accounts at a nominal value. The cost of additions to and replacements of fixed assets are expensed as they are incurred. A new computer system and computer hardware was acquired in 1999 costing \$38,250.

2. Organization

The Royal Astronomical Society of Canada is a Canadian corporation without share capital and a registered charitable organization, incorporated for the purpose of stimulating interest in and promoting astronomy and related sciences.

3. Fair Value of Financial Instruments

Fair values are based on estimates using present value and other valuation techniques which are significantly affected by the assumptions used concerning the amount and timing of estimated future cash flows and discount rates which reflect varying degrees of risk. Accordingly, the fair value should not be interpreted as being realizable in an immediate settlement of the instruments.

The fair value amounts for cash and short term investments, accounts receivable and payables and accrued charges approximate their carrying amount because of the short term maturities of these items.

4. Uncertainty due to the Year 2000 Issue

The Year 2000 Issue arises because many computerized systems use two digits rather than four to identify a year. The date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems arise in some systems which use certain dates in 1999 to represent something other than a date. Although the change in date has occurred, it is not possible to be certain that all aspects of the Year 2000 Issue affecting the Royal Astronomical Society of Canada, including those related to the efforts of suppliers, or third parties, have been fully resolved.

5. Statement of cash flows

A statement of Cash Flows is not presented because it would not provide any additional useful information.

MINUTES OF THE 1999 ANNUAL MEETING

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
Minutes of the Annual Meeting, held 1999 07 03 in Room
3171, Medical Sciences Building,
University of Toronto, Toronto, Ontario.

The meeting was called to order at 09h08 edt by the chair, the RASC National President, Mr. Randy Attwood. Mr. Attwood welcomed delegates to the 1999 General Assembly. Mr. Attwood introduced Dr. Frank Bash, president of the Astronomical Society of the Pacific, who spoke about the value of the co-operation between the ASP and the Society. Mr. Attwood introduced Dr. Janet Mattei, president of the American Association of Variable Star Observers, who spoke about the value of the co-operation between the AAVSO and the Society.

Mr. Attwood called the roll of Centres. Twenty Centres were represented (Cal, Edm, Hal, Ham, Kin, Kit, Lon, CFM, Mon, Nia, Oka, Ott, Que, StJ, ThB, Tor, Van, Vic, Win, Wpg) and there were also several unattached members present. Approximately 60 members were in attendance.

1. APPROVAL OF AGENDA

No changes to the agenda, as it was distributed, were requested.

2. ADOPTION OF MINUTES OF THE 1998 ANNUAL MEETING

MOTION AM9901

It was moved by Mr. Loehde and seconded by Mr. Enright to adopt the minutes of the 1998 Annual Meeting as published in the 1998 Annual Report.

The motion was CARRIED.

3. REPORTS

3.1 PRESIDENT

Mr. Attwood expressed the view that the Annual Report served well the function of informing all members of the current state of the Society. Mr. Attwood referred to his report as presented in the Annual Report. Mr. Attwood reported on the progress of the development of a new system for dealing with membership and other operations of the Society. Mr. Attwood commented on the introduction of astronomy topics in the school curriculum of the Province of Ontario and expressed the hope that the Society would be able to take advantage of this development to promote the goals of the Society. Mr. Attwood thanked the other members of the Executive Committee for their continuing efforts. Mr. Attwood commented on how electronic communications had had a positive effect on the operation of the Society. Mr. Attwood reported that some

National Representatives had visited the national office during the General Assembly. Mr. Attwood expressed appreciation for the continuing efforts of Ms. Bird. A round of applause followed.

3.2 FIRST VICE-PRESIDENT

Dr. Garrison elaborated on the transfer of membership tracking and support from the University of Toronto Press to the national office. Dr. Garrison announced that an agreement had been negotiated with Mr. Terence Dickinson to continue to provide the publication "SkyNews" to all members. Dr. Garrison reported that the term of office of Dr. David Turner as Editor of the Journal had ended and that a search was underway for a suitable replacement and that Dr. Turner would continue to serve until the search was successful. Dr. Garrison expressed appreciation for the continuing efforts of Dr. Turner.

3.3 SECOND VICE-PRESIDENT

There was no report.

3.4 NATIONAL SECRETARY

Mr. Auclair reported that he had informed Council that it would be necessary for him to step down, with reluctance, from the position of National Secretary. Mr. Auclair reported that a small number of special memberships had been granted to individuals in disadvantaged countries. Mr. Auclair reported on recent correspondence, particularly with individuals in other countries. Mr. Auclair expressed appreciation for the continuing efforts of Ms. Bird and Mr. McGillis in the national office. Mr. Auclair reported that the membership of the Society had increased in recent months. Mr. Auclair read the roll of the members who were reported as deceased in 1998 and in the first six months of 1999. A moment of silence was observed in their honour.

3.5 TREASURER

Mr. Watson described the financial state of the Society and referred to the financial statements for 1998, which were presented in the Annual Report. Mr. Watson expressed appreciation for the efforts of Dr. Gupta, who had set up the current financial system, and for the efforts of Ms. Bird. Mr. Watson described a spreadsheet, distributed at the meeting, in which details of the membership were presented.

3.6 EXECUTIVE SECRETARY

Ms. Bird described changes in the furniture and physical layout of the national office, and on developments in making the operation of the national office more effective. Ms. Bird conveyed greetings from Ms. Rosemary Freeman, former Executive Secretary.

3.7 NATIONAL RECORDER

There was no report.

3.8 AWARDS COMMITTEE

There was no report.

3.9 CONSTITUTION COMMITTEE

Mr. Watson reported that the proposed changes to the Society's By-Law would be presented to the members for a vote later in the meeting. Mr. Watson expressed appreciation for the efforts of Dr. Garrison and Dr. Gupta as members of the Committee.

3.10 FINANCE COMMITTEE

MOTION AM9902

It was moved by Mr. Watson and seconded by Mr. David Orenstein to adopt the audited financial statements as published in the 1998 Annual Report.

The motion was CARRIED.

Mr. Watson thanked the members of the Committee for their assistance.

3.11 HISTORICAL COMMITTEE

There was no report.

3.12 LIBRARY COMMITTEE

There was no report.

3.13 MEMBERSHIP AND PROMOTION COMMITTEE

Mr. Hladiuk reported that the Committee had been working on the preparation of ads for inclusion in "SkyNews," and that a new brochure had been completed. Mr. Hladiuk announced that he would be stepping down as Chair of the Committee and thanked the members of the Committee for their continuing efforts. Mr. Attwood thanked Mr. Hladiuk for his efforts. A round of applause followed.

3.14 NOMINATING COMMITTEE

There was no report.

3.15 PROPERTY COMMITTEE

Mr. May thanked Ms. Bird and Mr. McGillis for their efforts at the national office. Mr. May noted that the relationship with the tenant who lived above the national office was an excellent relationship.

3.16 PUBLICATIONS COMMITTEE

Dr. Garrison noted that the editors of the Society's publications would welcome submissions from members.

3.17 EDITOR OF THE JOURNAL

There was no report.

3.18 EDITOR OF THE OBSERVER'S HANDBOOK

Dr. Bishop thanked Ms. Bird and Mr. McGillis for their efforts with regard to distribution and sale of the Observer's Handbook. Dr. Bishop expressed appreciation for the continuing efforts of the 36 contributors to the Observer's Handbook. Dr. Bishop reported that it was likely that the 2000 edition of the Observer's Handbook would be printed in October. Dr. Bishop expressed the view that the contribution made by the Observer's Handbook to the Society's financial situation amounted to a subsidy which had made it possible to continue to offer membership at a low rate. There was further discussion on the matter of the financial contribution made by the Observer's Handbook.

3.19 EDITOR OF THE BEGINNER'S OBSERVING GUIDE

Mr. Enright reported that the fourth edition had been prepared and had been made available. Mr. Enright expressed gratitude for the work of Mr. Mark Howes and Ms. Valerie Jarus of Queen's University Press, who had assisted in the preparation of the fourth edition. Mr. Enright reported that the third edition had returned net revenue of over \$6,000 to the Society's financial situation.

Mr. Enright referred to the curriculum changes in the Province of Ontario, as mentioned previously by Mr. Attwood, and expressed the hope that many copies of the Beginner's Observer's Guide would be sold to school teachers in the coming months.

3.20 OBSERVER'S CALENDAR

Mr. Attwood reported that the 1999 Observer's Calendar had sold out and that prospects for the 2000 Observer's Calendar were positive.

3.21 ASTRONOMY DAY CO-ORDINATOR

Mr. Haig reported that Mr. Peter Williams, Astronomy Day Co-ordinator, had expressed an interest in posting material related to Astronomy Day on the Society's web site.

3.22 COMPUTER USE COMMITTEE

Mr. Lane reported that the Society's web site continued to be very popular and that content on the web site had expanded considerably in recent months. Mr. Lane reported that the Society's mailing lists had been very successful. Mr. Lane expressed appreciation to Saint Mary's University, whose computers hosted the Society's web site.

MINUTES OF THE 1999 ANNUAL MEETING

3.23 LIGHT POLLUTION ABATEMENT

Mr. Dick announced that a Dark Sky Preserve had recently been established in the Muskoka region of Ontario, and expressed the view that this development would have a positive effect on other local efforts to reduce light pollution across Canada. Mr. Dick stressed that it would be helpful for individual Centres to establish local committees devoted to this goal. Mr. Dick requested that any local developments be reported to him. Mr. Dick described other initiatives that local committees could undertake. Mr. Broughton pointed out that Dr. David Crawford, president of the International Dark-Sky Association and an honorary member of the Society, and his wife were present at the General Assembly. Mr. David Orenstein (Toronto) suggested that the Committee consider drafting resolutions, which could be presented to political organizations. Mr. Dick expressed the view that it would be more effective to work closely with technical staff in each jurisdiction.

At 10h37, Mr. Attwood announced that the meeting would break for coffee. The meeting reconvened at 10h53.

3.24 NEW OBSERVING CERTIFICATES

There was no report.

4. PROPOSED AMENDMENTS TO BY-LAW NUMBER ONE

Mr. Watson described the efforts of the Constitution Committee to incorporate changes in the operation of the Society into the Society's By-Law. Mr. Watson presented six proposed motions, which had been distributed in advance of the meeting. Mr. Skerratt requested that each of the six proposed motions be presented individually for discussion by the members.

Mr. Attwood reviewed the process of proxy voting and invited any member who had not already reported proxies held by them to do so at once.

MOTION AM9903

It was moved by Mr. Watson and seconded by Dr. Garrison (see #1 in the summary distributed)

The motion was CARRIED by special resolution.

MOTION AM9904

It was moved by Mr. Watson and seconded by Dr. Garrison (#2)

Mr. Watson pointed out that the effect of this change would be that it would be required that the National Secretary be notified of any proposal to change the Society's fees 90 days in advance of an annual meeting of the Society. Mr. Broughton asked if a change in the Society's fees would be effective at the

end of August following the annual meeting at which the change had been approved, and Mr. Watson replied that it would. Mr. Broughton asked if members would be permitted to renew their memberships at the former rate (perhaps for a multiple-year renewal) between the date of the annual meeting and the end of August, and Mr. Attwood said that this had been the practice in the past.

The motion was CARRIED by special resolution.

MOTION AM9905

It was moved by Mr. Watson and seconded by Dr. Garrison (#3)

The motion was CARRIED by special resolution.

MOTION AM9906

It was moved by Mr. Watson and seconded by Dr. Garrison (#4)

The motion was CARRIED by special resolution.

MOTION AM9907

It was moved by Mr. Watson and seconded by Dr. Garrison (#5)

The motion was CARRIED by special resolution.

MOTION AM9908

It was moved by Mr. Watson and seconded by Dr. Garrison (#6)

Mr. Skerratt expressed the views of members of the council of Toronto Centre, who would have to handle a significant number of new memberships on a regular basis under a system involving a floating membership year. Mr. Loehde pointed out that the Toronto Centre had decided not to participate in the Society's new membership tracking system and that joining the new system would ameliorate the difficulties encountered by the Toronto Centre. Mr. Roland Dechesne explained the concerns of the Calgary Centre, particularly the impact the floating membership system would have on the youth activities in the Calgary Centre. Mr. Dechesne also expressed the view that the Observer's Handbook, which was based on the calendar year, would be less useful to members under a floating membership year. Mr. Watson referred to the explanatory notes distributed in advance of the meeting, where it had been explained when a member would be entitled to a copy of the Observer's Handbook. Mr. Broughton asked for clarification regarding the hypothetical case of an individual who permits their membership to lapse in May and then rejoins the Society soon after 1 November.

MOTION AM9909

It was moved by Dr. Chou and seconded by Mr. Lane to change the words of the proposed amendment in the proposed wording of 3.07(3), which is to be renumbered 3.06(3), from

“...previous twelve months...” to “...previous four months...”

MOTION AM9910

It was moved by Dr. Chou and seconded by Mr. Orenstein that leave be granted to withdraw MOTION AM9909.

It was noted by Mr. Watson that a motion for leave to withdraw is not debatable.

The motion was CARRIED.

MOTION AM9909 was withdrawn.

MOTION AM9911

It was moved by Dr. Chou and seconded by Mr. Orenstein to table MOTION AM9908 until the next annual meeting.

The motion was DEFEATED. Discussion of MOTION AM9908 resumed.

MOTION AM9912

It was moved by Mr. Whitman and seconded by Mr. Lane to amend MOTION AM9908 by removing both appearances of the clause “...and who has not been a member of the Society at any point during the previous twelve months...” in the proposed wording of 3.07(3), which is to be renumbered 3.06(3).

The motion was CARRIED by special resolution.

MOTION AM9908 was CARRIED, as amended, by special resolution, with 116 votes and proxies in favour and 16 votes and proxies opposed. A round of applause followed.

5. ELECTION OF OFFICERS OF THE SOCIETY

Mr. Attwood expressed regret that circumstances had made it necessary for Mr. Auclair to step down, and thanked Mr. Auclair for his efforts. A round of applause followed. Mr. Attwood introduced Ms. Kim Hay and announced that Ms.

Hay had been acclaimed to the office of National Secretary. A round of applause followed.

6. SELECTION OF AUDITOR

MOTION AM9913

It was moved by Mr. Watson and seconded by Mr. Haig that C.J. Tinkham and Associates be reappointed as auditors for the Society.

The motion was CARRIED.

7. OTHER BUSINESS

Mr. Orenstein suggested the public education should be a regular component of activities at every General Assembly.

Ms. Andora Jackson invited all delegates and all other members of the Society to attend the 2000 General Assembly, hosted by the Winnipeg Centre. A round of applause followed.

Mr. Attwood announced that the next annual meeting would take place in Winnipeg, at a location and a time to be announced.

8. ADJOURNMENT

MOTION AM9914

It was moved by Mr. Brydon that the meeting adjourn.

The motion was CARRIED at 12h25.

Respectfully submitted,

Peter Jedicke,

National Recorder

*The minutes were prepared by the National Recorder, who is solely responsible for any errors or omissions. Please **report** any such errors or omissions to the National Recorder—**before** the subsequent Annual Meeting, if possible!*

ANNUAL REPORTS FROM THE CENTRES

CALGARY CENTRE

Calgary Centre – Secretary's Report:

Calgary Centre had another active year. The Centre held many public education activities with the Centre display and with members volunteering their time and telescopes to show the public the night sky. Events such as the Calgary Home Show and the Calgary Zoo's Zoonival gave the Centre a large audience to present astronomy to a large segment of the public. Astronomy Day and our public star nights in Fish Creek Provincial Park allowed Centre members to introduce people to the stars. Centre members also trekked all the way to Turkey to witness the August solar eclipse.

The Centre provided volunteers to operate the Calgary Science Centre's Friday observing deck program throughout the year. Calgary Centre itself also operates an active tour program at our observatory, and this year has been as successful as previous years, thanks again to the large number of Centre members that are willing to volunteer with these events.

Within Calgary Centre itself, a successful 'telescope for lend' program has allowed members to borrow a telescope for a month. This has given many members a chance to use a wide variety of telescopes without the large financial outlay that purchasing such instruments would entail. There is an active observer's group that meets monthly at the Centre's Wilson Coulee Observatory. As well the Centre also has a very active youth group. This youth group runs three programs for beginner, intermediate and advanced youth members throughout the whole year. The Centre also has members that run an active photometry program and a group has been formed to start a radio astronomy program.

The Centre held 9 general meetings in 1999; the main topics were:

January: "Three Decades of Observing" by Mark Kaye

February: "Sundials" by Roger Bailey

March: "Astrophotography with Commercially Available Equipment" by John Myrtle

April: "If it's Raining Meteors, What Do I Have to Do to Get Wet?" by Dr. Hildebrand

May: "Gravity Waves" by Jan Rubek

June: Annual BBQ at the Centre's Wilson Coulee Observatory

September: "The Virtues of a Small Telescope" by Gary Billings

October: Several members presented their slides and videos from the Turkey eclipse trip.

November: Annual meeting and elections.

EDMONTON CENTRE



Bruce McCurdy, Edmonton Centre, prepares for the next local astronomy workshop

Throughout 1999, nature continued to provide the Edmonton area with viewing conditions that are less than normal for "sunny Alberta." Still, it did not dampen the spirit of Edmonton Centre's more than 200 members, as demonstrated by attendance at our meetings, and the special events we undertook throughout the year.

Edmonton Centre holds 10 general meetings a year, at which the attendance is usually over 100. In addition we are now holding Observers' Group meetings at which members can share their "darkest" experiences! The general meetings offer a mix of Centre speakers and special guests who share their work and interests with us. During 1999, we had the pleasure of presentations by Mark Zalcik, Dr. Eugene Milone, Dr. Rajiv Gupta, Dr. David Fry, Alan Whitman, and Dr. Orla Aaquist. Members share their interests, activities, and achievements in many different ways. For example, those who couldn't travel to Europe for August's eclipse shared vicariously through the experiences and pictures of those who were there!

At various times and in different venues, the Edmonton Centre members have seized several opportunities to share the wonders of our universe with the public. Our members continue to volunteer their time at the Edmonton Space and

Science Centre's astronomy deck, which is popular with many. Special sessions have been arranged at schools, cub and scout meetings, as well as for several sidewalk astronomy events around the city. These include "heavenly" treats along with the sweets at the homes of some members on Halloween, an excellent way of offering those first tantalizing views of our solar system and universe.

Edmonton Centre continues its fine work with our Kidscopes project, which makes telescopes available to schools to help capture the imagination and joy to be found in our universe! After hosting a successful, albeit weather-challenged, Astronomy Workshop in 1998, the workshop committee is now putting together the plans for a bigger and better workshop in October 2000.

The 1999 Alberta Star Party in September was attended by about 100 people. The weather was mixed, with some truly excellent viewing as well as that awful 5-letter word, "cloud."

On a sad side, Edmonton Centre honours the memory of two very important people in our history – two stars in our heavens whose light has been taken away from us.

Dr. Earl Milton, our Honourary President, passed away in 1999. He came to Edmonton Centre in 1953, was the co-founder the following year of our centre publication, *Stardust*, and has served as our president. He was instrumental in securing the first public planetarium in Canada for Edmonton by actively promoting the establishment of the Queen Elizabeth Planetarium, which was the forerunner of the Edmonton Space and Science Centre, the current 'home' of RASC – Edmonton Centre. We thank Dr. Milton for sharing his pleasures with us in such an enduring manner.

Father Lucian J. Kemble, our first Honourary Member, passed away earlier in the year. In the words of Richard Vanderberg, who had the joy of viewing with Father Kemble on many occasions, "He approached life, the universe, and everything in it with a childlike sense of wonder, amazement, and curiosity." In his honour, the Edmonton Centre has renamed its library, "Lampighter' Lucian Kemble Memorial Library."

For further information, or clarification, please contact David Prud'homme, Secretary, at 780-487-9067 (Home) or 780-495-5655 (Work), or by e-mail at dhp@dte.usplanet.net.

HALIFAX CENTRE

The stars brought us another good year at the Halifax centre and we are still growing —approximately 170 members this year.

The public observing session July 20th on the Halifax waterfront went well this year with approximately 500 attending. However the August one was canceled due to poor

weather.

This summer for the August 11th solar eclipse, we had several members fly out for the spectacle in a charter plane. Some floated out in style on a cruise ship and some of us stayed put, but that didn't stop us from trying to see it. There were some great pictures, slides and stories at the September meeting. Personally, I think the group in the plane were trying to fly into that mystical sphere of weather that seems to follow Roy Bishop, so they could have clear skies.

The Nova East star party was a success if only for solar observing. We were teased with a few clear spots of sky every night, but we were clouded out. Maybe Nova East 2000's new location will be better.

Many Members of the centre had their pictures, articles or papers in the journal and other magazines again this year.

Post meeting munchies were set with excellent care by Ralph Fraser again this year.

The Leonids were a slight disappointment here this year. Reports from St. Croix and a few other observing places were in the teens instead of in the hundreds as hoped.

Meetings

January: A demo of Starry Night Deluxe and a few images from his collection by Sherman Williams

February: "Meteors and the Leonids from Mongolia" by Dr. Bob Hawks

March: "Time (Accuracy, Perception and Relativity)" by Dr. Roy Bishop

April: "Technical Aspects of Image Processing" by Blair MacDonald

May: "Microvariability and Oscillations of Stars" by Mary Lou Whitehorne

June: Discussion — St. Croix Projects for the future and the Annual Trivia Quiz

September: Member's Night — Summer activities, Slide shows and Stories

October: Mini Talks: "Nebulas" by Mary Lou Whitehorne "Backyard Dome" by Stephen Tancock

"Origins of the Planets' Names" by Michael Falk

November: "Sending a Spider to the MOON" by Randy Attwood

December: "H.M.S. ENDEAVOUR (Night From A Tall Ship)" by Dr. Roy Bishop

Stephen Tancock
Secretary, Halifax Centre

ANNUAL REPORTS FROM THE CENTRES

HAMILTON CENTRE

Membership

The Hamilton Centre has had a very exciting and productive year, with the October 1998-1999 year bringing us many new members, much publicity, and a lot of activity at the Centre's observatory. Several members of the executive are with us for an additional term, ensuring some continuity of programs and direction, and we have welcomed many new faces as well. We have held a number of public events in Burlington, and at our observing site, the Leslie V. Powis Observatory, in Flamborough, Ontario. Hamilton Centre has never been stronger. Under the guidance of our fearless leader, Colin Haig, our membership base has been continually expanding, to a record high number of members by the end of 1999. Centre members range in age from eight to eighty. We have a number of new faces on our Board of Directors for this year, which have brought with them many invaluable skills and fresh ideas. Colin Haig was re-elected as President at the annual general meeting of the Centre in October. This will be Colin's third term as President for Hamilton Centre.

National Activities

Hamilton Centre members have put forth many ideas to improve the way our nation-wide organization works, and to address the needs of the membership. Some of these ideas included suggestions for the simplification of the national fee structure in order to decouple centre/national portions and simplify surcharges, support for the introduction of family memberships, and ideas related to a new scholarship aimed at students in high school or university. Some of these ideas need additional work, and comment from members of council and other centres. A committee has been formed to work on the details of how to implement a scholarship, and they have had several work sessions to date.

Meetings

The Hamilton Spectator newspaper building had been the host to our regular monthly meetings, at no charge to us. We are grateful to the Spectator for providing access, but recently due to overly high demand, we had been informed that we needed to find a new location. Thus we have moved to the Hamilton Museum of Steam and Technology, at the site of Canada's oldest pumphouse and waterworks. This beautiful facility near the shore of Lake Ontario highlights technology from the steam era, and includes museum galleries, and working machinery that predates even the origins of our predecessor organization, Hamilton Astronomical Society. Some of the Centre's astronomical equipment, including an 1850's era transit telescope, and related instruments are currently on display in the museum. Our speakers have included Marc Castel on the Remote Astronomy Telescope, Alan Whitman on

observing, Joe O'Neil on binoculars, John Nemy and Carol Legate with Eclipse highlights, Ivan Semeniuk on cosmology, a Saltfleet observatory sneak peek, and numerous others, including a brief visit by Dave Turner of Halifax.

Public Education and Outreach

As part of our public awareness program, the summer of 1999 brought Sidewalk Stargazing to the City of Burlington. A crew of more than ten members brought telescopes and information packets to the boardwalk at Spencer Smith Park, on the Burlington shore of Lake Ontario. City recreation staff were most helpful with promotion and coordination. Our first public night was so successful that the City of Burlington asked us if we would be interested in doing several more. Naturally, our membership was more than happy to agree. We did an evening of stargazing approximately every 2 weeks during the summer months, and the turnout was between 200 and 500 people each night, much to our delight! Not only has this public outreach proven popular, it has generated activity in the park, brought us many new members, and has even brought back some that had moved away.

A number of our members also set up their scopes on Halloween, enabling ghosts and goblins to have a look at some of the spooky goings-on in the night sky. Saturn and Jupiter were, as always, big favorites. Halloween observing sessions will likely become a regular event. Astronomy Day was a great success this year. We set up a display in Burlington's Mapleview Centre mall, by the downstairs Food Court. Over the course of the day, our booth was staffed by Colin Haig and Clarence Matheson. Bert Rhebergen, Clyde Sears and Robert Sears, among many others, helped out by fielding the public's questions about the various types of scopes displayed, the astrophotos and images shown in our displays, and general questions about things astronomical and the RASC. We were able to distribute plenty of flyers about the RASC and our Centre. It was a very exciting and fun day. The Centre has reached quite a few people with all these public events.

Astronomy in the Hamilton area is quite popular, and there are in fact two organizations based in the city. Recently, our friends at the other area group, the Hamilton Amateur Astronomers, contacted us about the youth activities that we are trying to get rolling. After considerable discussion we have taken some preliminary steps to combine the efforts of the RASC and HAA youth groups, to the benefit of young people in the Hamilton area. Centre member Jessica Reese has spent considerable time with HAA member Rosa Assalone in small sessions for younger children.

We have also revived our Beginner's Observing nights, and Public Evenings at the observatory. One such evening in May had quite a few extra guests, with Mohawk College students in attendance for the early part of the evening. Mars made a fuzzy appearance, and a gibbous looking Venus was easily visible in

the west. A lot of fun was had by all. Refractor owner Brent Culver was there, as well as Clarence Matheson with his nifty ETX, Steve Barnes with a giant 12" SCT, Colin Haig with his gorgeous 7" Maksutov, and a bunch of others. The site is getting a lot of use these days. Our observing projects have included a lot of video astronomy work by Roger Hill and Colin Haig, solar work by Bert Rhebergen, occultation timings for IOTA by Harry Pulley and the video team, and our 9-in-1-see-all-planets- in-24-hours marathon. Centre equipment has been repaired or patched, but we will need to replace some 20-to-50-year-old equipment soon. Our efforts at the Saltfleet District High School have come to fruition, with over \$40,000 being raised by the school, and a new 16" SCT, CCD camera, and related equipment being selected, purchased, and installed by Centre members: Carmen Martino, Les Nagy, Steve Barnes, Clarence Matheson, and Colin Haig. Steve, Colin, and Carmen have run several sessions for students and teachers at that site. Michael Jefferson, Robert Sears, John Gauvreau and others have run many public education sessions at the Hamilton Centre's Powis Observatory, and have raised operating funds that way. Members have engaged in field expeditions for eclipse viewing, occultations, and Harry Pulley and Colin Haig successfully videotaped and viewed the Mercury transit of the solar disk.

The Observatory

Work continues on our five-inch refractor, which is housed in the dome. This scope was donated by the Marsh family. We are proud to announce that the Saltfleet High School Observatory, run by our Education Director Carmen Martino, is up and running. The school's instrument is a sixteen-inch LX200 SCT. After some initial tweaking, the 16" is starting to perform well.

Our Centre has received recent donations of a small domed observatory and a German Equatorial mount. The mount is suitable for Optical Tube Assembly's of up to six inches. Here is a touch of irony for you: the dome that was donated to us was built many years ago by a former member of Hamilton Centre! The folks who bought the house were going to either torch or tear down the dome, but fortunately they decided to give us a crack at it first. So, we have, in effect, saved it from a horrible demise!

To get observatory facilities into good condition, we scheduled work party dates throughout the late spring and summer months. Some of our handier members have given a great deal of time improving our roll-off and dome buildings. All necessary repairs have been carried out. The small but dedicated crew consisted of Darrell Long, Les Nagy, Bob Botts, Mark Kaye, Scott Barrie, Victor Grimble, Scott Barrie, Scott Donaldson, Mike O'Connor, Bruce Billings, Colin Haig, Clarence Matheson, Carmen Martino, Blair Batty, and others. Together, we made repairs to the back wall of the Chilton roll-off building. It was quite a sight to watch the top layer of

blocks being peeled off by Bob using a mortar saw and listening to the unique sound of the air chisel in Mark's soon-to-be seasoned hands. The non-stop mortar mixing and rebar stuffing was quite a sight to behold! Les and Mark succeeded in welding the rebar to the rails with a flurry of sparks and blue arc flashes. Occasional light rain was not much of a deterrent—all had fun, and of course the BBQ was put to good use. Additional effort will be needed for roof repairs, and refurbishment of a recently acquired domed building. Many members kindly donated supplies.

Looking to the Future

The 1999-2000 year is expected to be an excellent one for the Hamilton Centre, with innovation, education, amateur research, and continuing growth in activities and increasing membership and member participation. Our members come from all around the Hamilton area, from Brantford in the West, Guelph and Georgetown in the North, Mississauga in the east, and Port Dover in the south. Many thanks have to go to society members and our friends in the City and the surrounding communities.

*Robert Sears,
Secretary, Hamilton Centre*

KINGSTON CENTRE

Partners in Astronomy, a partnership between professionals and amateurs, a theme that carried throughout the year, not only at the 1999 General Assembly (co-hosted by the RASC, ASP and the AAVSO), was also quite evident at the Kingston Centre in 1999.

Though Mother Nature tried her best to keep many from showing up at meetings or observing sessions, the weather did not dampen the spirits, as those who were there enjoyed the company of fellow astronomers.

Our meetings this year took us on a trip from new cosmic discoveries by Professor Richard Henrikson, to Ancient Egyptian Archeoastronomy by Denise Sabatini. Both of these talks showed us the past in astronomical events that helped to shape the present universe, and the universe that is unfolding each day before our eyes, as the telescopes and technologies advance.

January had Peter Ceravolo fly into Kingston, ahead of a storm, to show us the Trials and Tribulations of filming "Comet Odyssey". A marvel in its own right, with brilliant collaboration from fellow amateurs, they created a movie that we can all enjoy and see the beauty of a comet from head to tail.

As new star atlas's arrived on the bookshelves, Leo Enright intrigued us with his comparison of the Millennium Star Atlas to many atlases already on the market, and those which are out

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of, print. To choose an atlas is a personal decision, but Leo's knowledge on the subject makes the task even harder. Whether you went from a book of a star atlas, or a computer program, Michael Watson showed us how Red Shift 2 & 3 compared with Earth Centered Universe, and how these programs should be one of every astronomer's tools.

As the year continued on, it was evident that the Ontario School Board was about to change the face of science in every school, for grades 6, 9 and 11, with the new teachings of astronomy in science. Though most of the teachers teaching science may not have had experience in astronomy, Dr. John Percy of the University of Toronto showed us that we as amateurs can make a difference, both with teachers and with the students. This meeting was a stepping stone for one member at the Kingston Centre. Laura Gagné, along with the help of Centre members, initiated a Teacher's Seminar, held on November 3. The workshop included a helpful binder with lots of tips. It was to give information to the teachers, and help them to understand theories that may have been fuzzy.

Throughout the year, the youth group and public observing sessions were quite a hit. Though the youth group took a break in the summer months, it started again this fall. Lots of summer activities were evident this summer, with Telescopes for Telethon, a project that was hosted by our honorary President, David Levy and his wife Wendee. Through astronomy, this project was to raise funds for Muscular Dystrophy. Our Centre participated at a public observing session in June, and raised funds that will remain in Canada for the Canadian Chapter of the Muscular Dystrophy Association.

For our June meeting along with our July public observing session, which was on the night of the 30th anniversary that man first stepped on the moon (July 20, 1999), Don Mastrianni had a display of Apollo paraphernalia and NASA information for the members and public to view and experience. Thank you Don for the thrill of touching another heavenly body away from Earth.

To reinforce the feeling of lifting off and seeing the Earth as a magnificent body, sponsored by Queen's, Julie Payette gave a public talk on October 28 at Grant Hall. Her experience on flying in the STS-92 Mission, and now her work with the International Space Station, have shown us how all of us can become part of the growing universe.

And the year is not over yet. We still have many things planned for the Kingston Centre. We will be entering in the Festival of the Trees for the first time. Our tree will be known as "Astronomical Wonders." This goes to a good cause, by the donation of the tree by Canadian Tire, and the decorating by our Centre Members; it is auctioned off to help our Hospitals. The Awards Banquet was on November 27, and our final meeting before the Christmas Holidays was held on December 10. Whisked away to another land and time, we were taken on a trip to Puna, India by Deiter Brueckner who had returned

from a year's sabbatical with his wife (Dr. Judith Irwin, who worked on the Giant Metre Wave Radio Telescope) and his family. We were shown the different cultures, ways of life, and the interesting information surrounding a Meteor Crater.

Though the year has come to a close, in astronomy there is always a new discovery; what shall we see in 2000?

Submitted by
Kim Hay
Secretary, Kingston Centre

KITCHENER-WATERLOO CENTRE

Our centre has experienced some growth over the past year. Monthly meeting attendance averages 35-40 people, and there are a lot of new faces. Our web site and some interviews on the local news during astronomical events have increased the visibility of our club within the community.

This year our observatory grounds and buildings near Ayr have been given a major facelift. New fencing, a leveled ground, an outhouse, solar power, painting, and restoration have all been done. This was all badly needed, and is in anticipation of the installation of a rebuilt 12.5" club-built Newtonian in the main dome.

Thanks to Ray Koenig, we inherited a 12-ft. Ash dome, which has been dismantled and stored. Bernd Mueller donated his 14 inch "Big Foot" to the club for use in the new dome. As a site, we have been donated a dark site 5 km north of Mount Forest. This will give the club an alternate dark sky site when the closer Ayr site gets too light polluted over the next decade.

Members have been active in astronomical events within the community. Our Astronomy Day festivities on May 22 were held at Connestoga Mall in Waterloo. On June 10, Ken Saumure organized an astronomy night at the observatory for the "Children's International Summer Village." This was a student exchange between Austria and Canada. Sixteen club members provided 12 telescopes for the event. The night was clear and cold, with good viewing. Television coverage consisted of 2 newscasts of 2.5 minutes each. A barbecue and refreshments were also provided. This was enjoyed by the adults, and the Austrian and Canadian children. We were given a group photo and a big thank-you card. It is hoped that more events like this will continue.

Star party attendance is a passion with many attendees. This year Gateway to the Universe, Huronia, Starfest, and the Great Manitou Star Party were all attended by at least some members.

With little in the way of comets to image, telescopes, cameras and video cameras were turned to the planets this year. Clark MacDonald and Darryl Archer have been doing video capture of Mercury, Saturn, and Jupiter. Frame averaging and

best frame selection have produced some great results, and their technique is improving. The transit of Mercury across the limb of the sun was missed by most members because of cloud, but was captured by one member on videotape. Gary Goulding gave a talk at the April meeting on observing Mars through filters. Our web site featured literary submissions by members about Mars during the time of opposition.

May 15 was a very well attended trip to David Dunlop Observatory. While the view of Mars through the eyepiece was mush, some keen-eyed observers could distinguish some features on what looked more like a frosted light bulb. The talk, though too technical for some young people in attendance (and some adults), was very interesting. Another trip is being scheduled for spring 2000.

The Leonid observing event was a wash-out. People arrived on the night of Wednesday, November 17 at around 9:00, and stayed until about midnight, when it clouded over. At that point the meteor shower radiant was just rising, and I don't think any of us saw a Leonid. Maybe next year.

We look forward to an exciting year with new, enthusiastic members, and continued participation by our older (not meaning age) members.

LONDON CENTRE

London Centre membership continued to climb throughout 1999, just passing the 90-person mark, and our many fun activities made for an excellent year. Standing room only crowds at our fall meetings, held at the London Regional Children's Museum, convinced the executive to relocate to a much larger lecture hall at Fanshawe College. We anticipate further membership growth due to continued community contact.

In January the Friends of the Pinery Provincial Park asked London Centre for a star party, to be held just a day after a full moon! Clouds covered the sky so we went with our slide show and talk. Four London members set up telescopes just in case. The audience left the theater to view a sky so amazingly clear that moonlight did not seem to interfere with the deep sky. The Orion Nebula was a big hit; so, of course, was Saturn. "No way! That can't be real. This must be a trick." "Sooo Cool" was overheard several times. This is now an annual event.

London Centre set up a mall display during Science and Technology week, which was well received. Public star nights were provided to several schools and cub/scout/guide groups, with great success as clouds usually cleared just in time.

Many members presented astronomy to the public during public star parties held every Saturday night at the Hume Cronyn Observatory on the campus of University of Western Ontario during June, July and August. On a typical night over one hundred interested parents and children waited patiently

to view objects in the night sky through the six or seven telescopes set up by London Centre members, as well as the observatory's venerable ten inch refractor. Members ensured that London Centre pamphlets were provided to anyone expressing interest in the centre, and several have become members of the Society.

In August, London Centre was back to the Pinery to provide the third annual Sunday evening astronomy talk and star party. Nineteen RASC members from London and Sarnia Centres treated an audience of nine hundred campers to a slide show and superb dark sky. Tom Purdy, Program Manager at the Pinery, wrote: "On behalf of the visitors and staff at Pinery I would like to thank you and the club members for making the astronomy night in August so successful. We had a large number of very positive comments from our visitors. Would it be possible to "book" a similar night now for next August?" The answer was an enthusiastic "Yes!"

The addition of an astronomy unit to the Ontario high school science curriculum has created many additional opportunities for public contact. During December the weather cooperated so that centre members could share, with more than fifty grade nine students and their teachers, the nova in Aquila, Mars, Jupiter, Saturn, and some very exciting Gemini meteors. Students and staff expressed the deepest gratitude for the efforts of the observers, and look forward to repeating this event.

During the year London Centre formed a committee to formulate plans necessary for a bid for the 2001 General Assembly. Our no-nonsense approach convinced National Council that we were serious and capable and now meetings are being held monthly to plan for the biggest bash the RASC has ever seen!

London Centre members continue to observe regularly at the Fingal Wildlife Management Area due to the dark skies, security, ample parking, and relative closeness to London and St. Thomas. Observers continue their quest for deep sky objects on the finest NGC and Messier lists, watch meteor showers, and enjoy the social aspects of astronomy. During one particularly clear and stable March night, David McCarter and Steve Gauthier observed Omega Centauri from the cliff tops near Eagle, on the north shore of Lake Erie, possibly the most northerly observation of this southern gem.

After twenty-three years of planning and dreaming, the centre has begun construction of an observatory a few kilometers to the north of Granton on the farm of Mr. Joseph O'Neil. A weekend of frenetic digging, concrete mixing, hole realignment, and positioning of large sonotubes have prepared the observatory footings and telescope piers. Members look forward to completing the construction this coming spring.

Several members traveled to Europe or the Maritimes to watch the total or partial solar eclipse. These members presented their slides, videos, and reports of clouds to the

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September and October meetings.

John Rousom became Past President after four years of leadership excellence and centre growth, and continues to provide his special brand of jovial exuberance, sensible direction and commitment to the London executive committee. London Centre says a big "Thank You John!"

In 1932 Mr. Donald M. Hennigar, an active member from 1931 to 1951, built two German equatorial reflecting telescopes of six and eight inches. They were passed down to his daughter, then to Mr. & Mrs. Bill Pollard, and then to Mr. Kirby Alguire. Recently Mr. Alguire donated the eight-inch telescope to the London Centre where it will be lovingly restored by centre members to operational status and displayed during public star nights.

The London Centre meets on the third Friday of each month at 19:00h. During 1999 the meetings were held at the London Regional Children's Museum, south of the Thames River on Wharncliffe Rd. The October meeting was held at Fanshawe College on Oxford St.

January: "Leonid Observing from Mongolia" by Ms. Margaret Campbell, U.W.O

February: "Starry Night Astronomy Software" by Mr. Peter Forint

March: "Home Made Telescopes" by various London Centre members

April: "Mars Rocks" by Mr. Phil McCausland

April: Annual Banquet: "CCD Imaging Devices" by Mr. Douglas George

May: "General Assemblies of the Past" by Peter Jedicke and Dave McCarter

June: "Eclipse Chasing" by Mr. Alan Whitman

July: A large contingent attended Starfest '99 and enjoyed themselves in spite of the clouds.

September: "The Solar Eclipse" by Steve Gauthier, Peter Jedicke and Dave McCarter

October: "My Robotic Observatory" by Dr. Mark Castel

November: "Starlight Express CCD Cameras" by Mr. Walter McDonald

December: "My Eclipse Odyssey" by Peter Ceravolo

In summary, 1999 was a great year for all members of the London Centre. Some members look forward to the first year of the new millennium, while others look forward to the last year of the present millennium. We all look forward to another year of great observing, observatory construction, monthly meetings in our new venue, and sharing our love of the sky with others.

CENTRE FRANCOPHONE DE MONTRÉAL

Cette année nous avons bénéficié d'une équipe, au conseil d'administration, plus aguerrie. Plus expérimenté, le conseil de cette année voulait, d'une façon où une autre, améliorer les services aux membres. Comme projet nous voulions tenir quelques réunions durant l'été. Les dernières années nous étions fermés de mai jusqu'à la fin d'août. L'été est l'une des périodes les plus fébriles pour l'observation. Il nous semblait donc logique d'y tenir quelques réunions, histoire d'échanger des conseils et de planifier les sorties au terrain d'observation.

Mais, pendant l'été nous n'avons pas facilement accès au local ou nous nous réunissons habituellement. Nous avons donc besoin d'un autre local pour nos rencontres. Pour ce projet nous avons eu la chance de bénéficier d'une excellente collaboration du Montreal Centre. En effet ils nous ont permis d'utiliser leur observatoire pour tenir nos réunions d'été. Nous avons donc été ouverts toute l'année. Nous avons tenu une réunion par mois. C'est un horaire allégé qui a bien fonctionné. Nous réunissant le dernier mardi du mois la conférence était, comme en est la tradition, le ciel du mois. Ce fut une formule intéressante. La réunion mensuelle a donc permis à plusieurs de garder contact et de planifier quelques sorties au terrain d'observation. Il est important de souligner que rien de ceci n'aurait été possible sans la générosité et l'entière collaboration du Montreal Centre et de ses membres et il n'est qu'approprié de les en remercier ici même.

Encore cette année nous en avons profité pour faire de l'astronomie de stationnement après les conférences. Certains des soirs ou la météo nous l'a permis, nous avons installé un télescope dans le stationnement. Nous avons souvent utilisé la lunette de bronze mais aussi un Newtonien de 10". Nous avons observé les objets les plus brillants que l'on peut voir en ville, entre autres, Saturne, Jupiter et la lune, Andromède, Orion. C'est une activité qui est toujours populaire surtout avec les nouveaux membres.

Notre terrain d'observation a toujours besoin d'entretiens. Cette année nous en avons aussi profité pour faire un peu de ménage. Le domaine végétal essaie toujours de reprendre sa place et les arbrisseaux commencent à être longs. Avec un peu d'effort, et surtout la machinerie appropriée, nous les avons coupés pour agrandir la clairière.

C'est à regret que nous avons démolé l'observatoire de bois qui se trouvait sur notre terrain. Malheureusement le temps a fait son oeuvre et il n'était plus en bon état. Du reste il n'était plus utilisé par les membres. Il en reste toujours la colonne de ciment ainsi que le plancher de bois. Nous voulons aussi ajouter une clôture, question d'empêcher les autos d'y entrer quand nous n'y sommes pas. Les sorties aux terrains ont été nombreuses et appréciées de plusieurs des membres.

Encore une fois cette année nous avons participé à l'organisation du Concours Annuel de Fabricants de Télescope

Amateur (le CAFTA). L'imagerie CCD fut le thème du congrès cette année. Même si la météo n'a pas été des plus belle, avec un orage violent samedi soir, l'observation du vendredi soir en a ravi plus d'un. La planification du CAFTA 2000 a déjà débuté. Nous vous y attendrons. D'une année à l'autre les collaborateurs changent. Cette année ne fait pas exception. Le numéro l'AstroNote de décembre sera le dernier de Sophie Collin. Nous la remercions de tout le travail qu'elle y a mis. Plus que quiconque elle a contribué à l'amélioration de la qualité de l'AstroNote. Un coup d'oeil aux derniers numéros nous montre le progrès accompli. Il faut aussi remercier Alain Roussel pour ses nombreuses années à la COSAM. Conférencier assidu, le ciel du mois était sa spécialité. Avec une connaissance du ciel hors pair il avait toujours des objets intéressants à proposer aux membres. Encore une fois merci à vous deux.

MONTREAL CENTRE



Montreal Centre's out-of-town observatory appropriately named "Woolly Woods". From left to right: Linus Molyneaux, John Langlais, Bastien Martel, Vince Yeoman, Stephanie Choquette, Mark Bratton, Kenneth Gee, Don MacIntyre, Johanne Gamache (& her dog "Sirius"). Behind the group is the 12.5" Fortier-Widdop Telescope which is the heart of the Woolly Woods Observatory.

Since the 1960s the Montreal Centre had been searching for a site where it could establish an out-of-town observatory. Efforts were certainly numerous, some funds were set aside, sites were investigated, but none seemed right or affordable for our Centre's needs. The last five to six years had seen a renewed push towards this end, and then finally in 1999 a very generous offer from one of our members, Johanne Gamache, will allow the Montreal Centre to erect a structure on her property. The Fortier-Widdop Telescope that had been

donated by Dr. George Fortier during the previous year found a new home and thus was born the Woolly Woods Observatory! The ribbon-cutting ceremony took place in September.

Observational Activities

This was a memorable year for observing activities as numerous outings were organized to David Ross' tree farm in Waterloo, Johanne Gamache's farm in St-Chrysostôme and Walter Cartwright's property in Williamstown. In addition, Joe Silverman introduced Binocular Observing sessions at the Morgan Arboretum in Ste-Anne-de-Bellevue. Other public events included several well-publicized Venus/Jupiter conjunction viewing sessions at St. Joseph's Oratory and an evening under the stars at the Morgan Arboretum. Thanks to the efforts of Marc Ricard and Janine Lavallée, the 1998-1999 membership year saw the creation of the Binocular Observing Challenge Certificate program.

Lectures

Frequent lectures are somewhat of a trademark at the Montreal Centre and this year was no exception. Here are a few of the highlights of our lecture series:

- "Meteorites" by Gaetan Cormier
- "Caltech Astrophysics and the Palomar 5-Meter Telescope" by Professor Donald E. Osterbrock
- "Canadian Astronaut Program" by Astronaut Bjarni Tryggvason
- "Lunar Glass Refractory Light to Produce Colour Luminosities" by Dr. Dimitri Photiadis
- "Starbursts" by Dr. Anthony Moffat
- "Introduction to the Concepts and Uses of the Sky Almanac" by Joe Silverman
- "Charles Messier" by Barbara Silverman
- "The Nebulae" by Stephanie Choquette
- "Peculiar Variables in Corona Borealis" by Mark Bratton
- "Viewing With the Hubble Telescope" by Sergey Marchenko
- "Ancient Astronomy" by Joe Silverman

On the Internet

We are pleased to report that our website is doing rather well. This past year has seen over 3,000 "hits" on the Main page alone! It is revealing to note that the number of new people joining the Montreal Centre after visiting the website has increased significantly over the previous year – a sign of the times perhaps? A major revision of the website is scheduled in early 2000.

Special Events

The Montreal Centre hosted its first ever National Council Meeting in November '98 at the Montreal Planetarium. As

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with all things in Montreal the event was quite unique in that it lasted two days! Canadian Astronaut Bjarni Tryggvason was on hand to present our national President, Randy Attwood, with a commemorative plaque that included an RASC seal that Bjarni had taken with him into space in 1997.

The annual August trek to the Stellafane Telescope-Makers' Convention in Springfield, Vermont was once again well attended. As one of North America's oldest and better-known conventions, this year Stellafane featured none other than John Dobson as its Keynote Speaker.

Regarding the Observatory

It was an up and down year for our Observatory and meeting room on McGill University campus. Perhaps one of the most painful moments came when we were forced to remove the C-14 from the dome and padlock the access door – the end of an era indeed! As if this was not enough, shortly thereafter our parking privileges next to the Molson Football Stadium (Home to the Montreal Alouettes) were eliminated, forcing our members and their guests to pay 5\$ each time they came to the Centre. As a result, the relocation of the I. K. Williamson Observatory has become one of our top priorities.

We are very saddened to report the passing, in June, of our good friend and former Treasurer, Douglas Middleton. His hard work and dedication to the Centre were inspiring to us all. He will be missed!

In closing, it is clear that some difficult, albeit necessary decisions lie ahead for the Montreal Centre. History has shown that the determination of our members has enabled the Centre to meet just about any challenge and it is with this in mind that we eagerly look forward to the coming year.

NIAGARA CENTRE

The Niagara Centre in 1999 has been marked by an ever-increasing growth of its membership base. We are happy to see this growing interest in astronomy. This growth can partially be attributed to an increase in the number of public star nights held the last two years. The Niagara Centre has been helping out the last two years with our Vice-President John Nemy's Pacific Observatory star shows at a Niagara-on-the-Lake winery, Stonechurch Vineyards. The Niagara Centre has been supplying most of the scopes and members to man them for John's star evenings. John has done an excellent job in the star theatre warming up the crowd with his popular multimedia astronomy presentations. This has proved to be a mutually beneficial agreement for both of us. The crowds attracted to these evenings have literally been in the hundreds for each of the seven Stonechurch nights held this past summer. We hope

to continue these with the Pacific Observatory in the coming year.

The Niagara Centre's observatory in Chippawa Creek Conservation Area has benefited from further improvements in 1999. Through the work of members, our observatory now has a permanent underground power line run to it, the installation of a computer for our Meade CCD camera and other astronomy software, and many other small improvements which were needed. Plans are presently being discussed for further expansion. Our present observatory can not accommodate the additional telescopes that we have in storage, that we would like to install at our observing site, not to mention the growing numbers of members who would like to use the observatory facilities.

The Niagara Centre has had a busy year of public presentations and star nights. Unfortunately many were clouded out and Mother Nature made a mockery of many of our plans for public observing. Our annual fall public star nights were held in Guy Road Park, St. Catharines with a good turnout on nights that were clear. Our annual Brock University star night in September for their astronomy class was put off continuously until we finally made a fair go of it in December. Three star nights were also held for the campers of Chippawa Creek Conservation Area during the summer months. An informational mall show was held on Astronomy Day in Niagara Falls at the Niagara Square Mall to spread the word and encourage new members, with plenty of public interest. Members of our centre have also been involved in giving astronomy talks and slide shows to local school classes, cub troops, and nature clubs in the Niagara Region.

We had a good turnout for Starfest '99 with ten members making the annual trip to astronomy central in Mount Forest. A good time was had by all despite the so-so observing conditions. Given the unbearable heat during StarFest '99 the Niagara Centre is putting forth a proposal to change the name to BakeFest '99. Thank goodness the usual August date is being used for next years StarFest.

Five of our members were fortunate enough to travel to Austria in August to see the eclipse over Europe. As luck would have it they were clouded out until a few minutes before totality at which point the sky opened up and allowed them to watch the show in its full glory. Shortly after the sky once again closed ranks. The cloud gods must like Niagara Centre members to cooperate with their plans so wonderfully. Those of us stuck at home were rewarded with their pictures and slides upon their return at our next general meeting.

Our Annual Niagara Centre Banquet was held April 9 at Queenston Heights Restaurant in Queenston, Ontario. The guest speaker for the evening was Jack B. Newton with his presentation "Splendors of the Universe". His pictures and talk were excellent and enjoyed by all.

Our general meetings are held on the fourth Thursday of each month, except July and August, at the Niagara Falls Public Library. The following is a list of the speakers and topics for our general meetings and banquet during 1999:

- January 2:** “Starry Night CD ROM” by Peter Forint
- February 25:** Demonstration of Starlight Express CCD camera by Arthur Oslach
- March 25:** “Astronomy & Hollywood” by Theresa Kneller
- April 9:** Annual Banquet: “Splendours of the Universe” by Jack B. Newton
- April 22:** “Locations of Landers on Mars” by Philip Stooke
- May 27:** “Sending a Spider to the Moon” by J. Randy Attwood
- June 24:** Members’ Night - members’ slides and discussion
- September 23:** Members’ night - “Europe eclipse slides” by John Nemy, Dennis Maheu
- October 28:** Members’ night - member’s slides and discussion
- November 25:** “Simulating the Solar System on Your Home Computer” by Michael Watson
- December 16:** “Adventures in Video Astronomy” by Roger Hill

The Niagara Centre in the coming year is looking forward to an active list of events and star nights. We hope with our growing membership base to include our new members in all our activities and help them become involved and enjoy astronomy to the fullest. We want to see the Niagara Centre continue to evolve into an active astronomy club with many new eager members contributing to the club’s strength. Our present executive board works well together and has been striving towards this goal of involving all our members in the Centre’s pursuits. We are hoping the coming year will see this trend continue. Clear skies to all.

OKANAGAN CENTRE

Mark up another productive year for the Okanagan Centre. The skies were fairly clear throughout the warmer months thanks to a noted lack of smoke during our typical fire season but thus far winter has been a complete bust with cloud system after cloud system moving in from the coast through the Interior. Centre membership stayed at a steady state but there were a number of new faces at the monthly meetings that were well attended. New venues were also the order of the day as the Kelowna members began the year with a meeting in the North Campus of the Okanagan University College.

The Messier Marathon was held in March at the McCulloch Lake Dam, another new venue. Six stalwart members did their best to observe all of the objects but were thwarted by condensation that steadily built up as morning

approached. The evening was still considered to be a moderate success. In July the Centre President, Ron Scherer, hosted his annual BBQ/Viewing Session at his home in Winfield. Jim Failes continued his monthly presentations on the CBC morning radio show DayBreak informing listeners throughout the Interior of notable astronomical events. A number of members also attended the Mount Kobau Star Party in August near Osoyoos, BC but they were not able to observe much more than rain. A number of viewing sessions also were held at a local member’s home (Paul Ellard) with varying degrees of success (Chicken soup made things better).

Centre meetings

- January:** Kelowna – New Member Night, Viewing Tips and Techniques, Gauging Angular Measurements; Vernon – The Occultation Of Aldebaran
- February:** Kelowna – Galaxy Classification; Vernon – Joint meeting members & students of the Greater Vernon Regional District (GVRD) Astronomy (Stellar Composition and Type)
- March:** Kelowna – Messier Marathon preparation; Vernon – Rogue Asteroids
- April:** Kelowna – Mars; Vernon – Stellar Myths
- May:** Kelowna – Astronomy on the Internet; Vernon – Astrophotography
- June - August:** Kelowna and Vernon - Summer Observing and Star Parties;
- September:** Kelowna – Techniques on Sketching Astronomical Objects; Vernon – Maintaining a Telescope, two public observing sessions
- October:** Kelowna – Discussion about future meeting formats; Vernon – Discussions about viewing session at Allan Brooks Nature Centre (held 15 Oct) and video entitled “The Universe”
- November:** Kelowna – Massive Stars (Sean Doherty – DRAO); Vernon – Sidereal Time, Discussions concerning Intro to Astronomy Course in GVRD commencing Feb 2000
- December:** Kelowna – “Constellation of the Month” – Perseus; Vernon – No meeting

Centre Development

The Executive held its elections in November with Ron Scherer staying on as President, Paul Ellard as Secretary and Jim Fisher as Treasurer. New to the Executive are Guy Mackie (VP) and Jim Tisdale (National Rep). Membership stands at 61 members (55 regular, 4 youth, 1 life, 1 associate).

OTTAWA CENTRE

In 1999 the members of the Ottawa Centre continued their efforts to reach out and introduce the public to the wonders of the universe.

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Ottawa Centre's 1999 Astronomy Day activities at the St. Laurent Shopping Centre

Building on the interest generated by the public displays at last year's Astronomy Day event, our team of volunteers organized and presented a very successful Astronomy Month in May. Public displays and demonstrations were mounted at St. Laurent Shopping Centre on May 15 and a Public Star Party was held at Pinhey's Point in Kanata in the evening. Members brought out 27 telescopes and showed off to some 250 eager visitors.

The next weekend, we displayed at the Museum of Science and Technology. Outside, in front of the entrance, visitors were treated to sunspots between breaks in the clouds. Inside, children enjoyed a crafts table while others saw a demonstration of the Solar System. Everyone had a chance to feel the weight of an actual meteorite and view videos and slides of our galaxy and deep-sky objects. In all, forty-four members contributed to the successful public demonstrations of the many aspects of amateur and professional astronomy.

The Centre's members have hosted a number of successful and interesting public observing opportunities throughout the year: the Carp Diefenbunker Star Party, Pinhey's Point Star Party, and, a new "pitch black" observing site at Foymount, Ontario.

Some members have appeared on local radio shows to promote astronomy and have enjoyed fielding listeners questions on all aspects of astronomy and space.

In September, Rolf, Linda and Matthew Meier hosted the Centre's Annual Picnic in the large yard of their home west of Ottawa. This year, for the first time, a silent auction was held to redistribute some of the basement treasures, the old computer parts, telescope mirrors and things we, as amateur astronomers, tended to save and accumulate over the years. The proceeds of the sale came back to the Centre.

Congratulations to members John Douglas and Peter

Manson for receiving their Messier Certificates and to Paul Boltwood for winning Sky and Telescope's Deep-Field Challenge by imaging a 24.1 magnitude object at a distance greater than 8 billion light-years.

This year Council met seven times to carry out Centre business. Our membership stands at 34 life members and 358 regular members, a count which includes 17 junior memberships.

I thank former Secretary Jane Lund for her eight years of outstanding service to Ottawa Centre and particularly for her help and advice in getting me started.

In closing, the story of the August, daytime grazing occultation of Aldebaran by the Moon tells what kind of people we stargazers are. Brian Burke had done his usual thorough job of establishing the time and location of this event and had even prepared the paperwork but due to an illness in his family he was unable to complete the project. Brian McCullough and I eagerly filled in behind Brian (after all, he had done all the work) and scouted out the graze route the weekend before the event. Come graze day everyone met at a local mall to travel together to observe the graze. As often happens, the day was thickly overcast and it was raining. Rather than canceling, most members present decided to go to the graze location anyway, on the chance that the sky would clear just before the graze would take place. Unfortunately, the sky did not clear. But that was of little consequence - amateur astronomers are forever optimistic.

Lee Macdonald
Secretary, Ottawa Centre

SRAC CENTRE DE QUÉBEC

Liste des activités:

Réunions mensuelles

Le directeur des conférences Daniel Tardif a organisé des soirées rencontre le premier mercredi du mois de décembre à juin et de septembre à décembre. Entre 30 et 100 personnes ont participé à ces soirées. Les soirées débutent avec la présentation du ciel du mois (Pierre-Paul Leblanc et René Breton), puis la constellation du mois (Clément Drolet) et se termine par une conférence. La conseillère Chantal Henri a trouvé des commanditaires et a fait tirer des prix de présences lors de ces soirées. Une table d'accueil est aussi montée pour répondre aux nombreuses demandes des membres et du public. Voici la liste des conférenciers et les sujets traités:

Janvier: Nadine Manset (La polarisation de la lumière)

Février: Camil Lesieur (L'univers invisible)

Mars: Cédric Foellmi (Les noyaux actifs de galaxies)

Avril: Plusieurs présentations sur l'astronomie pratique

Mai: Laurent Drissen (L'évolution des galaxies)
Juin: Sébastien Blais-Ouellet (Le côté obscur de l'univers)
Septembre: Jay Ouellet (astrophoto) ; Dominique Beauchamp (les objets Herschel)
Octobre: Alphonse Tardif (ovni: mythe ou réalité ?)
Novembre: Damien Lemay (les étoiles doubles) et Philippe Moussette (les Léonides)
Décembre: Luc Bellavance (présentation du logiciel The Sky version 5)

Soirées d'observation

Nos directeurs des observations (Daniel Tardif, Éric Rémy et Jean Chiasson) et leur adjoint (Philippe Moussette) ont invité via notre répondeur téléphonique les membres à venir observer aux 2 observatoires que le Centre loue à plusieurs reprises durant l'année (2 fois par mois si la météo le permet): l'observatoire Alphonse Tardif (que nous louons le week-end) et l'observatoire du Mont Cosmos (fermée en hiver). L'activité qui a attiré le plus de membres fut la soirée du marathon Messier le 20 mars 1999. Samedi le 27 mars 1999, Jacques-Denis Dumulong a eu la merveilleuse idée d'inviter les autres membres du Centre à son observatoire privé. Un souper nous y attendait suivi d'une belle soirée d'observation (avec son télescope Meade LX200 10 pouces) axée sur l'observation de la Lune. Le 15 mai fut également l'une des rares soirées d'observation organisée à l'observatoire Alphonse Tardif ou la météo fut favorable et ou une dizaine de membres se sont rendus observer à ce beau site.

Certificats d'observation

Lancés en octobre dernier ; des «tableaux-thermomètre» incitent les membres à observer et à compléter différents certificats d'observation tel: les constellations; les astéroïdes; les formations lunaires; les 110 objets Messiers; les 110 «finest NGC»; les 45 «deep sky challenge objects»; les 400 plus beaux objets Herschel; etc. Ces tableaux sont affichés aux réunions mensuelles où les membres peuvent inscrire leurs observations et noter leur progression.

Calendrier d'observation mensuel: deux tables reçoivent les observations des membres réalisés durant le dernier mois écoulé depuis la dernière rencontre mensuelle. Les membres n'ont qu'à y déposer leurs observations vis-à-vis la date correspondante.

Prêt de télescopes: le Centre a fait l'acquisition d'un deuxième télescope à l'automne. Ainsi les membres ont la possibilité l'un de ces 2 télescopes 6 pouces F/8 sur monture Dobson (fabriqués au Québec) lors des rencontres mensuelles.

Autres services et activités

Bibliothèque: Jean Chiasson a réalisé l'achat de quelques nouveaux livres avec un petit budget de 100\$. Un généreux



Voici la photo qui représente bien notre le Centre de Québec en 1999. Il s'agit des 3 parutions de notre petite revue locale.

In 1999, Quebec Centre produced three special editions of their newsletter, La Chouette.

donateur (Robert Tremblay) a également donné au Centre 48 livres d'astronomie. Bref nous manquons de place pour nos livres!

Journée internationale de l'astronomie du 22 mai 1999

Cette année, le Centre a présenté un kiosque dans un centre commercial de Québec. L'achalandage a été excellent ; des ordinateurs, des télescopes et même le Soleil ont été montrés aux nombreux curieux qui passaient. Tous les membres du Centre présents ont été très enthousiastes à répondre aux nombreuses questions du public. Autre première, nous avons réussi à obtenir du temps d'antenne à une station de radio de Québec (CITF 107,5) durant l'été pour émettre de petites capsules sur l'astronomie amateur.

Un été chargé

Maison de la découverte; 3 de nos membres ont donné des causeries cet été dans le cadre des conférences du mercredi soir présentées à la Maison de la découverte située sur les plaines d'Abraham: Jay Ouellet-l'astrophotographie; René Breton-la vie dans l'Univers; et Philippe Moussette- les météorites. Une grande première puisque le Centre n'organise aucune conférence publique durant la période estivale. Les bénévoles du Centre ont tenu un kiosque d'information lors du Festival d'astronomie populaire du Mont Mégantic les 9 et 10 juillet 1999 ou nous avons profité pour remettre une copie de notre petite revue à 13 Clubs québécois dans le but de partager nos expériences d'observation. Le Centre a également participé à une belle journée d'activités interclubs organisées par René Breton et les membres du Club MARS à l'observatoire du Mont Cosmos ou un rallye et un souper hot-dog nous attendaient. Le samedi 14 août, les membres du Centre et des autres Clubs de la région de Québec ont été invités à participer à la neuvième édition du «blé d'Inde étoilé» organisé par le petit club d'observateurs COAMND dont plusieurs de leurs

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membres sont membres du Centre. Une visite des observatoires en après-midi, un souper au blé d'Inde et une soirée d'observation les attendaient. Huit des 9 observatoires du site ouvrirent leurs portes aux membres toute la nuit et une belle météo permit d'observer.

Accueil des nouveaux membres

Une pochette de bienvenue: Agathe Caron a lancée l'excellente idée de remettre une pochette aux nouveaux membres leur présentant les bénévoles et les différents services offerts, (dont une photo de groupe des membres du conseil d'administration).

Le retour des parrains: René Breton a démarré un service de parrainage des nouveaux membres avec l'aide des parrains («vieux membres» plus expérimentés). Ainsi, chaque nouveau membre s'est vu attiré un parrain qui avait la tâche de répondre à ses questions.

Cours d'initiation à l'astronomie pratique: le Centre offre un cours d'initiation à l'astronomie pratique pour les membres. Ce cours a lieu une fois par mois et est donné par des membres expérimentés et bénévoles. (8 membres suivent régulièrement ce cours)

Gilet du Centre: Agathe Caron a permis au Centre de dévoiler lors de la Journée internationale de l'astronomie un gilet aux couleurs du Centre. C'est la troisième fois que le Centre s'offre un gilet et ce dernier a une image de la Lune prise par Jay Ouellet à l'endos (voir l'image du mois de janvier du calendrier 2000 de la SRAC) et le logo du Centre à l'avant.

Même si ce service n'est plus offert par le Centre, le Centre est fier de signaler la dixième année d'existence du «Groupe des Observateurs» fondé en novembre 1989 par un membre encore actif du Centre Dominique Beauchamp. Bravo et longue vie aux observateurs!

«La Chouette»: notre petite revue a été publiée 3 fois en 1999 (janvier; mai et septembre) grâce aux efforts soutenus de notre éditeur Serge Gauthier (récemment remplacé par Dominique Beauchamp pour l'année 2000). D'autres membres bénévoles ont trouvés des commanditaires et nous sommes heureux d'avoir réussi le tour de force d'autofinancer une ou plusieurs page couleur dans chacun de ces 3 numéros. Un nouveau look qui a plu à plusieurs où les meilleurs photographies des membres ont trouvées leur place et en couleur SVP. De plus, nous soulignons la participation d'un nombre de plus en plus grand de nos membres à son contenu.

Activities

Monthly reunions: The conference Director, Daniel Tardif helped organize our reunions from Dec-Jun and Sept-Dec 99. From 30 to 100 people attended these evenings. The shows

started with the monthly sky show (Pierre-Paul Leblanc and Rene Breton), the monthly constellation (Clement Drolet), followed by our guest speaker. Councilor Chantal Henri got sponsors to give us door prizes. We also initiated a welcoming booth where we sold memberships, RASC calendars, etc. The invited speakers to our conference were:

January: "Polarization of light" by Nadine Manset

February: "The invisible universe" by Camil Lesieur

March: "The active galaxies nucleus" by Cédric Foellmi

April: Many speaker on practical astronomy

May: "Evolution of galaxies" by Laurent Drissen

June: "The obscure side of the universe" by Sébastien Blas-Ouellet

September: "Astrophotography" by Jay Ouellet and "Herschel objects" by Dominic Beauchamp

October: "UFO B9S: Myth or Reality" by Alphonse Tardif and "The Leonids" by Philippe Moussette

November: "Double star" by Damien Lemay

December: "Demonstration of The Sky 5" by Luc Bellavance

Observing Outings:

Our Observation Directors (Eric Remy, Daniel Tardif & Jean Chiasson and their assistant Philippe Moussette) invited members to observe with us at our two rented observatories (Mont Cosmos & St-Nérée) bi-monthly. The March Messier marathon was a success with clear sky. Our activity, which attracted the greatest interest, was the inter-club event hosted by Rene Breton at Mont Cosmos Observatory on July 17th. On Saturday March 27th, Jacques-Denis Dumulong had the marvelous idea of inviting Members of the Board to his private observatory. Supper was on hand followed by an evening of observing through his Meade 10" LX200, with emphasis on the moon.

Observation Certificates

Launched last October, observation posters encouraged members to observe and comply with various observation certificates, such as: constellations, asteroids, lunar formations, the 110 Messier objects, 110 finest NGC's, 45 challenging Deep Sky objects, 400 nicest Herschel objects, etc. These posters were displayed at our monthly reunions where members could chart their progress.

Monthly Observing Calendar

Two tables were set up to receive and register the observations and dates made by members

Telescopes-on-Loan

We bought a second telescope. Both are 6", f:8 Dobsonian Reflectors (made in Quebec), loaned at each reunion monthly.

Other Activities

Library

Jean Chiasson bought a few books with a limited (\$75) budget (Les com E8tes et les astéro EFdes; Les galaxies et la structure de l'univers ;Star Ware; L'observation du ciel E0 l'oeil nu,aux jumelles et au télescope). Robert Tremblay (generous benefactor) gave us 48 books. We are missing space!!

International Astronomy Day - May 22,1999

This year we had a booth in a large commercial shopping mall. Very good visibility!!! Computers, telescopes, photos were shown, including the sun through a telescope. We were fortunate to have CITF-FM (107.5) radio give us free air time to announce our activities and promote our club.

A busy summer

At la Maison de la Découverte, Jay Ouellet, Rene Breton and Philippe Moussette gave public conferences; a first for the Center in summer! We also manned a booth at the Popular Astronomy Festival at Mont Megantic, the 9th & 10th of July, where we distributed our popular club magazine to 13 other clubs throughout the province. We also partook in an inter-club event hosted by Rene Breton at Mont Cosmos, with games, hotdogs, etc. Saturday August 14th, members and friends were invited to the 9th annual "corn roast" at the COAMND observing club. Afternoon observatory visits and a corn-roast supper were followed by a night of observing.

Welcoming new members

A Welcome Folder: Agathe Caron's idea. We gave this to new members, describing our services, a photo of the Board of Directors etc.

Godfathers: Rene Breton's idea. We assign new members to old hats.

Initiation to Astronomy Courses: Denis Martel's idea. Once per month.

Center T-SHIRT: This is the third time the center has produced their own T-SHIRT. The image: a picture of the moon taken by Jay Ouellet, the same as the image of January in the RASC 2000 Calendar.

La CHOQUETTE: our own magazine was published trimesterly in 1999. We got sponsors to pay for our magazine as well as a chance to offer one of the few magazines of it's kind in Canada with color pages!!! A fresh and appealing look, featuring photos by our members.

REGINA CENTRE

As for our year end report, we are pleased to announce another

that another year has come and passed for the RASC here in Regina, Saskatchewan, Canada.

We are saddened by the passing away of two our members in recent times. Some of you might remember Father Lucian Kemble whose name is attached to the famous set of stars known as Kemble's Cascade (check the *Sky & Telescope* archives for further info.). We have dedicated a plaque to be hung at our local Saskatchewan Science Centre in his memory. Father Lucian and Peter Bergbusch, who still resides at the University of Regina, had discovered a good number of stellar delights together at the site just outside of Lumsden.

We must also mourn the passing away of Al Halyk, whose suffering from cancer had also claimed him this past autumn. Al's contributions to our astronomy group will also be missed. His maintenance at the Davin Observatory was greatly appreciated.

Also of note is that the University of Regina has acquired a prominent meteor astronomer, Martin Beech. We are pleased to have his expertise, and his students, take a more active participation as younger members of the group.

Our Saskatchewan Summer Star Party (which is held jointly with our sister group in Saskatoon) was also largely a success. Although the week brought us a good deal of rain, we had nearly double the total number of persons as what we had estimated in the previous year. There were a host of good speakers, plus members from Calgary, Edmonton and the Dakota area to the south of us also attending. The meteor shower that we were expecting also opened up for a few moments. Barbecue and all, the 3 day event was a huge success with many people able to collect some meteorite samples for sale, some good eyepieces, T-shirts and trade some good photography secrets.

Robert Klein, our vice-president, was also happy to maintain the club's close relation with our local science centre. We estimate that we are receiving more and more school groups coming out each year. We are really pushing the idea of trying to encourage a larger youth population to become active (it saves money if you buy a life membership at an earlier age!).

And at a final note, we have also been looking in to the purchase of a new telescope and upgrading of our facilities at the Science Centre. We are in the final stages of trying to get funding from the government and other local business organizations. We would be hoping to add a CCD camera, a computer controlled dome and a 12 inch telescope to our location, once we realize we have the assets to go forth with our Millennium Telescope proposal. More details to follow once the planning stages move on to the renovations and mounting stages in late autumn of 2000.

Kai G. Gauer
President, Regina Centre

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ST JOHN'S CENTRE

Randy Dodge started a new year of activity after our AGM with his inaugural Vice-Presidential address on the solar eclipse in August. Randy presented eclipse charts, and suggested some of the best spots to view the eclipse around the world. Eclipse expeditions such as cruises would cost anywhere from \$1500 to \$5000. The centre line would go through the Grand Banks, so St. John's would have a 93% eclipse, with the sun 11 degrees from the horizon. The partial duration would be 1 hour and 58 minutes. If we wanted to travel to Cape Race we could get another 2 or 3 percent. Randy went over various kinds of filters and some suggestions as to setting up camera shots and budgeting your time. He also suggested we start giving some thought to explaining the dangers of viewing a low eclipse, even through clouds.

Soon after the New Year, we had a meeting designed for members of the general public who have just gotten a new telescope for Christmas. Brian Payton spoke on the basic principles of telescopes. He began by comparing the size of the pupil of the eye under normal lighting conditions and when it is fully dark-adapted. He used the theme of the size of the pupil of the human eye as a reference point throughout much of his talk in order to demonstrate that, up to a point, the size of your new telescope matters much more than the magnifying power. At this point, Garry Dymond took over to institute the astronomical version of the "Red Green Show," trusty duct tape by his side. Basically, Garry presented an overview on how one could get started with observing with a new scope now that you know how it is supposed to work. Garry gave many useful tips for the newcomer on when they might be ready for a telescope, as opposed to binoculars, and how to find things with your telescope. Finally, Garry showed how a finder scope can be had for little or no cost by attaching half of a binocular obtained at a junk sale to your scope. The meeting finished with a one-on-one discussion with the new telescope owners. The executive later decided it would be better to hold a meeting like this before Christmas to help prevent bad choices in scopes.

This year our Centre began working with the Marine Institute of Memorial University of Nfld. The Institute has a planetarium we rehabilitated under an agreement: our Centre and the Institute would split fees for shows run by the Centre. The Marine Institute will do the bookings and Garry Dymond gives them the dates he is available to do a show. Over the course of a year Garry averaged at least a couple of shows a week, and often more than that. Somewhat surprisingly, about 20% of the shows were for adult groups. We are grateful for Garry's efforts in this area.

In March, noted folklorist Phil Hiscock of Memorial University gave a talk on the origin of the term "blue moon." Phil had also just published an article in *Sky and Telescope* on this topic.

In our last meeting before the summer break we had Randy back to talk on the August 11 eclipse. After describing the eclipse and our plans with Parks Canada, Randy asked for members to give him a call if they can help out on the big day.

After the summer break, we had a meeting to let everyone catch up on all the activities of the summer. Garry reported we had a couple of nights in conjunction with Butterpot Park as planned, but there had to be just talks as they were clouded out. On the other nights 172 people looked through two scopes.

Randy Dodge reported on the eclipse. Many thanks are due to the people at Parks Canada on Signal Hill. There were about 350-500 people at Signal Hill for the eclipse at any given time, in a steady stream. Randy and several people were interviewed by the media and, as is too often usual, the journalists screwed up.

David Bourgeois reported on the Perseid shower. We had adventures in Butterpot with about a half-dozen Centre members, Phil McCausland, another half-dozen or so locals (non-members), and of course a whole bus load from the Regal Empress cruise ship. Our impromptu "guest register" contained many interesting names such as David Levy, Roy Bishop, and Leo Enright. Rates were around 1 meteor per minute, and we managed to see one fairly bright one that left a long-lasting trail with color.

Bruce Shawyer had some neat photos of the pinhole phenomenon created by leaves during the recent solar eclipse. These would eventually find their way into *SkyNews*.

The Centre again helped out with a display at the Faculty of Science's Science Fair at Memorial.

Work has begun in earnest for an "Activity Centre" at Butterpot Provincial Park. This is still in the early planning stages, but we have gone from basically having a small observing building (all we can afford from our Observatory fund) to an "Activity Centre" about the natural environment of the park. There will be many groups involved in this Centre, and as the founding group we will hopefully get a few of our ideas implemented if funding materializes.

David Bourgeois
Secretary, St. John's Centre

SARNIA CENTRE

Earlier last year, the Sarnia Centre launched its web page in the hopes of letting people in our area know that we do exist. Prior to this most comments that we heard revolved around having seen or heard a small note about us, and not much more. Soon after its posting, the Lambton Outdoor Club, which is based in Sarnia, got in touch with our Vice President, and we were invited to give them a talk on astronomy. A date was set for May 14, and it went very

well. Also someone had joined us as a result of the web page; her name is Trina Alix.

Further talks resulted in obtaining a speaker at a future meeting. And on June 19, Alan Whitman came down to Sarnia and spoke to us, as well as our guests, about solar eclipses and eclipse hunting. Besides the 6 members that were present, we had 11 guests. Many enjoyed themselves, and several expressed interest in joining us. Names and phone numbers were taken down, and they were kept informed on various events that we had planned.

When summer arrived, plans were put in motion for the upcoming Hobbyfest. The Hobbyfest is an event in Sarnia that many clubs and groups are invited to, where they can set-up a booth and show people the fullest range and variety of interests and hobbies that the individual can take part in. Our booth had two telescopes; one was set for solar viewing and the other was set for more general viewing. The solar observing was of great interest to each and every person that went by the booth, to the point that it was mentioned in the local paper the next day, complete with photo (I think). By the day's end, it was a great success, with seven more names and phone numbers to keep track of.

Come September 30, we had another meeting that was open to the public. Phil McCausland came down to Sarnia, and gave a talk about the geology of Mars. All in all, over 20 people were there, and a telescope was present in case the skies cleared enough afterwards, for people to view Mars. Many slides, and talks were given, followed by questions from the audience. Phil gave each person who attended one heck of an education regarding Mars; it was very impressive, and very well done!

On November 19, we had the meeting at the home of one of our members, and it was very pleasant. Several new members attended, and introductions were made. The subject was casual conversation, and helped to put our newcomers at ease, as well as answer whatever questions they had about the R.A.S.C., the Sarnia Centre, or astronomy in general. By the end of the meeting, many thoughts, ideas, and what have you, were asked, and answered.

As for this year, only the heavens above know what will be awaiting us in the near future. But it is our hope that it will be at least as eventful as 1999 was.

Sincerely,
James Selinger
Secretary, Sarnia Centre

SASKATOON CENTRE

The Saskatoon Centre has had another very interesting and successful year. The membership to date totals 76 members. We have had a recent change in Presidents. We wish to thank Past-President, Erich Keser for his leadership and enthusiasm, and to welcome Dr. Les Dickson to his new post as President.

Our big event this year was the Saskatchewan Summer Star Party-1999 (SSSP'99) at Cypress Hills Interprovincial Park in August. In spite of non-co-operative weather, over 220 participants attended the event. Some of the success can be attributed to our move into the comfortable, air-conditioned conference facilities of the Cypress Park Resort Inn. However most of the success was due to our excellent speakers, including featured speaker, Dr. Peter Bergbusch of the University of Regina, and the tireless efforts of the SSSP committee members and volunteers.

For International Astronomy Day, the Centre set up a display at a local mall. In addition to photo and telescope displays and a continuous slide show, several of our members taped up some deep sky object posters down the mall hallway to demonstrate observing through our 8" and 10" 'scopes. These demonstrations were very popular. Unfortunately, the public star party to be held that evening was rained out.

Both the Centre and the University of Saskatchewan have been busy this year with new construction and upgrades to the facilities at the joint Sleaford Observatory Site near Colonsay. The Centre has expanded the Warm-up Shelter to accommodate a composting toilet, upgraded the electrical service to accommodate the power needs of the toilet, Patterson Dome and the University's observatory, and installed a telephone. Our corporate fundraising efforts for the Sleaford Observatory have netted the Centre a \$2000 donation from the IMC Kalium Mine. The University has completed construction of a roll-off observatory on the site, containing four telescopes—a C-14, a Meade LX200 and Meade 8, and a Zeiss 6" Maksutov—and three computers to run the photometer, spectrometer and CCD camera. The observatory is used by the Physics and Engineering Physics Department for astronomy course laboratories and is available to Centre members after appropriate training.

We were saddened by the death on July 28 of the founding member of our Centre, Professor J. E. (Ed) Kennedy, who was a former President of the RASC and Honourary President of the Saskatoon Centre. We also lost a great friend of our Centre and to amateur astronomers everywhere, Father Lucian Kemble of Lumsden, Saskatchewan who died February 21. Fr. Kemble was a frequent speaker at our meetings and the Saskatchewan Summer Star Parties. A special memorial session at SSSP'99 was dedicated to our late friends. Both will be greatly missed.

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Saskatoon Centre General Meetings Programs for 1999:

January 18: "Three Decades of Observing - Making Looking Up Easier" by Mark Kaye (Hamilton Centre)

February 15: "The Constellation of Leo" by Sandy Ferguson; "Future Space Vehicles" by Erich Keser

March 15: "The Dark Sky (Olber's) Paradox" by Stan Shadick (U. of Saskatchewan)

April 19: "The Invasion of the Red Planet-Mars and How to View It" by Murray Paulson (Edmonton Centre)

May 17: "Cats in Space-The Next Shuttle Mission and Canadian Julie Payette's Role In It" by Bill Brooks (Western Space Education Network)

June 21: "School Astronomy Presentations" by Rick Huziak

September 20: "How Cypress Hills Went and International Astronomy Day, eh? - A Retrospective" by Erich Keser, Rick Huziak, Sandy Ferguson and others

October 18: "Optical Terms Demystified" by Doug Miller

November 15: "Light and Colour" by Alister Ling (Edmonton Centre)

December 13: "SETI@HOME" by Les Dickson; "The Mercury Transit" by Bob Christie, Al Hartridge, Sandy Ferguson; "The Leonid Meteor Shower-A Storm and Lunar Impacts" by Rick Huziak

Dr. Les Dickson, President Saskatoon Centre

Dr. Al Hartridge, Secretary, Saskatoon Centre

THUNDER BAY CENTRE

We have seen a marked increase in our Centre's membership over the past few years. In 1996 the Centre entertained 19 members. Now, with renewed efforts and the expanded executive, our group has grown to 41 members.

To keep us informed of upcoming events and club news, our webmaster Ed Kuchel is doing an excellent job maintaining and continuously updating the Centre's website.

Many of our speakers for the meetings are from the Centre's membership. The diverse interests of our members have created a variety of interesting astronomical topics. Some of the subjects covered at our meetings in 1999 include: The 1919 solar eclipse expedition – how it helped verify aspects of the Theory of Relativity (Al Huard), deep sky observing (Doug Stuart), constellations throughout the year (Dave Galley), afocal astrophotography (John Bakkellund), and galactic structures (Brendan Roy). The astronomical trivia quizzes by Brendan and John tested our knowledge of the skies. I covered areas such as the Feb/Mar planetary grouping and the Aug. 1999 total solar eclipse.

The Basic Astronomy course (8 weeks) was run twice this year (Spring and Autumn). This aspect of presenting amateur astronomy to the community is successful as it has helped to

increase the club's membership over the past few years. Thanks to Brendan for his help in administering these sessions.

During the summer months the Thunder Bay Centre was host to three star parties. They were held at Provincial Parks throughout the region. Sleeping Giant Provincial Park had a good turnout of campers. Quetico Provincial Park (13th Annual) had the Junior Rangers as well as the campers who attended the slide presentations and evening observing with interest. The Park staff turn out the parking lot lights providing us with spectacular dark skies! Kakabeka Falls Provincial Park had requested us to run their first observing session this year. It was very successful, as the park is close to the city of Thunder Bay. With the extremely variable weather this year the observing sessions were of limited success. When the weather permitted we made the most of the opportunities at these star party events. Thanks to our group members, we got some good observing time in with the public.

The skies on Nov. 15th were cloudy before the transit of Mercury was to begin. About 2 hours before the event the skies cleared completely and some of our members came out to witness this rare event. I had gone out to several locations a few days before to find a site that would not obscure the Sun during the transit. This was a challenge due to the very low elevation of the Sun and the site had to be accessible to the public. Three telescopes were on site to observe this event.

As the year wound down we had planned to view the highly anticipated Leonid meteor storm from a dark site at the Sleeping Giant Provincial Park near Thunder Bay. One of our members (Barry Wojciechowski) had acquired the use of the park's visitor service centre. We were planning to stay the entire night to view the Leonids. Since the weather was totally clouded out, the evening became a social event complete with food, music and stories in front of the fireplace.

The increase in membership and new ideas in our Centre indicates a good foundation and renewed interest in the skies as we approach the dawning of the new millennium.

Ted Bronson

Secretary, Thunder Bay Centre

TORONTO CENTRE

I didn't think it possible, but the Toronto Centre actually had an even more exciting year than the previous.

First off, the RASC's 1999 General Assembly was hosted by the Centre over the July long weekend. From 1-7 July 1999, we had the pleasure of co-hosting, "Partners in Astronomy", the first-ever joint meeting of the Astronomical Society of the Pacific, the Royal Astronomical Society of Canada, and the American Association of Variable Star Observers. The meetings were held at the University of Toronto, St. George Campus,



Toronto Centre members were busy grading the area around the foundation of the new E.C. Carr Astronomical Observatory on Blue Mountain. From left to right are: Jacek Malinowski, Rob Burbank, Brian Cheaney, Robert Williamson and Paul Harrison. Photo by Tony Horvatin.

with side trips to the Ontario Science Centre, and the David Dunlap Observatory. The meeting had many components. As well as the individual scientific and business sessions of the three societies, there was:

- a three-day Teachers' Workshop (attended by 270 elementary and secondary school teachers on a holiday weekend!);
- a workshop on partnerships between astronomers (both professional and amateur) and school teachers;
- two days of non-technical public lectures by 20 of the best astronomy communicators in North America (with Geoff Marcy as the keynote speaker);
- a day of lectures on the history of astronomy;
- and a three-day symposium on "Amateur-Professional Partnerships in Astronomy Research and Education". The Proceedings of this Symposium have been published in the ASP Conference Series, with John Percy as the editor.

The Teachers' Workshop was an outstanding success. What was the secret? For one thing, astronomy is now part of the Ontario elementary and secondary school science curriculum, and the teachers are desperate for support. We also had some of the best presenters in North America: Andrew Fraknoi, Philip Sadler, and Dennis Schatz - not to mention Canada's first woman in space - Roberta Bondar. There were about two-dozen other presentations, with parallel sessions for elementary and secondary school teachers, including several workshop-type sessions.

The Symposium, attended by almost 200 professional and amateur astronomers and educators, highlighted some of the technological and organizational developments, which will enable amateur astronomers to increase the quantity, quality, and variety of their contributions to astronomy; these contributions are already outstanding! One day was devoted to issues in astronomy education, and the importance of

partnership. A feature of this Symposium (which I would recommend to others) was the use of panel discussions and general discussions to enable many people to contribute. There were also 80 posters presented. The discussions, and summaries of the posters, will be included in the Proceedings.

We are especially grateful to NASA, the US National Science Foundation, the Canadian Space Agency, and the University of Toronto, for funding travel grants for many of the non-professional participants in the symposium. Several other organizations provided major funding for other parts of the meeting.

Our sincere thanks go to John Percy and his team for organizing an absolutely fabulous conference.

The expedition to observe the total solar eclipse of 11 August 1999 was an unqualified success and was another high point of the past year. There were 11 members in the group including Ralph Chou as leader.

The group arrived in Bucharest, Romania on 6 August. After a bus trip to Targoviste, a small city approximately 80 km northwest of Bucharest, the group met their hosts, the Romanian Society for Astronomy and Meteors (SARM), as well as a group of 31 other eclipse chasers from the USA, UK, and Germany.

At dawn on eclipse day, the sky over Curtea de Arges was cloudy, but broke up as the group approached Stefanesti. The weather prospects deteriorated as equipment was being set up, and at 8:00 a.m., Ralph decided that the group should make a run in the bus toward Bucharest to get ahead of the bad weather approaching from the mountains. After a frantic two-hour bus ride through heavy traffic, the group reached Bucharest, and hurriedly set up on the stadium grounds of the Romanian Sports Federation. Observations began shortly after first contact, and light cloud drifted in front of the sun just before totality. The eclipse was observed from diamond ring to diamond ring, and the skies remained mostly clear for about an hour afterward. The roar from a huge crowd gathered in the public park 1 km to the southeast was clearly heard. Overall, the tour was reported as an enjoyable experience with many new friends being made.

John Percy organized a super program of regular meetings over the past year. Thanks go to the speakers and to the Ontario Science Centre AV staff as we continue to make good use of the facilities at the OSC. The presentations were:

October 28: "Surveying High-Latitude Hydrogen Clouds in the Milky Way" by Tracy Clarke and Michael Gladders

November 25: "The Design and Construction of the Apollo Lunar Module" by Randy Attwood

January 20: "The Arctic Sky" by Glen Ellis

February 14: (joint with Royal Canadian Institute)

"Supernovae and the Fate of the Universe" by Dr. Peter Garnavich

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February 17: "Galaxy Formation and Evolution: in clusters and in the field" by Wayne Barkhouse and Gabriela Mallen-Ornelas

March 17: "Imaging the Surfaces of Stars" by Dr. Gregg Wade

April 14: "High-Redshift Galaxies" by Professor Howard Yee

May 12: "Computers in Astronomy" by Professor Stefan Mochnacki

The 2nd Annual Open House and Awards Ceremonies were held at the E. C. Carr Astronomical Observatory (CAO) on Saturday, 18 September. About 75 members and friends were in attendance on a fine fall afternoon to partake of the weekend's activities. Ralph Chou made the presentation of two Centre awards. The H.A. Winnearls Award for service to the Centre was awarded to Geoffrey Brown for his enthusiastic spearheading of the campaign to erect an observatory at the CAO. The Andrew Elvins Award for the promotion of astronomy was won by Heide DeBond for her continued commitment to the Centre's member education program via the city star parties and her contributions to public education. After a delicious barbeque and potluck dinner, guests prepared for an evening of observing and awaited the passing of twilight. Thanks go to many who contributed to the success of the event but special mention should be made of Grace Horvatin and Tim Hunter.

Work continued at the E. C. Carr Astronomical Observatory (CAO) over this past year. Five work parties were held to continue improvements to the site and house. Also, efforts have begun on the observatory structure itself with the laying of several underground conduits to service the observatory in May. Completed projects in the house included: the installation of the main floor kitchen; finishing of the lower bathroom and the 'Great Room', as it has come to be called; installation of a donated proximity card entrance system; construction of a storage room; and more. More than sixty different members and friends participated in these efforts over the period. What a wonderful show of support and our members' response has indeed been gratifying to the Thornbury Site Management Committee (TSMC).

Use of the site has also steadily increased, as has the number of annual pass holders. Thanks go to all who contributed towards these efforts by donating their time, resources, and/or skills. A special thank you is extended to all those members who responded to the President's appeal at renewal. As of 30 September almost \$3,000 in donations had been received!

I am pleased to report that the Centre has become the recipient of another very generous donation from Mr. E. Clifton Carr. Mr. Carr has donated a Meade 16-inch LX200 telescope to the observatory now being developed at the CAO. Thank you Mr. Carr!

At the meeting of National Council at the GA, the TSMC

applied to the National Society for a Special Projects Grant towards the construction of the new observatory at the CAO. The application was dealt with at the 23 October meeting where National Council approved a cash grant in the amount of \$5,000 towards the project. The Toronto Centre is grateful to the Society for its support of our efforts at the CAO.

Congratulations go to Mr. Brian Wilson who was the winner of the 1999 RASC Toronto Centre Gold Medal. This award is presented to the highest-ranking student in the undergraduate astronomy programme at the University of Toronto and was presented to Mr. Wilson at the joint meeting banquet in July. Mr. Wilson will be continuing his studies at the U. of T. where his M. Sc. thesis will be in the field of cosmology.

Other Centre awards presented in 1999 included: National Service Award to Dr. B. Ralph Chou; Messier Certificate to Marc Dumais; and NGC Certificate to Mark Viol. After many years of service as Chair of the Awards Committee, Mary Anne Harrington retired this summer. The Toronto Centre sincerely thanks her for her exemplary service.

As of 1 July 1999, membership stood at 800, including 694 regular, 25 youth, 81 life and 57 associate members. After several years of dedicated (and quite excellent) service, Brian Cheaney stepped down as Membership Secretary in July and was succeeded by Ralph Chou. Thank you, Brian! It is with regret that I must report on the death of four of our members: Howard Burke, Edwin Greenwood, Lothar Jung, and Frederic Troyer.

The Centre's newsletter, *Scope*, has seen yet more transition over the past year with Spilios Asimakopoulos, as Editor, and Irene Gaspar, as Associate Editor, taking over its production from Richard Anderson earlier in the year. The team has introduced several new regular columns to *Scope* and reports it will continue to find ways to add value to *Scope*, so that it will be even more relevant and interesting to Toronto Centre members. From their beginning on the newsletter, the team has stressed that *Scope* should reflect what the members want to see and therefore members should actively contribute to the newsletter. They report that they are truly impressed with the response that we have received from members and will aim to further encourage their contribution.

On the financial side, the editorial team has also looked to reduce its production costs. *Scope* is now photocopied instead of printed, which has led to little, if any, reduction in quality but has resulted in a significant savings to the Toronto Centre and these monies can now be put to better use in the programmes of the Centre. The team hints that *Scope* is in for further changes in 1999/2000, as *Scope* will have a completely new and modern design that will be more reader friendly. Producing *Scope* every 60 days is a mammoth job and I extend our thanks to Spilios and Irene for their excellent work thus far.

The Centre's Website continues to operate under the

direction of Mike Kozak. Thanks go to TV Ontario and Datacom for graciously hosting our sites.

It was a bit quieter this year for the Public Education committee as it is currently working without a chair! The Centre continues to serve the astronomy orientation needs of schools and various youth sections of Girl Guides and Scouts Canada with our group talks and star parties. This public outreach is expected to become even more important in the coming year as a result of the inclusion of a significant portion of instruction in astronomy in the grades 6 and 9 level of the new Ontario school curriculum. The Centre hopes to expand its capability to respond to these new needs of students and teachers with public education programmes and this includes those to be offered at the CAO. Teachers are being encouraged to contact the Centre for information in this regard.

The Centre continues to participate in the Hobby Show at the International Centre. Thanks go to Bob Taylor for organizing last November's effort. This show has become one of the more productive public outreach venues that the Centre participates in.

The Centre continued its tradition of assisting the David Dunlap Observatory's staff with its summer Saturday evening public viewing program by having members set up their telescopes. The Centre's annual open house at the DDO took place on Friday 10 September. Thanks go to Professor Stefan Mochnecki and Brian Beattie and the staff for their hospitality.

Our monthly dark sky observing sessions at Camp Robin Hood were organized by Robert Chapman while the city observers' workshops in Morningside Park were conducted by Heide DeBond. Both programmes were well attended when weather permitted. Eleven Members' Nights were held at the Ontario Science Centre. Themes for these evenings included: Meteors; Astronomy at War; Backyard Basics; Astro-Imaging; Messier Marathons; Laughter in the Night; Light Pollution; Public Education and Amateur-Professional Collaboration. Thanks go to all the speakers who contributed to these events.

The Centre thanks Dr. Ernest Seaquist for his many years of service to the Centre as its Honorary President as he steps down as chairman of the astronomy department of the University of Toronto and as the director of the DDO. The Centre would like to welcome Dr. Peter Martin as the new chairman of the astronomy department and we hope to continue our mutually beneficial relationship with the U. of T. and the DDO.

On behalf of the Centre, I would like to offer thanks to all those many members, far too many to mention by name, who have contributed to the activities reported herein. Their efforts have truly made all the difference! Further, as this will be my last Secretary's Report (after 7 years in the post!) I would like to state that I have been very glad to have participated in these past years' activities and work with so many great people in the Toronto Centre. I would also be pleased to thank my wife,

Grace, for her support and her contributions to my role as Secretary for the Centre.

Thanks go to Camp Robin Hood and the Toronto Parks Commission for continuing to allow us to use their grounds for our observing programmes. Finally I offer thanks to the Ontario Science Centre for very kindly allowing us to use their facilities.

VANCOUVER CENTRE

This past year was quietly rewarding for those of us here on the west coast. While there were no major celestial events in our local area, a fair number of VC members went to Europe to see this year's eclipse. Those of us who remained behind had to deal with this year's primary problem, absolutely miserable weather. The previous year (1998) was magnificent for weather, so I guess things even out.

The weather was responsible for the first rain out at Mt. Kobau in many years. I was personally lucky enough to have three good nights before the official opening of both the MKSP and the skies. Our club had better luck with our own small star parties near Manning Provincial Park with two events, one in July and the other in September, that had good weather.

Other events that fell victim to the weather were the Leonoid meter shower and Mercury's transit of the sun. Not everything fell victim to this year's weather as we had successful events around the Lower Mainland that included: International Astronomy Day, The Fraser River Festival and my favorite, Sidewalk astronomy on English Bay. The Vancouver Centre's display at The Fraser River Festival won second place in the popular vote, however an unscientific poll by our members found no one that voted for the first place finisher, a government sponsor of the event, hmmm.

Memorable events of the past year involved excellent speakers, the highlight being Eric Lindburgh, grandson of Charles Lindburgh. Mr. Lindburgh gave a very entertaining and informative talk on the X-Prize, a contest worth \$5 Million US to the first person to launch a vehicle capable of carrying a minimum of three passengers into a ballistic trajectory that peaks at an altitude of 100 km. Of interest to me, aside from the nifty hardware, was the revelation that his grandfather took 33 hours to cross the Atlantic to claim his prize. Whoever wins the X-Prize will take less than an hour from ignition to splash down! Other speakers this year included Mac Evans of the Canadian Space Agency and Dr. Martin O'Connors on the Leonoid shower of 1998. We also had several speakers from McDonald Dettwiler and Associates that spoke on Canada's space achievements in satellites and earth observation.

Two achievements locally were the completion of the CARO Observatory and the start of our search for supernovas.

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The observatory still needs some modifications to be completely automated, but there were significant steps toward this with the completion of the software development (if software is ever complete) and the addition of a wireless modem connection to the Internet. This will allow completely remote access and avoid long drives up the mountain. The second achievement was the award to Randy Klassen of "The Finest NGC Objects" certificate. Congratulations Randy, I am The coming year promises to be eventful as well, with two partial solar eclipses and two lunar eclipses (one already rained out). Hopefully the weather will be more cooperative this year.

Bob Parry
President, Vancouver Centre

VICTORIA CENTRE

It has been another busy and successful year for the Victoria Centre. Along with the cycle of monthly Centre meetings at University of Victoria, Bill Almond's CCD group and Sid Sidhu's beginners' New Observers' Group were joined by President Sandy Barta's Astronomy Cafe get-together on Tuesday evenings.

Centre activities this year included the Hobby Show at Canwest Mall and the ongoing work at Pearson College. The students at Pearson are in the process of making a telescope and mirror, to be installed at the Word College in India. The display at Canwest Mall drew lots of attention. There is a great deal of interest in astronomy amongst the general public — especially school age children. Sandy mentioned the possibility of having an introductory class for the youth section of the Centre. A meeting in early October to discuss the idea of a special beginner's astronomy study program highlighted the need for this activity at both the adult and school age level. Some of the sessions would focus on basic observing skills, equipment selection and use, as well as ideas for beginning observing projects.

Some of our members shone in the spotlight again this year. Bill Almond was presented with an Astrophotography Award for his work with CCD imaging. Eric Schandall made it into the pages of *Sky and Telescope* with his home observatory. Sid Sidhu's "Teles-Coop" was officially opened this year as well, while Jan Wisniewski is to receive a Messier certificate for his work in capturing images of every Object in the Catalogue.

November: Annual General Meeting: "The Canadian Role in the International Spaceguard Survey" by David Ballam

December: Multimedia Presentation: "Canada in Space" by Pal Virag

January: "Updates on CCD Technology" by Jan Wisniewski

February: "Oscillator Strengths - Master Key to

Understanding the Secrets of the Universe" by Jeremy Tatum
March: "Progress in the Gemini 8-Metre Telescope Project" by Andy Woodsworth

May: "Beyond the Great Attractor" by Mike Hudson

June: Members' Night

July: Public conference - Special Presentation: "Our Universe: Old, Expanding, and Accelerating?" by Professor Robert Kirshner

September: "An Amateur-Amateur's Apprenticeship" by Eric Schandall

October: Members' Night

Margaret Ulitzka
Secretary, Victoria Centre

WINDSOR CENTRE

1999 was the year that the Windsor Centre obtained the unprecedented achievement of having 100 members. This is due to the high quality of membership meetings as maintained by our President, Susan Sawyer-Beaulieu, and good publicity for such and other public events.

Our Centre participated at the Earth Day event in Windsor on April 25, which was also our Astronomy Day activity. On July 20, Randy Groundwater gave a public presentation, "Apollo 11 - 30th Anniversary." Also, our Centre provided two observing sites for the public to watch the Leonid meteor shower on November 14 and 17. Sincere thanks are expressed to all persons that assisted in our Centre having an exceptionally successful year.

The Windsor Centre held 9 membership meetings, 3 council meetings, 2 socials, 2 public observing sessions, 1 public display and 1 public presentation. Membership meetings were as follows:

January 19: "Electromagnetic Radiation from Space" by Dr. William Baylis, University of Windsor

February 16: "Origins of Astronomy" by Rev. Harry Brydon

March 16: "Solstice Rituals" by Peggy Hurley, Kingston Centre

April 20: "Observing Mars" by Steve Mastellotto

May 18: "Telescopes Computer Controlled" by Tim Bennett

June 22: "Revisiting Solar Eclipses" by Alan Whitman, Okanagan Centre

September 15: "Setting Up Telescopes" by Robin Smallwood and Ken Roung

October 19: "Sir Isaac Newton" by Pierre Boulis, University of Windsor

November 16: "Experiments in Astronomy" by Steve Pellarin and Steve Mastellotto

Submitted by
C. Joady Ulrich
Secretary, Windsor Centre

WINNIPEG CENTRE



Winnipeg Centre's Glenlea Observatory

The Winnipeg Centre followed last year's success with yet another banner year. Membership has continued to climb as the Council endeavored to meet the needs of both the new and existing members.

We have fine-tuned our members' evenings (held monthly), providing a variety of topics. This has led to regular high attendance, with numbers often exceeding half of the membership. A New Members Session is held, prior to the regular meeting, as a training ground to learn about telescopes, setting circles and other astronomical basics. The regular meetings include a routine contingent of speakers, with topics

such as Updates on Spacecraft, the Monthly Constellation, and What's in the Sky. Combined with a Monthly Messier presentation, these are used to stimulate the membership-observing program. Within the last year, a number of members have completed their Messier certificates as a result.

The Centre also holds semi-regular observing sessions at our Glenlea Observatory. The rebuilt observatory and warm room offer great comfort for those observing during the cold winter months. The warm room is equipped with several PCs, and includes astronomical software packages such as ECU. This allows the members an alternative to bringing out their star charts. A number of courses were put on in 1999 to teach members how to use the C-14. The site is also the home of our Annual Barbecue (or mosquitofest), when we relax the rules and bring out libations.

The club also has an Annual Christmas Party, giving the spouses the opportunity to meet with our observing buddies.

The club has four loaner telescopes, which were booked out steadily. This made it difficult to bring them in for maintenance. The use of these scopes has led to numerous members purchasing their "first scope." Plans were initiated to add a fifth scope, an 8" Dobsonian, to the list.

The members also were involved in numerous trips to observe the glories of the sky. Five members were within the Moon's shadow, during the Total Eclipse in Europe. They were situated in locations from England to Turkey. A trip was also initiated to visit a "less cloudy" location for the 1999 Leonid shower. Some members also travelled south to Arizona to catch Omega Centari.

The Winnipeg Centre has also accepted the challenge of hosting the 2000 General Assembly in Winnipeg. A flurry of activities have taken place to try to ensure the comfort and enjoyment of all those who participate. The event is scheduled from June 30th to July 2nd.

Overall, a very good year.

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 1999

	Calgary	Edmonton	Halifax	Hamilton (not available)	Kingston	Kitchener- Waterloo	London	Montreal**	C. F. de Montreal	Niagara	Okanagan	Ottawa
REVENUE	9,021	3,004	2,076		3,531	2,580	783	3,127	2,365	1,524	1,245	11,089
Membership fees - regular		830			773	288	214				346	405
Membership fees - basic surcharge					30							
Membership fees - special surcharge					101	30	86			43		490
Life membership grants	245	144	432		200	400	350		61	642		893
Donations	7,528	55	304		247		353	260		255	78	
Fundraising	2,050				1,336							
Educational activities	353	827	81		3		224	2,442		6		381
Interest and dividends	19		199		64							
Sale of Observer's Handbooks - net	-249	134	262		248	100	38	38		75	22	216
Sale of RASC Calendars - net	-155		32		101		131			-23		70
Sale of Beginner's Observing Guides - net		112					10		58			
Advertising		871									1	
General Assembly - including travel grants												
Miscellaneous	2,545		658		820			577	1,264	5,273		2,996
TOTAL REVENUE	21,357	6,124	4,116		7,454	3,398	2,189	6,444	3,748	7,795	1,692	16,540
EXPENDITURES												
Fees remitted to UTP/National Office*	5,319				765	1,510			1,000			6,943
Library	0	427						328	50			206
Meetings		1,240	151		320	100	240	200	95	375		
Newsletter	387	2,426	889		971	55	348	1,420	198	553	575	3,826
Annual dinner - net	-209				230					3,543		803
General assembly - including travel grants					247			50				
Equipment and supplies		1,531			830				744	165		21
Office administration		59	49					421	584	221	26	471
General expenses and audit	1,564		25		324		77			5		500
Educational activities		157			1,712				35			53
Insurance	1,469		500					609	230			788
Awards and donations	224	83	50		200							
Observatory	732		575		269	2,362		5,075	36	2,720		1,373
Miscellaneous	2,708				884	20	58		395	1,391	274	90
TOTAL EXPENDITURES	12,194	5,923	2,239		6,752	4,047	723	8,103	3,367	8,973	875	15,074
SURPLUS OR (DEFICIT) ON OPERATIONS	9,163	201	1,877		702	-649	1,466	-1,659	381	-1,178	817	1,466
BANK BALANCE FROM PREVIOUS YEAR	21,718	33,369	13,998		8,040	1,726	4,827	6,578		6,059	519	36,500
BANK BALANCE END OF YEAR	30,881	33,570	15,875		8,742	1,077	6,293	4,919	2,725	4,881	1,336	37,966

	Quebec (not available)	Regina	St. John's**	Sarnia	Saskatoon**	Thunder Bay	Toronto	Vancouver**	Victoria**	Windsor**	Winnipeg
REVENUE		972	635	303	2,183	777	25,603	4,705	2,838	1,206	4,091
Membership fees - regular		108			233			2,817			1,412
Membership fees - basic surcharge					25					28	
Membership fees - special surcharge					14		1,224	216		29	14
Life membership grants				50	58		9,239	65		459	692
Donations		869			871						
Fundraising		159			365			1,692		232	
Educational activities			1,238		6,576				37,500		
Interest and dividends		1	134	1	9		1,816	60	4,248	0	40
Sale of Observer's Handbooks - net		11			-18	34		-355	1		
Sale of RASC Calendars - net		24	185	10	644			-186	254	73	162
Sale of Beginner's Observing Guides - net					-123			-36	-114	1	1
Advertising					30			150		50	
General Assembly - including travel grants				73	253	236					
Miscellaneous		2,102			45	312	9,384	37	19	48	941
TOTAL REVENUE		4,246	2,191	450	11,150	1,359	47,266	9,164	44,746	2,126	7,353
EXPENDITURES											
Fees remitted to UTP/National Office*		583		104	1,553	720	17,349				2,454
Library		187			12			59	1,253		284
Meetings				121		50		975		125	272
Newsletter					651	76	2,929	1,774	1,400	236	325
Annual dinner - net									274	85	
General assembly - including travel grants								1,457	131		
Equipment and supplies		65	393	42		102		975			1,300
Office administration			20		171		7,884	69		8	
General expenses and audit		205				13				272	77
Educational activities			799		5,122		1,074	1,412	37,752		
Insurance					331						595
Awards and donations		30									
Observatory		561			212		6,616	500	3,077	287	500
Miscellaneous		1,442					13,097	25	450	231	
TOTAL EXPENDITURES		3,073	1,211	267	8,051	961	48,949	7,246	44,337	1,244	5,807
SURPLUS OR (DEFICIT) ON OPERATIONS		1,173	980	184	3,099	398	-1,683	1,918	409	882	1,546
BANK BALANCE FROM PREVIOUS YEAR		368	1,431	767	5,001	1,459	48,298	13,397	3,070	6,103	5,036
BANK BALANCE END OF YEAR		1,541	2,411	951	8,100	1,857	46,615	15,315	3,479	6,985	6,582

Notes:

** Bank balance includes a correcting adjustment to the previously published amount

Reports not submitted at press time: Hamilton, Quebec

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Winnipeg, MB R3T 5M1
204-261-9984
stan.runge@mts.mb.ca

Secretary & Past-President: Scott Young
475 Rathgar Avenue
Winnipeg, MB R3L 1G2
scott_young@manitobamuseum.mb.ca

Past-President: Jay Anderson
189 Kingsway Avenue
Winnipeg, MB R3M 0G4
204-474-1485
jander@cc.umanitoba.ca

National Representative:
Stan Runge (see above)

Alternate National Representative:
Scott Young (see above)

Councillors:
Brad Masiowski
Ray Andrejowich
Richard Turenne
Lindsay Price
John Smith

Winnicentrics Editor: Brad Masiowski
Observatory Director: Ray Andrejowich
Observatory Booking: Gil Raineault
Observatory Training: Kevin Black
New Member Liason: John Smith
Librarian: Fred Wood
Web Master: Kevin Georgison

GENERAL ASSEMBLY 1999



Front Row

Kim Hay
 Angela Squires
 Sally Baker
 Andrew DeBond
 Dennis Goodman
 Glenn Hawley
 Denise Terpstra
 Mitsuko Oka
 Chizuko Tanuma
 Mary L. Crawford
 Raymond Auclair
 Louis Cox
 Bill Almond
 Patrice Scattolin
 Carmen Wilkerson
 Ron Gasbarini
 Winston Wilkerson
 Dave Lane
 J. Randy Attwood

Second Row

Andreas Gada
 Leo Enright
 Bonnie Bird
 Damien Lemay
 Dan Collier

Osao Shigehisa
 Susan Gagnon
 Dave Crawford
 Bob Garrison
 Andora Jackson
 George Hoshowsky
 Geoff Gilmour-Taylor
 Kirsten Vanstone
 Brian Pihack
 Don Hladiuk
 John Percy

Third Row

Rick Morris
 Janet Janke
 Nicole DeBond
 Tom Cragg
 Frank Creese
 Tony Sosnkosky
 Jim Gibson
 Susan Phillips
 Roland Dechesne
 (Unknown)
 Janet Mattei
 Dorrit Hoffleit
 Peter Broughton
 Bob Taylor

Christine Kulyk
 Irene Gaspar
 Robert Rixen

Fourth Row

Keith Janke
 Randy Dodge
 Robert Dick
 Ray Berg
 Guy Nason
 Frank Dempsey
 Christopher Fleming
 Joan Hube
 Michael Lerman
 Doug Hube
 Janet Couch
 Marvin Baldwin
 Krista Stefan
 (Unknown)
 Paul Boltwood
 Walter Macdonald
 John Ginder
 Marie Seaman

Back Row

Peter Jedicke
 Robert May

David Orenstein
 Alan Whitman
 Harry Brydon
 Tim Bennett
 Richard W. Schmude Jr.
 Dave Sage
 Jack Newton
 Stephen Barnes
 Geoff Gaherty
 Michael Watson
 Steven Morris
 Heide DeBond
 Isaac McGillis
 Gerard Samolyk
 Jerry Dobek
 B. Ralph Chou
 Franklin Loehde
 David Levy
 Mary Lou Whitehorne
 Roy Bishop
 Ray Koenig
 Al Seaman

1999 AWARD WINNERS

Service Award

Ralph Chou (Toronto)
John Mirtle (Calgary)

Chant Medal (not awarded)

Ken Chilton Prize (not awarded)

The Plaskett Medal

Simon Newcomb Award

Stéphane Charpinet
Terence Dickinson

Messier Certificate

David H. Prud'homme (Edmonton)	Ron C. Scherer (Okanagan)	Geoff Gaherty (Toronto)
Doug Angle (Kingston)	John Douglas (Ottawa)	Richard Weatherston (Sarnia)
Johanne Gamache (Montreal)	Richard Taylor (Ottawa)	Alexander Dutkewych (Unattached)
Charles (Chuck) Johnston (Montreal)	R. O. Christie (Saskatoon)	Jan Wisniewski (Victoria)
Guy Mackie (Okanagan)	Marc Dumais (Toronto)	Timothy George Zacharias (Winnipeg)

NGC Certificate

Mary Lou Whitehorne (Halifax)	David J. Nopper (London)	Alexander Dutkewych (Unattached)
Leo Enright (Kingston)	Richard Huziak (Saskatoon)	Randy Klassen (Vancouver)
Christopher Fleming (London)	Mark Viol (Toronto)	Ken F. Roung (Windsor)
Joe Gurney (London)		

Membership Certificate

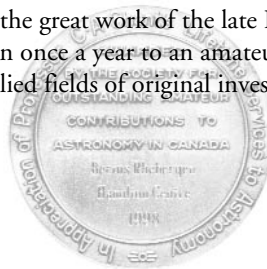
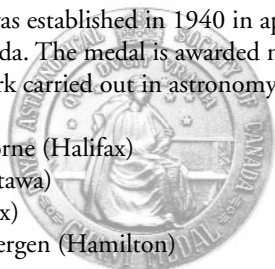
Chris Aikman (Victoria, 25 years)	Gary Florence (Calgary, 5 years)	Henry Nothof (Toronto, 25 years)
Donald R. Austin (Toronto, 25 years)	Mel Head (Calgary, 5 years)	Joe O'Neil (London, 5 years)
Michael F. Barrett (Toronto, 25 years)	Richard A. Jarrell (Toronto, 25 years)	Klaus Plauschinn (Toronto, 25 years)
D. H. Bell (Toronto, 25 years)	Leonard Kappel (Calgary, 5 years)	John Rousom (London, 5 years)
M. J. Bronson (Toronto, 25 years)	Richard Kelsch (Toronto, 25 years)	Ron Sawyer (London, 5 years)
H. R. Burke (Toronto, 25 years)	Lloyd C. Kremer (Toronto, 25 years)	Dan Shire (Toronto, 25 years)
Grant Carscallen (London, 5 years)	Olga Kuderewko (Toronto, 25 years)	Glenn Slover (Toronto, 25 years)
Alan Clark (Calgary, 25 years)	Walter Lindenback (Calgary, 5 years)	Anthony Sosnkowski (Toronto, 25 years)
Jeffery C. Clayton (Toronto, 25 years)	Robert McColl (Toronto, 25 years)	John L. Steward (Toronto, 25 years)
Michael De Robertis (Toronto, 25 years)	Robert Morgan (Calgary, 5 years)	Thomas Swaddle (Calgary, 25 years)
John M. Fincham (Toronto, 25 years)	Patricia Morgan (Calgary, 5 years)	J. P. Vallee (Toronto, 25 years)
James Fish (Calgary, 5 years)	Steven Morris (Calgary, 25 years)	Susan Yeo (Calgary 5 years)

Below is a list of former winners of the Chant Medal, Ken Chilton Prize, Plaskett Medal, Service Award and Simon Newcomb Award. For names before 1990 please refer to "Looking Up – A History of the RASC" by Peter Broughton.

Chant Medal

The Chant Medal of the Society was established in 1940 in appreciation of the great work of the late Professor C.A. Chant in furthering the interests of astronomy in Canada. The medal is awarded not oftener than once a year to an amateur astronomer resident in Canada on the basis of the value of the work carried out in astronomy and closely allied fields of original investigation.

1993 Mary Lou Whitehorne (Halifax)
1995 Paul Boltwood (Ottawa)
1996 David Lane (Halifax)
1998 Bertus (Bert) Rhebergen (Hamilton)



1999 AWARD WINNERS

Ken Chilton Prize

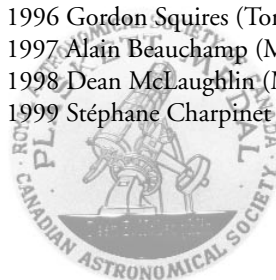
The Chilton Prize was established in 1977 by the National Council of the Society in remembrance of Ken E. Chilton, an active member of the Hamilton Centre. The prize is awarded annually to an amateur astronomer, resident in Canada in recognition of a significant piece of astronomical work carried out or published during the year.

- 1990 Doug George (Ottawa)
- 1995 Paul Gray (Halifax), David Lane (Halifax)
- 1996 Raymond Thompson (Toronto)
- 1997 Heather T. Cameron (Halifax)

The Plaskett Medal

The Royal Astronomical Society of Canada and the Canadian Astronomical Society together present an award in recognition of the pivotal role played by John Stanley Plaskett in the establishment of astrophysical research in Canada. The award is made to the graduate from a Canadian university who is judged to have submitted the most outstanding doctoral thesis in astronomy and astrophysics in the preceding two calendar years. An award need not be made every year.

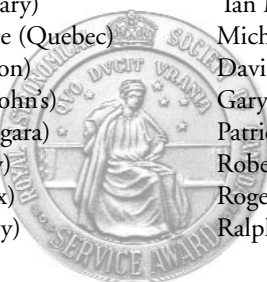
- | | |
|----------------------------------|--|
| 1991 Paul Charbonneau (Montreal) | 1996 Gordon Squires (Toronto) |
| 1992 Eric Poisson (Alberta) | 1997 Alain Beauchamp (Montreal) |
| 1993 Pierre Brassard (Montreal) | 1998 Dean McLaughlin (McMaster) |
| 1994 Grant Hill (Montreal) | 1999 Stéphane Charpinet (Université de Montréal) |
| 1995 Michael Richer (York) | |



Service Award

The Service Award was established in 1959 and takes the form of a bronze medal presented to members who have performed outstanding service to a Centre or to the National Society. Below is a list of recent winners of the Service Award.

- | | | |
|------------------------------------|-------------------------------------|-------------------------------|
| 1990 Mary Grey (Ottawa)* | | |
| 1991 Don Hladiuk (Calgary) | Ian McGregor (Toronto) | |
| 1992 Jean-Marie Frechette (Québec) | Michael Watson (Unattached, Canada) | |
| 1993 Eric Clinton (London) | David Tindall (Halifax) | |
| 1994 Randy Dodge (St. John's) | Gary Dymond (St. John's) | Mel Rankin (Edmonton) |
| 1995 Ron Gasbarini (Niagara) | Patrick Kelly (Halifax) | |
| 1996 Sidney Lee (Calgary) | Robert Venor (Montreal)* | Abbe Alphonse Tardif (Quebec) |
| 1998 David Lane (Halifax) | Roger Hill (Hamilton) | Sandy Ferguson (Saskatoon) |
| 1999 John Mirtle (Calgary) | Ralph Chou (Toronto) | |



* deceased

Simon Newcomb Award

This award was instituted in 1978 to recognize literary ability among non-professional members of the society.

- 1994 Michael S.F. Watson (Unattached, Canada)
- 1999 Terence Dickinson (Toronto)

HONORARY MEMBERS OF THE RASC

Dr. R. B. Baldwin (United States)	Dr. Stephen W. Hawking (United Kingdom)
Dr. F. M. Bateson (New Zealand)	Dr. Patrick Moore (United Kingdom)
Dr. R. Hanbury Brown (Australia)	Dr. Grote Reber (Australia)
Dr. David L. Crawford (United States)	Dr. A.R. Sandage (United States)
Dr. A. Dollfus (France)	Dr. Martin Schwarzschild (United States)
Rev. Robert Evans (Australia)	Dr. Anne Underhill (Canada)
Dr. Owen Gingerich (United States)	Prof. H.C. van de Hulst (Netherlands)

PAST ELECTED OFFICERS OF THE RASC

Below are lists of former Presidents, Secretaries and Treasurers of the RASC.
For names before 1990 please refer to "Looking Up – A History of the RASC" by Peter Broughton.

Honorary Presidents

1989-1993 Ian Halliday
1993-1997 Alan Batten
1997-2001 Jack Locke

Presidents

1990-1992 Damien Lemay
1992-1994 Peter Broughton
1994-1996 Doug Hube
1996-1998 Doug George
1998-2000 Randy Attwood

Secretaries

1987-1993 David Tindall
1993-1996 Randall Brooks
1997-1999 Raymond Auclair
1999- Kim Hay

Treasurers

1989-1991 Karl Miller
1992-1994 Terry Hicks
1994-1998 Rajiv Gupta
1998- Michael Watson

GENERAL ASSEMBLIES – 1990 — 2001

The following Centres hosted the General Assembly during the 1990s:

1990 Ottawa Centre	1995 Windsor Centre
1991 Vancouver Centre	1996 Edmonton Centre
1992 Calgary Centre	1997 Kingston Centre
1993 Halifax Centre	1998 Victoria Centre
1994 St. John's Centre	1999 Toronto Centre

The following Centres will host the General Assembly during the 2000s.

2000 Winnipeg Centre
2001 London Centre

CENTRE ADDRESSES/ADRESSES DES CENTRES

Calgary

c/o Calgary Science Centre, PO Box 2100, Station "M", Calgary, Alberta, T2P 2M5

<http://www.syz.com/rasc/>

Edmonton

c/o Edmonton Space & Science Centre, 11211 - 142 St., Edmonton, AB, T5M 4A1

<http://planet10.v-wave.com/rasc/>

rascedm@worldgate.com

Halifax

PO Box 31011, Halifax, NS, B3K 5T9

<http://halifax.rasc.ca>

halifax@rasc.ca

Hamilton

Box 1223, Waterdown, ON, L0R 2H0

<http://www.rasc.ca/hamilton>

chaig@compuserve.com

Kingston

PO Box 1793, Kingston, ON, K7L 5J6

<http://www.1.kingston.net/~rasc/>

rascexec@cliff.path.queensu.ca

Kitchener-Waterloo

157 Thornberry Lane, Waterloo, ON, N2T 2C8

<http://kw.rasc.ca>

neil@mitra.com

London

PO Box 842, Station B, London, ON, N6A 4Z3

<http://phobos.astro.uwo.ca/~rasc/>

pjedicke@fanshawec.on.ca

Centre Francophone de Montréal

Casier Postal 206, Station St-Michel, Montréal, QC H2A 3L9

<http://www.cam.org/~sam>

sam@cam.org

Montreal

P.O. Box 1752, Station B, Montreal, QC H3B 3L3

<http://www.rasc.ca/montreal>

rascm1@altavista.net

Niagara

PO Box 4040, St. Catharines, ON, L2R 7S3

<http://www.vaxxine.com/rascniag>

jvandwil@vaxxine.com, rascniag@vaxxine.com

Okanagan

P.O. Box 20119 TCM, Kelowna, BC, V1Y 9H2

<http://www.bcinternet.com/~rasc>

okrasc@bcinternet.com

Ottawa

PO Box 33012, 1974 Baseline Road, Nepean, ON, K2C 0E0

<http://www.ottawa.rasc.ca>

Quebec

Domaine de Maizerets, 2000 blvd. Montmorency, QC, G1J 5E7

<http://www2zone.ca:80/~marcelf/srac.htm>

srac_quebec@hotmail.com

Regina

PO Box 20014, Cornwall Centre, Regina, SK, S4P 4J7

<http://www3.sk.sympatico.ca/kostaw/rasc/>

Sarnia

c/o Jim Selinger, 160 George Street, Sarnia, ON, N7T 7V4

<http://www.sarnia.com/groups/astro>

jselinge@mnsi.net

Saskatoon

P.O. Box 317, RPO University, Saskatoon, SK, S7N 4J8

<http://maya.usask.ca/~rasc/rasc.html>

dickson@sk.sympatico.ca

St. John's Centre

c/o Randy Dodge, 206 Frecker Dr., St. John's, NF A1E 5H9

<http://www.infonet.st-johns.nf.ca/rasc>

randy@morgan.ucs.mun.ca

Thunder Bay

286 Trinity Crescent, Thunder Bay, ON, P7C 5V6

<http://www.oln.com/bus/rasc/tbrasc.html>

bronsont@air.on.ca

Toronto

c/o Ontario Science Centre, 770 Don Mills Road, Don Mills, ON, M3C 1T3

<http://www.tvo.org/rasc/toronto/index.html>

Vancouver

c/o Gordon Southam Observatory, 1100 Chestnut Street, Vancouver, BC, V6J 3J9

<http://pacific-space-centre.bc.ca/rasc.html>

Victoria

4734 Lisandra Road, Victoria, BC, V9C 4G1

<http://victoria.tc.ca/~rasc/>

sbarta@pinc.com

Windsor

c/o Frank J. Shepley, 671 Inman Side Road, R R 2, Ruthven, ON, N0P 2G0

<http://users.mnsi.net/~rasc>

fshepley@wincom.net

Winnipeg

P.O. Box 2694, Winnipeg, MB R3C 4B3

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