



Supplement to the JOURNAL

of the **ROYAL ASTRONOMICAL**
SOCIETY of **CANADA**

ANNUAL REPORT 1984

APRIL 1985

PRESIDENTS OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

1890–1894	C. Carpmael	1940–	J.A. Pearce
1895–	L.W. Smith	1941–1942	F.S. Hogg
1896–1897	J.A. Paterson	1943–1944	A.V. Douglas
1898–1899	A. Harvey	1945–1946	A.E. Johns
1900–1902	G.E. Lumsden	1947–1948	J.W. Campbell
1902–1903	R.F. Stupart	1949–1950	A. Thomson
1904–1907	C.A. Chant	1951–1952	C.S. Beals
1908–1909	W.B. Musson	1953–1954	J.F. Heard
1910–1911	A.T. DeLury	1955–1957	R.M. Petrie
1912–1913	L.B. Stewart	1957–1959	H.S. Hogg
1914–1915	J.S. Plaskett	1959–1960	A. McKellar
1916–1917	A.D. Watson	1960–1962	P.M. Millman
1918–1919	A.F. Miller	1962–1964	A.J. Northcott
1920–1921	J.R. Collins	1964–1966	K.O. Wright
1922–1923	W.E.W. Jackson	1966–1968	M.M. Thomson
1924–1925	R.M. Stewart	1968–1970	J.E. Kennedy
1926–1927	A.F. Hunter	1970–1972	H. Simard
1928–1929	W.E. Harper	1972–1974	J.L. Locke
1930–1931	H.R. Kingston	1974–1976	J.D. Fernie
1932–1933	R.K. Young	1976–1978	A.H. Batten
1934–1935	L. Gilchrist	1978–1980	J.R. Percy
1936–1937	R.E. DeLury	1980–1982	I. Halliday
1938–1939	W. Findlay	1982–1984	F. Loehde
		1984–	R.L. Bishop

SECRETARIES OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Corresponding Secretary 1890–1901; Secretary 1902–1919, General Secretary 1920–1949; National Secretary 1950 onwards.

1890–1899	G.E. Lumsden	1932–1935	R.A. Gray
1900–1902	W.B. Musson	1935–1958	E.J.A. Kennedy
1902–1917	J.R. Collins	1958–1964	J.E. Kennedy
1918–1919	W.E.W. Jackson	1964–1971	N. Green
1920–1923	A.F. Hunter	1971–1974	C.E. Hodgson
1924–1927	F.T. Stanford	1974–1977	D.J. FitzGerald
1928–1931	L. Gilchrist	1978–1980	N. Green
		1981–	R.P. Broughton

HONORARY MEMBERS OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Dr. V.A. Ambartsumian (U.S.S.R.)
Dr. R.B. Baldwin (U.S.A.)
Dr. F.M. Bateson (N.Z.)
Dr. A. Dollfus (France)
Dr. Leo Goldberg (U.S.A.)
Dr. W. Iwanowska (Poland)
Dr. J.H. Oort (Netherlands)

Dr. A.R. Sandage (U.S.A.)
Dr. Martin Schwarzschild (U.S.A.)
Dr. Josif S. Shklovsky (U.S.S.R.)
Prof. Bengt G. Strömberg (Denmark)
Dr. A. Unsold (Germany)
Prof. H.C. van de Hulst (Netherlands)
Dr. R.v.d. R. Woolley (S. Africa)

THE REPORT OF THE PRESIDENT

1984 was an eventful year for The Royal Astronomical Society of Canada. The financial structure of the Society was streamlined and shaped with the future in mind by the establishment of an Endowment Fund. The year was also the first full one in our own home, at 136 Dupont Street. Both of these accomplishments occurred during the term of our immediate Past-President, Franklin Loehde, a record in which he can take considerable pride.

During the year the International Astronomical Union recognized the outstanding scientific achievements of three past-presidents of our Society by naming asteroids after them. Asteroid 2917 is now "Sawyer Hogg", in honour of Dr. Helen Sawyer Hogg, and asteroid 2904 is named "Millman", in honour of Dr. Peter M. Millman, who is also our Honorary president. These recognitions have brought great pleasure to all who know Dr. Hogg and Dr. Millman. Asteroid 2905 was named "Plaskett", in honour of the late Dr. John S. Plaskett (former R.A.S.C. President), and his son, the late Dr. Harry H. Plaskett.

It was a year of major achievement for two, well-known amateur members of the Society. On September 18 (UT), while using the Ottawa Centre's Indian River Observatory, Rolf Meier discovered his fourth comet, Comet Meier (1984 o). On November 14, while observing from Jarnac Observatory near Tucson, Arizona, David Levy of the Kingston Centre discovered his first comet, Comet Levy-Rudenko (1984 t). It was with much interest that many observers in the R.A.S.C. followed these two comets as they drifted against the background stars during the closing months of 1984. It is a remarkable coincidence that Rolf and David have both been recipients (and the only recipients in the past 17 years) of the Society's Chant Medal.

Another highlight of the year was the opening of the outstanding Edmonton Space Sciences Centre on July 1 by Dr. Helen Hogg. Unfortunately, and unavoidably, this coincided with the annual R.A.S.C. General Assembly in eastern Canada. Thus everyone interested, including particularly Dr. Hogg and Franklin Loehde, had to miss either one event or the other. Fortunately we will all have a chance to visit the Space Sciences Centre during the 1985 General Assembly in Edmonton.

The major public news story related to astronomy in Canada during the year was that surrounding Dr. Marc Garneau, the first Canadian to enter space. It was with special interest that members attending the 1984 General Assembly listened to Dr. Steve MacLean, a colleague of Dr. Garneau's in the Canadian Astronaut Corps, and the guest speaker at the Civic Banquet in Hamilton.

The 1984 General Assembly was held at the end of June and was co-hosted by the Hamilton and Niagara Centres. This was a doubly-significant occasion for the Hamilton Centre since the first GA outside of Toronto was held in Hamilton (in 1958), and 1984 marked their 75th anniversary as a Centre of the Society. Excellent weather prevailed for the G.A. and all present found the papers sessions interesting, the meetings productive, and the displays and social events very enjoyable. Two banquets were held: the Civic Banquet in Hamilton (mentioned above), and the National Banquet in Niagara Falls at which Franklin Loehde gave his address as retiring President. Several members visited the Hamilton Centre's impressive observatory at Flamborough. Those who attended the tours will remember the elegance of Dundurn Castle, the beauty of Hamilton's Royal Botanical Gardens, the awesome, operating, compound beam engine of the Museum of Steam and Technology, and the thundering spray of Niagara Falls. Great credit is due to Peter Ashenhurst and his committee for a well-organized meeting.

One of the special events at the 1984 General Assembly was the presentation of a Canadian railway clock to the Society in honour of Malcolm Thomson, a Past-President of our Society, who devoted much of his professional life to the time service in Canada. The presentation was made by Mr. Omar Lavellee on behalf of the Canadian Pacific Railway. Particular credit is due to Harlan Creighton for his effort in bringing this to fruition. This impressive clock is now installed (with special thanks to Cyril Clark) at the National Office in Toronto.

A notable event each year is the Awards Ceremony at the G.A. National Banquet. The Service Award is presented in recognition of outstanding service to the Society, and in 1984 it was awarded to a record number of individuals: Leslie Powis and James Winger of the Hamilton Centre, Peter Jedicke of the London Centre, Hugh Maclean of the Niagara Centre, and Cyril Hallam and Henry Lee of the Windsor Centre. Other awards presented during the year included Membership Certificates (two in the Quebec Centre, ten in the Toronto Centre, and one in the Windsor Centre), and Messier Certificates (five each in the London and Toronto Centres).

The Society's oldest award is its Gold Medal. It commemorates an historic link with the University of Toronto, and is presented for outstanding academic achievement to a student completing the undergraduate astronomy program of the university. In 1984 the Gold Medal was awarded to Glenn D. Starkmann.

The Society also recognizes achievement in astronomy amongst young people across Canada. For several years we have sponsored prizes in the Canada-Wide Science Fair of the Youth Science Foundation. Dr. Norman Scrimger of St. Mary's University represented the Society at the 1984 Fair in Halifax. The first prize winners were Douglas McLachlan and Peter Brown of Edmonton and Fort McMurray, respectively, for their entry: "Meteoroids, Meteors, and Meteorites". Keith Hitchon of Calgary was the second prize winner, for his project: "Eclipsing Variable Stars". Keith also received a Society prize in the 1982 Fair, and in 1984 was the first Canadian to be nominated for NASA's Summer Student Program. The third prize was awarded to Martin Aubé and Sylvain Paquet of Sherbrooke and Thetford Mines, P.Q., respectively, for their entry: "Étude Visuelle des Étoiles Variables et Détermination d'une Coordonnée Géographique à l'aide des Étoiles". The prizes include memberships in the Society.

During 1984 we elected a new Honorary Member of the Society, Frank Maine Bateson of New Zealand. As an amateur, and over a period of nearly sixty years, Frank Bateson has made major contributions to astronomy in his native country. It is most fitting to have him as one of our Honorary Members. Later in the year we were saddened to learn of the death of another Honorary Member, Sir Martin Ryle of Cambridge, England. Dr. Ryle was one of the world's foremost radio astronomers, a Nobel laureate, and formerly England's Astronomer Royal.

Several positions on the Executive of the Society changed hands in 1984. (A list of the present holders appears on the back cover of this Annual Report). I wish to record here the thanks of the Society to Dr. John Percy who, through the sequence of presidential positions, completed a ten-year term on National Council. The RASC is deeply in John's debt for the effort and expertise he has contributed (and continues to contribute) to the Society. For the position of 2nd Vice-President, two candidates, Harlan Creighton and Dr. Lloyd Higgs, were nominated and an election held. To have two such able and devoted members allow their names to stand for this position bodes well for the future of the Society.

It is appropriate also to record here the great debt the RASC owes to Morris Altman, a member of long standing and auditor for the Society for many years. Due to an increasing workload, he was unable to continue as auditor beyond 1983. Among many other contributions, Morris was instrumental in the establishment of the new Endowment Fund.

For a majority of our members, the most visible aspects of the Society are its publications. The tremendous amount of time and effort required for their production is a voluntary contribution by the various editors. I particularly wish to thank Dr. Alan Batten (Editor of the Journal) and Marie Fidler (Assistant to the Editor, and Treasurer), and Dr. Ralph Chou (Editor of the National Newsletter) and his associates for their work during 1984. I also wish to note that Peter Broughton has stepped down after seven years on the Society's Property Committee. The acquisition of 136 Dupont Street occurred during the four years that Peter was Chairman, and he deserves a great deal of credit for the successful outcome of that endeavour (in addition, in 1984 Peter accepted a second three-year term as Secretary, and continues as Archivist for the Society).

For nearly 360 days of each year, The Royal Astronomical Society of Canada is its Executive Secretary, our star from the Southern Hemisphere, Rosemary Freeman. Rosemary deserves much credit for the smooth running of the Society, for reminding other members of the Executive, scattered from Halifax to Victoria, what they should do and when, and for often going beyond the line of duty to ensure that what should be done, is done. Our sincere appreciation, Rosemary!

I also thank the many members of the RASC, in Centres and elsewhere, who throughout 1984 contributed to the advancement and the popularization of astronomy. In my first six months as President, I had the pleasure of visiting three Centres (Halifax, Hamilton, and Calgary), and was impressed by the spirit and the accomplishments of the members of these Centres. Through regular talks, observing sessions for the public, displays at museums, planetaria and shopping malls, and, in some cases, radio and television programs, the Centres of our Society play an important role in fostering a public awareness of the Universe and of the place of science in our culture. "International Astronomy Day" is becoming the annual high point for these endeavours. Much credit for this is due to the Society's Astronomy Day Coordinator (and Recorder), Leo Enright. Another effort in public education sponsored by the RASC, together with the Herzberg Institute of Astrophysics and the National Museum of Science and Technology, is the continuing series of "Halley's Comet Bulletins" prepared by Dr. Ian Halliday and Mrs. Mary Grey.

A less visible, but significant contribution to astronomical education has been the effort by our Librarian, Philip Mozel, and other members of the Toronto Centre in making the National library available on several Saturdays during the year. Our library subscribes to several periodicals and has a rich store of material dating back a century or more. Unfortunately, in today's world of electronic media and glossy colour, it is not fashionable to read books, particularly old books. It was Thomas Carlyle who said: "In books lies the soul of the whole past times: the articulate audible voice of the past, when the body and the material substance of it has altogether vanished like a dream". A rich store of astronomical science, history, and lore awaits any visitor to our National Library.

Finally, I wish to extend my thanks to all members of National Council for their support during 1984. The Royal Astronomical Society of Canada has a long and distinguished history, an outstanding record of activity and service in the year just past, and a promising future.

ROY L. BISHOP, *President*

REPORT OF THE NATIONAL SECRETARY

Compared to the reports from Centre Secretaries, which follow, this report is very mundane. The reason, of course, is that the four meetings of National Council tend to be devoted to correspondence, reports, and general business. The role of the National Society in publications and record-keeping is obvious. The real action takes place in the centres and the reports which make up most of this supplement show what a wealth of activities Centre members, and in many cases the general public, have partaken of.

The figures printed below reflect the large number of members across the country, and abroad, who share in RASC activities, some as producers and some as consumers, but all with a common commitment to advance the cause of astronomy.

	1983	1984
Calgary	100	142
Edmonton	119	121
Halifax	103	112
Hamilton	66	68
Kingston	36	38
Kitchener-Waterloo	23	16
London	37	42
Centre Français de Montréal	43	36
Montreal	98	96
Niagara	47	53
Ottawa	172	181
Québec	93	76
St. John's	10	12
Sarnia	20	22
Saskatoon	46	36
Toronto	704	742
Vancouver	110	83
Victoria	119	127
Windsor	33	34
Winnipeg	52	45
 Unattached to Centres:		
Canada	242	264
United States	328	352
Overseas	53	58
Honorary	14	14
	<hr/> 2668	<hr/> 2770

As Secretary, I am especially aware of the large amount of work which our Executive Secretary, Rosemary Freeman, handles day by day and express my personal thanks as well as the gratitude of the Society to her.

Financially, we acknowledge the grant from the Natural Sciences and Engineering Research Council of Canada. Their continuing support is invaluable.

PETER BROUGHTON, *National Secretary*

CALGARY CENTRE

1984 marked another exciting year for the Calgary Centre. The Centre continued to grow and expand its activities in bringing astronomy to the people of southern Alberta.

Nine general meetings were held during the year at the University of Calgary, and the Centre's Wilson Coulee Observatory continued to provide a focal point for observational and educational activities. The WCO was the site for monthly Observers' Group meetings, and through use of its facilities, introduced astronomy to numerous school and community groups throughout the year.

A number of major events were noteworthy for the Calgary Centre in 1984. April 7th saw Astronomy Day in Calgary. An estimated 1200 visitors to the Calgary Centennial Planetarium were treated to films, displays, minitalks and telescope viewing hosted by the Centre in conjunction with the Planetarium. The July long weekend witnessed the first annual Camp Gardner camping-astronomy weekend. Approximately 50 individuals (members, family and friends) enjoyed a weekend of hiking, fishing, baseball, bonfires and even target shooting (ah yes, there was also astronomy). August brought the annual Wilson Coulee Observatory barbecue on the 4th and a summer public star party on the 29th. Held as a wrap-up to the Centre's summer astronomy program on CBC Radio, the star party drew over 1000 Calgarians to Glenmore Park for views through scopes 2 to 20 inches in diameter. The year closed with the Centre's annual banquet which featured National President Roy Bishop as guest speaker.

1984 was an exciting year of growth for the Calgary Centre, and we look forward to bigger and better things in '85.

WILLIAM KROSNEY, *Secretary*

EDMONTON CENTRE

The first regular meeting of the 1984 season was held on the second Monday of January at which time a new slate of officers for the new season was approved. At this meeting, the presentation of the Edmonton Centre's annual awards by the president took place.

The Angus Smith Award for telescope making and the Observer of the Year Award were both presented to Bob W. Stephens, founder and director of Amateur Radio Astronomy Observatory – a Seti Project.

The President's Award was presented by Anthony Whyte to Alan Dyer, editor of STARDUST and executive producer of programming at the Queen Elizabeth Planetarium and the Edmonton Space Sciences Centre.

During the evening of February 22nd, many Albertans witnessed the spectacular phenomenon of a brilliant meteor which crossed over Alberta, north of Edmonton, from the east to the west. A weekend was spent in Grande Prairie, Alberta, by several members of the Edmonton Centre, the Edmonton Space Sciences Centre, the University of Alberta and the Provincial Museum establishing the fact that the meteorite probably came to rest on difficult terrain and mainly dense bush, in a general area southwest of Grande Prairie.

The Observer's Group has held successful observing sessions on the grounds of Coronation Park and at Elk Island National Park. In June, Centre members brought telescopes for the observing nights held at the John Jensen Nature Centre. July 1st and 2nd were set aside to hold STARNIGHTS to which the public was invited and a good turnout came to view through the telescopes set up by Centre members.

The Edmonton Space Sciences Centre has been a very busy place this year. Many technical parts which arrived from various areas of the world had to be installed in preparation for the official opening. Many of our Centre members enthusiastically gave many hours of voluntary assistance at the Space

Centre. The official opening of this splendid structure was held in July. The public response to the showings at the theatres proved to be overwhelming.

To support the Donate a Star fund raising campaign for the Edmonton Space Sciences Foundation, Edmonton Centre purchased a second magnitude star. The star chosen was ALINETAK.

Edmonton Centre members have also been busy in the various committees planning for the General Assembly to be held in Edmonton in 1985. Members anticipate welcoming all amateur and professional astronomers of Canada and other lands to the June 28 – July 1, General Assembly at the University of Alberta.

On November 21st of this year, Professor Ernest Sydney Keeping passed away at the age of 89 years. Professor Keeping was a founding member of the RASC Edmonton Centre when it was established in the 1930's. He was very active in the Society and had spoken numerous times at Centre meetings. He was past president and honorary president for many years. He has written a booklet entitled, "The Earlier Years of the Edmonton Centre." He was very helpful in the establishing of the Queen Elizabeth Planetarium. A person of Professor Keeping's calibre is always deeply missed.

Besides the council meetings, ten regular meetings were held by our Centre this year. These meetings were held in the classroom of the Edmonton Space Sciences Centre. The speakers and their topics were:

January 9 Bob W. Stephens, founder and director of ARAO – a Seti Project. Bob spoke regarding his use of the tropo-spheric scattering antennae situated in Hay River, Northwest Territories.

February 13 Craig Makarowski, Centre member and a graduate in Electronics from the Northern Alberta Institute of Technology. – "Use of Computers in Astronomy."

March 12 Peter Ceravolo, Centre member and associated with the University of Alberta's Electrical Engineering Department. – "Optical Design and Manufacturing."

April 9 Orla Aaquist, Calgary Centre member, exchange speaker and enrolled at the University of Calgary as a Physics teacher. – "Visibility Functions and Other Nebulous Tales." Following his talk, Orla entertainingly presented several astronomical compositions set to music which were sung by him and accompanied by his trusty guitar.

May 14 Guy Westcott, Winnipeg Centre president and exchange speaker. – "Cometary Origins."

Chris Rutkowski, Winnipeg exchange speaker. – "Geophysical Phenomena." Following their talks, Guy Westcott and Chris Rutkowski entertained the meeting with the showing of two amusing films they had produced.

June 11 Mike Wesolowski, President of the Saskatoon Centre and their exchange speaker. – "Charge-Coupled Devices – Taking Pictures with Silicon."

September 10 "Members Pot-Pourri Night."

1. Mark Leenders, the Centre's Observing Co-ordinator, spoke regarding observing sessions and also explained how he had constructed the tripods he uses to hold his telescope and camera. These tripods were displayed at the meeting.
2. Mel Rankin, National Council Representative, gave his report on attending the 1984 General Assembly in Hamilton.
3. Franklin Loehde, National President of the RASC, gave a summary of the address he had presented at Hamilton's General Assembly.
4. Paul Deans, Centre member and Astronomy Producer with the Edmonton Space Sciences Centre gave a report entitled "The Activities of the E.S.S.C."

October 15 Paul Deans – "Stars over China – The Ancient History of Astronomy in China."

November 12 Cynthia Wannamaker, Centre member and Mobile Planetarium instructor. – "The Alberta Mobile Astronomy Project."

December 10 Mark Zalcik, Centre member. – "Falling Star Rate Busters."

We are looking for you to come to Edmonton to attend the June 28 – July 1, 1985 General Assembly!

YNI EBBERS, *Secretary*

HALIFAX CENTRE

The Halifax Centre completed a successful year under the leadership of President Kathy Oakley.

We were honoured to have had Dr. Roy Bishop, of Acadia University, elected to the office of National President of the R.A.S.C. A congratulatory cake was on hand at the refreshment hour of the meeting held on Sept. 21.

At the Canada Wide Science Fair, which in 1984 was held at St. Mary's University, three of our members were accepted as judges, namely, Dr. Scrimger, Dr. Tindall, and R. Brooks.

At the April meeting we had the pleasure of viewing the film made in 1937 during the expedition through British Guiana, now Guyana, and into Brazil, led by our Honorary President, Dr. William Holden, F.A.C.S. The interesting and humorous narration of this film by Dr. Holden was an event that those present will never forget.

The camping and observing week-end was held July 28, 29, and 30 at Dr. Holden's, New Albany, Annapolis County. It turned out that this was the last occasion for our members to be able to visit and talk with our Honorary President and friend, as Dr. Holden died on Aug. 13 at the age of 87.

A visit to the Lunenburg County Astronomy Club at Bridgewater was made by some members during January. Observing and general discussions took place.

A delegation from the Cape Breton Astronomical Society, led by Captain Raymond Auclair of the Coast Guard College in Sydney, visited our Centre in November. The highlight of this occasion was a special demonstration and viewing session with the 16 inch reflector at the Burke-Gaffney Observatory at St. Mary's University

Astronomy Day, in May, was held at Dalhousie University, where the Planetarium is on loan from the N.S. Museum. The shows were run by Pat Kelly, and the attendance was good, with a total of 70 visitors from the general public.

Activities Night at the November meeting was something different from our regular type of program. Dr. Scrimger had a computer set-up which gave a display of astronomical information. It was linked by telephone line to a central computer at Dalhousie University. Peter Steffin and Pat Kelly had a computer which displayed astronomical information which came from internal programs. Wilf Morley demonstrated a teaching sky atlas which he has developed and used with his students in Bridgewater. This system consists of large star charts with plastic over-lays.

Observing sessions were held early in the year at Shubie Park, Dartmouth, and later at Uniacke House, Mount Uniacke. Observing Chairman Gordon Hawkins instituted a policy of having an observing session at least once a month, almost always on a Saturday, and with an alternate date in case of bad weather.

A list of meetings and lectures follows:

- January 21 "Astronomy Among the North American Indians" by Pat Kelly, Technical U. of N.S.
- January 28 Observing at Bridgewater with the Lunenburg County Astronomy Club.
- February 17 "The Nature of Comets" by Dr. George Mitchell, St. Mary's university.
- March 16 "Three Dimensional Distribution of Stars" by Dr. Cameron Reed, St. Mary's University
- "Binoculars" by Dave Chapman, Dalhousie University.
- April 27 Film made in South America, 1937 by Dr. Holden, Honorary President.
- May 5 Astronomy Day, Planetarium, Dalhousie University.
- May 18 Astronomy Dinner. "Astronomical Mysteries" by Pat Kelly, T.U.N.S.
- June 15 "Titan's Ocean: An Interesting Detective Story" by Dr. Larry Bogen, St. Mary's University.
- July 27, 28, 29 Camping and Observing week-end, Dr. Holden's New Albany, Annapolis County.
- September 21 "The Rainbow: An Atmospheric Phenomenon of Planet No. 3" by Dr. Roy Bishop, Acadia University.
- October 19 "Using a Limited Access Telescope" by Dr. David Turner, St. Mary's University.
- November 16 Activities Night
- November 17 Visit by Cape Breton Astronomical Society to Halifax Centre.
- December 7 "Greek Astronomy" by Dr. Pim Fitzgerald, University of Waterloo.

RALPH FRASER, *Secretary*

HAMILTON CENTRE

The past year has been one of growth for the Hamilton Centre. Not only has our membership increased from 57 to 68, but we have also had a particularly active year. We have continued with our regular activities, have some new projects underway, and have revived some old traditions.

Our monthly General Meetings continued with a series of interesting and informative speakers, as well as with many short presentations by our own members, often illustrated by excellent astrophotography. The speakers were as follows:

- January Annual General Meeting; Mr. Charles Fassel, Niagara Centre, "Space Borne".
- February Mr. Douglas Gies, University of Toronto, "Black Holes".
- March Mr. Rick Crow, University of Toronto "Pulsating Mira Variables".
- April Dr. Gretchen Harris, University of Waterloo, "Open Clusters and Galactic Structure".
- May Mr. John Kidner, Perceptor Optics, "Telescope Design".
- June Dr. Hugh Harris, McMaster University, "Abundances of the Milky Way".
- October Dr. William Harris, McMaster University, "Open clusters and Astronomical Archaeology".
- November Mr. Art Dobos, McMaster University, "Thomas Kuhn and the Copernican Revolution".
- December Mr. Barry Sherman, Hamilton Centre, "Photographing the Milky Way".
Mr. Charles Fassel, Niagara Centre, "Space Shuttles".

Public Nights, held twice a month at our observatory continued to be well attended, thanks to the leadership of Jim Winger and his dedicated team who put much time and effort into this valuable service. Special nights were held at the Scout groups. Centre members enjoyed a Star Party in the spring, organized by Bert Rhebergen.

We are fortunate to possess a large variety of excellent telescopes which are being put into first-class condition through the efforts of several members. To house the scopes, construction of a second observatory was begun. Again, the work is being done by the members on a voluntary basis. Though at times this seems to be a daunting task, we have every expectation of finishing the building in 1985. The library has been catalogued by Ian Stuart and several new books purchased, as well as a subscription to "Sky and Telescope". This project has been assisted by the proceeds from book sales. In 1984 "Orbit" became a bi-monthly newsletter; editor Rob Allen changed its appearance and included numerous articles from wide-ranging sources as well as those by members.

A highlight of the year was of course the General Assembly, hosted jointly by the Hamilton and Niagara Centres. Special thanks go to Barbara and Peter Ashenhurst (Hamilton) and Debbie Fassel (Niagara) for the excellent job they did in organizing this event. We are particularly proud of our members who won awards: Jim Winger and Les Powis, Service Awards; Clive Gibbons and Barry Sherman, Deep Sky Astrophotography; Mike DeVallaer, Lunar Photography; Hamilton Centre under Neil Rogers, Historical Award.

The Centre celebrated its 75th Anniversary with a dinner at which Dr. Roy Bishop was the guest speaker. Rob and Phyllis Allen came up with a marvellous event when they revived the Annual Picnic which had vanished from our agenda for a few years. This, the Anniversary Dinner, and the Corn Roast at the Ashenhursts were the social highlights of the year.

There have been contributions by Hamilton members to other astronomical organizations. For example, Clive Gibbons and Barry Sherman spoke to the Niagara Centre on Astrophotography, Ian Stuart spoke to Niagara on Saturn, several of our members travelled to Virginia for the eclipse and an article by Clive Gibbons, illustrated with his own astrophotos, was published in "Astronomy" magazine.

As we start into 1985 Hamilton Centre is again planning a full range of activities. These include completing the new observatory, organizing a program for observers, new publicity efforts, and a mall display to increase public awareness of astronomy in general and the R.A.S.C. in particular.

(Mrs.) TONI QUINN, *Secretary*

KINGSTON CENTRE

Reflecting about our past year has made us realize how fortune has graced our Centre. It has been a year of celebration, achievement and success for our various members.

Dr. A. V. Douglas, who was the founder of our Centre, and is our Honorary President, has celebrated her 90th birthday. May we offer congratulations and best wishes to this distinguished scientist and astronomer. We are very proud to have her as part of our Centre.

Our Vice-President must have his head in the clouds. What? Another Comet! Congratulations, David Levy. What a personal triumph and a real thrill to have finally achieved a long sought dream – your very own comet. Well deserved and warmest regards from our Centre.

Gus Johnson, our member in Maryland, has done it again. Already with one supernova to his credit he has now possibly discovered one more and only awaits its confirmation. Congratulations Mr. Johnson.

Participating members from the Kingston Centre on International Astronomy Day deserve full commendation for their volunteered efforts in making this one of our most successful activities of the year. We had a large display in a local shopping mall which included telescopes and other equipment, posters, literature of the Centre and Society, games, door prizes, a survey, arranged sunviewing sessions and a membership drive which resulted in six new members. Science writer, Terence Dickinson, joined our activities and autographed copies of his latest book, "Night Watch". Our day concluded with a public star night and the public turned out in enthusiastic numbers. We can be proud of our promotion of amateur astronomy.

Leo Enright has been the busiest person in the Centre. He deserves a big hand for his continued efforts as newsletter editor. As well as extensive observational reports at every meeting, Leo reported seeing the Space Shuttle from Sharbot Lake! As our most active member, Leo has given eight talks this year, conducted two guided tours of Holleford Crater, (Toronto and Syracuse Astronomy Club) and is preparing our Centre for viewing Halley's Comet.

Martyn McConnell, as part of his presidential duties, organized several "star nights" which allowed newer members to add to their list of "new objects" in the night sky. He formed a committee to address the problem of light pollution in our city. Through letters and talks with the city fathers, we are anticipating good results.

T.D. Hicks has been serving as our National Representative and has in large part been responsible for an amendment to our constitution approved at the G.A. this year.

The Centre wishes to gratefully acknowledge receipt of a book from Dr. A. Covington, listing the Riche-Covington collection at Queen's University.

Various members of our Centre took part in our evening presentations, as follows:

- a. Leo Enright, Lunar Astrophotography, Crater Beals; Safe Solar Observing and Demonstration on How to Use the Telescope for New Members; G.A. Report and Travelogue; Observing Sunspots; Amateur Planning to Observe Comet Halley; The 1985 Handbook: A Wealth of Information; Conjunctions of the Last Five Years.
- b. Martyn McConnell, Possibilities of Interstellar Flight, Extraterrestrial Civilizations
- c. Sue Knight Sorensen, Women in Astronomy from 5th Century B.C. to 1872; Report on Canadian Women Astronomers.
- d. T.D. Hicks, Principles and Uses of the Sextant as Used in Marine Navigation
- e. Mark Sorensen, The Shape of the Universe
- f. David M. Stokes, Probability of Viewing the Northern Lights During Magnetic Midnight

Special Guest Speakers:

1. Franklin Loehde, The Edmonton Space Sciences Centre
2. Dr. Richard Henriksen, Theories of the Early Universe
3. Peter Jedicke, Io
4. Terence Dickinson, Canada-France-Hawaii Telescope

KITCHENER-WATERLOO CENTRE

During 1984 the Centre held its meetings on the second Tuesday of each month in room 2C8 at Wilfred Laurier University. While membership in the Centre will be close to that of last year, it is hoped that the return of Halley's Comet will spark some further interest which will translate into more members.

The club continued to promote Astronomy in the Kitchener-Waterloo area with star nites, an Astronomy Day display as well as talks to various school and scouting groups in the area.

The second half of the year was somewhat dismal so far as viewing was concerned. Vandals broke into the observatory owned by Gerald Kennedy damaging his C-14, which is still not back in service. It is hoped that it will be in operation before too long as a programme for the recovery of Comet Halley is planned. The club's own scope, a 12½ inch, has been in the process of being repaired and cleaned up.

The year ahead presents us with an opportunity to witness what is deemed a "Once in a lifetime event" with the return of Comet Halley. This event will definitely be the main topic of any talks given by club members in the coming year. We intend to continue with an Astronomy Day mall display; as well the club has been approached by Scout Headquarters to give instruction to their leaders so that they may better instruct their boys.

The following represents the activities of the K-W Centre for 1984:

January	Executive meeting
February	Guest speaker Dr. P. Fitzgerald – "The Outer Milky Way"
March	Guest speaker Rob Robotham – "Observing Mars in 1984"
April	Meeting held at observatory to clean up site for upcoming tours and observing.
May	Member Peter Daniel presented slides and talk on his trip to Hawaii, New Zealand and Australia including astronomy programmes down under.
June	Club picnic held at observatory with observing at night.
July and August	No meetings held
September	Members night; George Mudry showed slides of this years Solar Eclipse and constellations, Peter Daniel reported on this years Starfest along with slides.
October	Tour of the facilities used by the Astronomy Department at the University of Waterloo. Courtesy of Dr. Fitzgerald.
November	Guest speaker; Dr. P. Fitzgerald – "Things That Go Bump in the Night – Black Holes"
December	Member George Mudry gave a talk on the "Solar Structure and the Solar Magnetic Fields"

GEORGE M. MUDRY, *Secretary*

LONDON CENTRE

The year 1984 was very prosperous for the London Centre. Its members travelled far and wide to observe and marvel at the many wonders of astronomy.

This past year saw the London centre host a highly successful banquet. A talk was given by Dr. Pim Fitzgerald of the University of Waterloo. In May, London had the privilege of hosting the Spring meeting of the Niagara Frontier council of Amateur Astronomical Associations. This was held in Woodstock, Ont., hometown of London Centre president Mr. Bob Cornforth.

Special thanks must go to some of the London Centre's longtime members: Eric Clinton, editor and publisher of the Centre newsletter *Astronomy London*, through his tireless devotion has made our newsletter one of the finest in the Society; Peter Jedicke who because of his work in public awareness has helped many persons both young and old to become fascinated with the science of astronomy; the London Centre's tireless core of variable star observers, braving every imaginable and unimaginable type of weather pattern, continue to make valuable contributions.

Finally, the year 1984 produced a highly interesting and informative series of talks. The series of regular meeting topics was this:

January	Mike Jewison, London Centre
February	Annual London Centre Banquet Dr. Pim Fitzgerald, University of Waterloo "Galactic Rotation Curve"
March	Members Night
April	NFCAAA Spring Meeting, Woodstock Public Library Peter Millman, Ottawa Centre
May	Dr. John Landstreet, University of Western Ontario Department of Astronomy "Spiral Galaxies"
June	Dr Howard Plotkin, University of Western Ontario Department of the History of Medicine and Science "Harvard Observatory"
July	Mario Lapointe, Montreal Centre "Pic Du Midi Observatories"
August	Leo Enright, Kingston Centre "Crater Beals"
September	Dan Kahraman "Grinding Large Richfield Mirrors"
October	Michael Watson, Toronto Centre "Astrophotography" Dale Armstrong, London Centre "Hand Guided Photography"
November	Joady Ulrich, (President) Windsor Centre "Galaxies" Alister Ling, Montreal Centre "Bleeps and Blunders of Astrophotography"
December	Charlie Fassel, Niagara Centre "Space Shuttle Slides"

MONTREAL CENTRE

The Montreal Centre enjoyed a fairly active year with planetarium meetings and observatory renovations. We have had many fine lecturers at the planetarium, speaking on a wide range of topics. Some of our guest speakers were Dr. Anthony Moffat, Dr. John Glaspey, Dr. Gilles Beaudet, Dr. René Racine, and Pierre Lamontagne, all from the University of Montréal and Mont Megantic Observatory. From Spar Aerospace, John Korda was kind enough to pay us a visit. To all these speakers we express many thanks for their time and efforts in giving us these fine presentations. On April 16, we were treated to an extra-special night, as Robert Thirsk, back-up astronaut to Marc Garneau on the October flight of the Space Shuttle, explained with the use of films and slides the vigorous training one must go through. Although Robert did not participate in the October mission, he is still in training for his own mission in late 1985 or early 1986.

The Montreal Centre set up an exhibition at the General Assembly on atmospheric phenomena (aurora, rainbows, solar halos and pillars). With the help of photos from Alister Ling, David Brown, Steve Cekovoc, and a few other members, our Centre won a pair of binoculars for the display. Yours truly also contributed a few slides to this exhibit. Along with putting together this display, our Centre was in the midst of renovations. The dome of the observatory required new rollers, patching and painting. Other repairs involved installing new stove pipes, fixing up the darkroom, and moving wooden cabinets in the basement. The observation files were revamped with the addition of 164 new drawings of objects, bringing the total available to 428.

Our vice-president, Fred Clarke, completed his 16" Cassegrain in time for Stellafane. He was able to borrow Don Alexander's equatorial mount equipped with tangent arm drives for the exhibit. Although Fred did not win a prize for his scope, Dr. Georges Fortier, with the help of Mr. Bert Widdop, won two

prizes for his 12½-inch reflector. This scope worked on a massive chain drive and is a superb work of craftsmanship. A photo of his prize-winner appears in the November '84 edition of *Sky and Telescope* (p. 403). About a dozen members trekked to Springfield for Stellafane /84. Alister Ling again presented aurora slides during the tent talk on a rainy Friday night. Unfortunately only Saturday night was clear enough for observing.

Our Townshend Lecture was held on October 18 and our guest speaker was the renowned Tobias C. Owen, presently the director of the imaging team working on the Voyager 1 and 2 missions at NASA. His past projects were with Apollo and Viking missions. About 350 people attended the lecture at the Stephen Leacock Building of McGill University. Prior to the lecture, the Board of Directors of our Centre treated Mr. Owen to a dinner in his honour at the Holiday Inn. With the use of films and slides we were well informed on new data being acquired from Jupiter and Saturn. Time lapse photography clearly showed how the Great Red Spot rotates and displayed the "spokes" of Saturn's rings.

Weather played a big part in observing at Cedar Crest. We had 17 nights in the country; some of those winter nights went down to -30°C . I have not checked our membership list for May 30, but surely Mr. Murphy of Murphy's Law fame must have joined our Centre because the 75% coverage of the annular eclipse predicted for Montreal was 100% covered by clouds. Some members were lucky enough to catch totality in the southern U.S.A. As the year drew to a close, three members applied for Messier certificates – Steve Cekovoc, Kurtis Law, and Rajiv Bhusan. They should be receiving their awards in 1985.

Looking forward to 1985, the greatest celestial event will be Halley's comet. Telescopic observations will probably begin in August. By then we hope that Mr. Murphy will not have renewed his membership!

GARY BOYLE, *Secretary*

NIAGARA CENTRE

The meetings for 1984 were as follows:

- January 26 Annual Meeting – Reports of Officers, election of Directors. Speaker: Peter Ashenhurst (Hamilton Centre) on "Astronomy in Hungary".
The recent, unexpected death of our then-President Al Kindy cast a pall over this first meeting of the year. Many of us attended the funeral service the next day, honoring this long-time member, who had done so much for the Centre.
- February 23 Speaker: Robert Jedicke (London) on "The fate of our Universe".
- March 22 Speakers: Barry Sherman and Clive Gibbons (Hamilton) on "Astrophotography, Techniques and a Sky Tour".
- April 26 Speaker: Ian Stuart (Hamilton) on: "Saturn".
- May 24 Speaker: Doug Gies (U. of T.) on "Double Stars and Dallas".
- June 29 – July 2 General Assembly in Hamilton and Niagara Falls.
- September 27 Members' Night. Slides were shown of members' activities during the past summer.
- October 25 Speaker: Dr. John Black (Brock U.) on "Special Relativity, or how to put a 100-ft pole in a 10-ft barn". Also, Dale Armstrong (London) conducted his survey on "Recreational Geography".
- November 22 Speaker: Zoram Parameda (Buffalo) on "The Southern Constellations" with slides of these, of NGC objects and of the Magellanic Clouds.
- December 27 Speaker: Peter Jedicke (London) on "2010; things you never knew about the Space Station".

For the April 6th Banquet (at the Panasonic Tower in Niagara Falls, this time), we had Dr. T. Bolton (D.D.O.) as guest speaker. His topic: "The Moon: Post-Apollo".

On November 10th, the combined NFAAAA meeting and Fall Banquet took place, at the Skylon again; as guest speaker we had Dr. Marshall McCall (U. of T.) who spoke on "The Chemistry of Galaxies".

Most of the meetings of the Board of Directors up into the summer were devoted to General Assembly

organisation, together with the Hamilton Centre, and alternated between Burlington and St. Catharines. Some Centre business was dealt with in St. Catharines before the Hamilton group arrived. Only two meetings devoted exclusively to Centre business were held.

The summer program of Mall displays and Public Star Nights was again held this year, five occasions in all:

June 8, July 6 and September 28 at John Allen Park in Niagara Falls. Skies were fair for these.

August 3 at the St. Catharines Centennial Library, but the sky was cloudy and the attendance was low.

August 31 at Niagara Square (N.F.) where the sky was hazy but passable and the lights bright in the parking lot. Good attendance inside and outside.

During April we had a permanent display at the St. Catharines Centennial Library for the second time; this may well become an annual event.

Again, the Niagara Centre supplied Dr. John Black's Astronomy class with telescopes and operators. After three postponements in late September and October, we finally had a clear night on October 24th, and it was COLD.

Charles Fassel and Hugh Maclean made the rounds of several schools in St. Catharines, giving presentations and holding Star Nights, and Charles also has given talks to other Centres and Astronomy Clubs in southern Ontario.

Shortly before Astronomy Day (May 6th) the Centre received an invitation to the first show given in the Planetarium of Stamford Collegiate in Niagara Falls; their instrument had been donated to, and was reconditioned by the Stamford Physics Club, with good success. Astronomy day itself was held on the campus of Stamford Collegiate, in cooperation with the Niagara Centre.

Marvin Scott's new system of calling Observers' Group meetings on short notice has paid off: out of 12 meetings called, only one in February and one in November were clouded out, compared to 8 out of 10 under the old system of calling them weeks ahead in a favorable moon phase.

W. JUTTING, *Secretary*

OTTAWA CENTRE

Membership In 1984 the Ottawa Centre had 181 members, including 34 life members. This is 14 more than last year. The Centre had one representative on the National Council.

Public Meetings The Council sponsored three public lectures during the year. Dr. Alister Jones of the Herzberg Institute spoke about Canada's role in an international program to measure the aurora and described the network of stations being installed for the purpose. Among the instrumentation being used are photometers, magnetometers and a twin auroral radar designed to measure electrical fields in the ionosphere. Dr. Paul Feldman, also of the Herzberg Institute, gave a talk on hunting molecules from Hawaii. He was very informative, not only in the description of obtaining infrared spectra of carbon star envelopes, but also in his vivid account of how to reach the dizzying heights of Mauna Kea. Dr. Y. Varshni, Professor of Physics at Ottawa University, presented a talk, the theme of which was that quasars, contrary to current thinking are, in fact, nearby objects in our own galaxy. His theory is that it is very easy to confuse the spectral lines of quasars with red-shifted lines of elements such as the hydrogen line when in reality they were the result of a laser effect which is producing radiation in a rapidly cooling plasma as in the case of a planetary nebula. An enthusiastic audience took part in a lively discussion after the talk.

General Among the major issues addressed at the four Council meetings held during the year were finances, insurance, activities, the Observatory and the Annual Dinner. Despite a considerable loss on the 1983 Annual Dinner and major improvements to the Observatory facilities, the Centre's finances

were maintained in a fairly healthy condition. Continued efforts to minimize postage costs, increased revenue from sustaining memberships, and adjustments to the Centre's insurance policies were the main contributing factors. An unintended saving occurred when, for good reasons, it was not possible to produce two issues of *Astronomes*.

Three members of the Centre attended the G. A. in Hamilton. Ten members took part in the 50th anniversary of Stellafane in Springfield, Vermont, on the weekend of July 27, where Fred Lossing was invited to give the introductory remarks to the traditional talk given by Walter Scott Houston.

A great honour was bestowed on Dr. Peter Millman by the International Astronomical Union in October, when it decided to name a minor planet after him. This object, known as Planet 2904, is now called Planet Millman. Dr. Millman, who retired from the NRC in 1971, is still very active in Astronomy.

Our President, Peter MacKinnon, gave a short talk on the Ottawa Centre, over a local radio station in September. At a ceremony early in the year, the Centre library, which now includes over 400 volumes, was named the Stan Mott Library in honour of Stan's outstanding contribution to the Centre. A special plaque was also presented to Stan. Ken Tapping and Fred Lossing were special guests at "Starfest '84", a two-day session sponsored by the North York Astronomical Society late in August. This event, a combination of talks and observing, was held at a campground in Mount Forest, about 80 miles west of Toronto. Both Ottawa Centre members presented papers at that meeting.

One of the main events of the year was the discovery by Rolf Meier of his fourth comet, Comet Meier 1984o. Rolf discovered his comet with the 16" telescope at the Indian River Observatory on September 17, 1984. For this achievement Rolf was presented with the Roger Tuthill Comet Award at the November Observers' Group Meeting.

The Annual Dinner Meeting was held at Algonquin College on November 16th. Awards were presented by Dr. Ian Halliday to Ken Tapping who won the Merit Award and to Linda Meier, who won three awards, Observer of the Year, Variable Star and Best Article in *Astronomes*. The speaker was Doug Welch, a former award-winning member of the Ottawa Centre and now a professional astronomer. Doug gave a most interesting account of his doctoral thesis "Infrared Astronomy, Finding the Distances to Galaxies by Measuring Cepheid Variable Stars".

Observers' Group The Observers' Group under its Chairman, Gary Susick, held regular meetings on the first Friday of every month throughout the year. Average attendances at these meetings was 45 people. Some of the highlights of the monthly meetings were Jack Horwood's talk on recording a distant radio station signal bounced off the ionized trail of a Quadantrid meteor, Gary Susick's slide shows, particularly those of the unusual line-up of the planets in January and those taken with a nebular filter, Rolf and Linda Meier's account of their trip to Arizona, Linda Meier's reports of solar observations, Doug George's talk on how to make a satellite and Pierre Deguire's description of his home-built drive corrector and the slides he took while using it. These and many other excellent presentations by members were the main reason for the consistently good attendance at the meetings.

The Observers' Group continued to sponsor "regional" starnights for the general public in different parts of the city. They were very well received with large public turnouts. The use of TV, radio and newspapers to advertise these events was instrumental in making them a success. The Observers' Group represented the Centre in jointly hosting a full programme for Astronomy Day. Co-hosts were the Herzberg Institute of Astrophysics and the National Museum of Science and Technology, in whose building most events were held. Ottawa Centre members gave a large variety of talks and presentations and four members conducted telescope demonstrations and explained astronomical displays at the nearby St. Laurent Shopping Centre. The day's activities ended with an observing session in the Museum's parking lot. A public school star night was conducted by the Observers' Group at Dunlop Public School in Ottawa South early in October. The level of interest and participation in this event was such as to encourage repeat performances in the coming year.

Indian River Observatory Cold and snowy weather early in 1984 caused a drastic reduction in the number of members using the observatory during the first four months. The Observatory is a fair distance from the road and cannot be seen from passing cars, which protects it from vandalism, but is very expensive to keep ploughed. For those members who enjoy across-country skiing, however, it was a pleasant afternoon to ski the trail of the Mississippi Valley Conservation Authority, which takes in the Mill of Kintail and the Indian River and passes directly behind the Observatory, then have a picnic supper

at the Observatory and spend the evening at the telescope. During the summer, hot humid weather combined with hordes of mosquitoes in June made observing conditions less than ideal. A characteristic of 1984 seemed to be for clear skies to coincide with the full moon. This combined with the rising cost of gasoline has contributed to a decline in observatory usage.

During a four-weekend period in May-June, a group of members succeeded in covering the clubhouse building with Masonite siding. Working under the direction of Max Stuart, the group included Sandra Ferguson, Malcolm Lambourne and Robin Molson. Frank Roy also provided a helping hand. The work was completed at a cost of just under \$500.00. The siding is guaranteed for 20 years and is expected to provide extra insulation and reduce heating costs.

A second major step forward was the installation of a new 10-inch Newtonian telescope built by Rolf Meier. This work consisted mainly of installing a number of upright wooden posts which support a track to carry a small roll-off steel shed. The posts had to be dug to below the frost line. The group of hard-working members responsible included Rolf and Linda Meier, Malcolm Lambourne and Rob Newton.

Minor maintenance work and improvements to the grounds, clubhouse and instruments was also carried out. Frank Roy built a new control paddle for the 16", which is smaller and easier to handle than the old one. Special thanks go to Rob Newton for keeping the grass cut during the growing season. Thanks also to Rob Dick for donating his copies of *Sky and Telescope* to the Observatory.

Considerable up-grading was carried out on the radio telescope during the year. Careful measurement of the antenna system revealed that the RF signal combiners (hybrids) had a rather high insertion loss. This was rectified by installing new low-loss combiners (less than 0.5 dB) and by moving the system frequency to 244 MHz from 238 MHz to match the measured antenna response. BNC type connectors were installed at both antennae in order to improve access to all the B dipoles and to facilitate testing.

A programmable timer was installed on the chart recorder to effect a very substantial saving in chart paper and to simplify data analysis. The timer clock runs on sidereal time and can be used as a direct indicator of the RA of the telescope which is a transit instrument. The four radio frequency preamplifiers are presently being upgraded to a noise temperature of less than 300°K, in order to permit the reception of several hundred radio sources.

These improvements are some of the steps required to reach the long-term objective of being able to pick up a quasar and a pulsar. Since the strongest pulsar measures about 45 Janskys, a microcomputer will have to be used to integrate several signal recordings and to sum them algebraically in order to improve the signal to noise performance. Further improvements are planned for the coming year and hopefully more of the members will take an interest in this exciting observational activity.

C. ROBIN MOLSON, *Secretary*

CENTRE DE QUÉBEC

A la fin de l'année 1983-84 le Centre de Québec comptait 91 membres et membres associés. L'Almanach graphique 1984 a été publié avec l'aide d'une subvention de 500 \$ de la S.R.A.C. (Ruth Northcott Fund).

Le programme des conférences et soirées d'observations tenues en 1984 est le suivant:

CONFÉRENCES:

- 18 janvier Du chaos à l'intelligence. Conférencier invité: M. Gaétan Thibault.
- 29 février L'astronomie en France, c'est différent. Conférencier invité: M. Mario Lapointe.
- 13 mars Pulsations stellaires, sondes des intérieurs des étoiles. Conférencier invité: M. Gilles Fontaine, Ph.D. professeur associé au département de physique de l'Université de Montréal.
- 10 avril Le détecteur bidimensionnel C.C.D. de l'observatoire du Mont-Mégantic. Conférencier invité: M. Gérin Rose.

- 16 mai Holographie, survol et applications. Conférencier invité: M. Roger Lessard. (Conférence conjointe avec "The Optical Society of America")
- 17 octobre L'histoire des cadrans solaires au Québec. Conférencier invité: M. Réal Manseau, président du Club Astronomique de Drummondville.
- 5 décembre I.R.A.S., astronomie de l'infra-rouge. Conférencier invité: M. Alphonse Tardif, professeur de physique au Collège de Lévis. La conférence était précédé d'une rencontre des membres qui avaient amenés leurs instruments ainsi que différentes réalisations. Un buffet très apprécié vint clôturer cette soirée.

SOIRÉES D'OBSERVATIONS:

- 11 juin Observatoire du Collège de Lévis à St-Nérée de Bellechasse. Les conditions d'observations étaient excellentes.
- 28 juillet Observatoire du Collège de Lévis à St-Nérée de Bellechasse. Les conditions d'observations étaient excellentes.
- 24 août Observatoire du Collège de Lévis à St-Nérée de Bellechasse. Les conditions d'observations étaient excellentes.
- 5 décembre Campus Notre-Dame-de-Foy à Cap-Rouge. Les observations prévues après la conférence n'ont pu avoir lieu à cause des mauvaises conditions atmosphériques.

D'autres soirées prévues ont dû être annulées à cause des mauvaises conditions atmosphériques.

SUZANNE GAGNÉ, *Secrétaire*

ST. JOHN'S CENTRE

The 1983-84 year has been a slow year for our Centre in terms of attendance at regular meetings. Considerable interest, however, has been shown in our fairly frequent observing nights. There is also an active Telescope Making Section with three members making scopes from 6 to 10 inches

Our Education Program has had its ups and downs this year. While our Cable T.V. programs have been in a temporary hiatus for some time, we have offered beginners courses in astronomy at the University. We hope to resume our award winning cable programs in the near future. Talks on astronomy were also given to Girl Guides and Boy Scouts' camps throughout the Province.

The following is a list of activities carried out by our Centre over the past year:

- September, 1983 Observing Night
 October, 1983 Annual Meeting
 November, 1983 Randy Joyce gave a talk on deep sky photography
 December, 1983 Planetarium show illustrating the winter sky
 January, 1984 Talk on how to survive winter observing
 March, 1984 Talk on how to observe the planets
 May, 1984 Planetarium show illustrating summer sky
 June, 1984 Slide show on annular eclipse and break for summer

G. DYMOND, *Secretary*

SARNIA CENTRE

The year 1984 has been rather interesting for the Sarnia Centre with members attending several amateur astronomy functions such as Stellafane, Starfest and Astrofest, as well as some of our own Centres' star nights. An independent trip was also made to the south-eastern United States in May to witness (successfully) the annular solar eclipse on the 30th of that month. Regular monthly Centre meetings continue to be well attended.

MICHAEL D. MARCHAND, *Secretary*

SASKATOON CENTRE

The Saskatoon Centre continues to hold monthly meetings every third Monday at 8 p.m. in Room B111, Health Sciences Building, on the U of S campus. Activities for the year were as follows:

- January "Mars Minus Myth" film
- February "Hypersensitization". Slides and lecture by Gordon Patterson
- March "Indonesia". 1983 Solar Eclipse trip as told by Exchange Speaker, Tony Whyte, Edmonton Centre
- April "The Origin of Comets" followed by a slide presentation called "Cosmoose" by exchange speaker Guy Westcott, Winnipeg Centre
- May "Canadian Involvement in Space Related Projects" by Doug Miller, Saskatoon member
- June "Partial Solar Eclipse" by Saskatoon president, Mike Wesolowski and Gordon Patterson
- July Public star night at Diefenbaker Park. Approximately a dozen telescopes were set up and an estimated 300 people turned out on two clear nights to view the wonders of the heavens
- August Perseid Meteor Shower. Several members showed up for this occasion which coincided with the full moon, but no official meteor count was kept due to cloud cover
- September Summer activities review; slide show
- October Election of Officers
- November "The Tools of the Astronomer". An audio-visual presentation by John Greer "Eyes for Astronomy" by Walter Fernets
- December A social pre-Christmas evening for members was held at the U of S Observatory, with coffee and dainties

LILLIA WILCOX, *Secretary*

TORONTO CENTRE

It is my pleasant duty to report on the activities of Toronto Centre in the past year. The Centre's most ambitious undertaking was the May solar eclipse expedition organised by Michael Watson. A bus carried 44 members of the Centre through a steady cold rain from Toronto to Cleveland, North Carolina, where miraculously the clouds parted and revealed a stunning annular solar eclipse in a perfectly clear sky. Meanwhile, Ian McGregor, Brian Beattie and members of the McLaughlin Planetarium staff set up a display under mostly cloudy skies to view the partial eclipse in Toronto. Several hundred people were present at this event.

Public education programmes continued to bring astronomy to many Torontonians. Brian Beattie organised 3 mall displays, 3 library talks and several media events. This year the Centre marked International Astronomy Day with simultaneous displays at Harbourfront and Nathan Phillips Square. We returned to Nathan Phillips Square May 30 with a telescope display to mark the partial solar eclipse, and to Harbourfront in August for a very successful Public Star Party. In addition, *Astronomy Toronto*, produced by Randy Attwood at the studios of Rogers Cable TV, enjoyed another successful season, while Phil Mozel began a radio programme in Oakville. Once again, members set up their telescopes at the David Dunlap Observatory on Saturday nights for the benefit of visitors touring the facilities there.

This year there were 12 Members Night meetings organised by the Observational Activities Committee under Ian McGregor. The meetings were prefaced with a very popular series of Star Theatre demonstrations which will continue this coming year. The wide-ranging talks presented at these meetings featured novice observers as well as highly skilled observers. Visitors to the Centre included Jack Newton and David Levy.

Member education programmes expanded greatly. The O.A.C. produced observing guides on variable stars (by Walter MacDonald) and on the opposition of Mars (Brian Beattie). Members of the committee presented talks on observing techniques which could be tried at the periodic Members Star Nights. Groups of members participated in expeditions to Holleford Meteor Crater, Stellafane and Starfest '84. The Annual Open House at the David Dunlap Observatory, which gives members the opportunity to inspect a professional facility, was well attended, and we thank Dr. Donald Fernie and the staff and students of the D.D.O. for their continued hospitality.

The Programme Committee under Dr. C. T. Bolton organised a series of ten lecture meetings, including a joint meeting with the Royal Canadian Institute. The programme was as follows:

- 28 October 1983 Dr. R. Carlberg: Formation and evolution of galaxies
- 18 November Dr. T. Bolton: The dust goes 'round and 'round and the planets come out here
- 2 December Dr. R. Taylor: Radio jets
- 29 January 1984 Dr. I. Halliday: the return of Halley's Comet (with R.C.I.)
- 24 February Prof. J.C. LoPresto: The crazy rotating sun
- 23 March Mr. N. Duric: The origin of cosmic rays
- 13 April Mr. R. Mason: Space Shuttle
- 27 April Dr. S. Maran: Halley's Comet
- 25 May Dr. C.M. Clement: Variable Stars in globular Clusters
and Dr. Chu Yu-Hua: Astronomy in China
- 29 September Dr. J.R. Percy: 200 years of Cepheids

Dr. Bolton stepped down in June due to professional commitments and has been ably succeeded by Dr. Charles Dyer. Thanks are due to Walter MacDonald and Scott Ramsay for operating the projectors, and to Eric Galt, Paul Gunter and Eric Gunter for preparing the refreshments for the meetings.

Membership services were ably handled by our Membership Secretary, Alia Al Sharif. It is a big job to handle the records and mailings for our members. In 1984 the Centre had 617 regular, 57 youth, 68 life and 73 associate members, for a total of 815. This is an increase of 12% over 1983. Unfortunately, Alia left us in March to return to her home in Australia, and we miss her greatly. She has been succeeded by Karin Becker. With the computerisation of the membership list, Alia's organisation of procedures, and your support, Karin has been able to assume her duties with ease, and we thank her for her efforts this past few months.

It is with regret that we record the deaths of four members in the past year: Mrs. Nena Drake, Dr. John J. Green, Dr. Antal Maldacker and Dr. H.L. Welsh.

Observational activity in the Centre was given a boost late this year with the reopening of the Centre Observatory. The Committee led by Michael Watson has plans for more improvements and increased member access to this facility this coming year. An added stimulus to observing activity was the presentation of Messier Certificates to five members: Jamie Fougere, Walter MacDonald, Paul Markov, Steven Spinney and Michael Watson. Several successful Members Star Parties were held at the Observatory this year.

The Optical Workshop under John Morriss continued to operate on a somewhat reduced scale this year.

'Scope edited by Betty Robinson continued to provide members with a wide variety of interesting articles. The efforts of Betty, Vic Kennedy, Walter MacDonald, Steven Spinney and many other members have produced a first-rate newsletter of which we all can be proud.

I wish to recognise the contributions over the past several years of the retiring members of Council: Dr. Kenneth Clute, John Morriss and Richard McWatters. Their volunteer contribution to the administration of the Centre's business is greatly appreciated.

This concludes my eighth and last report as your Secretary since 1976. I thank all of you for your support over the years and for the privilege of serving in this office.

B.R. CHOU, *Secretary*

VANCOUVER CENTRE

10 Council meetings and 10 regular meetings were held during 1984. The annual dinner was held in March. Astronomy Day, May 5, was the most successful to date, with good public participation. Star parties were arranged each month, either at Cypress Bowl or at the Langley site. Unfortunately we are no longer able to use Cypress Bowl, as this public park has been leased by the Provincial Government to the private sector. We are trying out a new site in Point Roberts, USA.

A video committee is preparing a video on basic astronomy in conjunction with Rogers' Cable TV.

A 2-day "Astrowap" meet was held on the weekend of November 24 and 25.

We continued to use the auditorium of the Vancouver Museum for our regular meetings, and thanks to our President, David Dodge, Director of the Gordon Southam Observatory, we also continued to use the lecture room for all council meetings, for the coffee hour after regular meetings, and the observatory for members – only observing nights.

Through the courtesy of David Hurd, Director of the H.R. McMillan Planetarium, members were invited to two free shows and a special show for Astronomy Day.

- January 10 David Dodge – Presidential address.
- February 14 Planetarium Show – "Secret world of IRAS."
- March 13 Members' night.
- March 16 Annual Dinner at "Victoria Station." Dr. Michael Ovenden: "Santa Maria and Enterprise, the age of discovery."
- April 10 Slides by Karl Miller. "A visit to Kitt Peak and the Grand Canyon" by Malcolm Corey.
- May 5 Astronomy Day held at the Vancouver Museum & Planetarium, and Gordon Southam Observatory. Excellent attendance. Telescope displays, computer and video. Foucault-testing and mirror-grinding demonstrations. Raffle of Zeiss binoculars. Astronomy brochure "Supernova" sold to public.
- May 10 Review of Astronomy Day with film taken by Barry Shanko. "Under southern skies: a visit to New Zealand, Fiji, and Hawaii CFHT," by Tom Tothill and Pat Horrobin.
- June 12 Dr. Wilbur R. Danner, UBC, "Meteorites."
- September 11 Reports on summer activities. Craig McCaw – "A visit to Mt. Kobau."
- October 9 Dr. Leo Vander Byl and the Mobile Telescope from the Victoria Centre.
- November 13 Planetarium Show – "Space, Time and Albert Einstein."
- November 24/25 "Astrowap meet."
- December 11 Election of officers. Dr. Ovenden – "Harmony and Resonance in the Universe."

SALLY BAKER, *Secretary*

VICTORIA CENTRE

Membership continued to increase in the past year, with 92 general, 12 Youth and 23 Life members for a total of 127. There appears to be increased interest in astronomy right across the country, and our extended program last year introduced us to more people in Victoria.

After a previous planned star party was clouded out, the Centre's Evans-Vander Byl mobile 0.5 metre telescope made its public debut at the May 5 Astronomy Day star party at the Dallas Road waterfront. The EVBT was also present on one of the eight Saturday star parties on Little Saanich Mountain, where our telescopes joined those of the Dominion Astrophysical Observatory at their well-attended public openings in July and August.

During August, we also ran our biannual "Summer Evenings with the Stars" on Wednesday evenings. The four lectures were: "Our Island Sky at Night", John Howell and Frank Younger; "The Planets and their Exploration" Philip Stooke; "Variable Stars and Deep-Sky Objects", Bob Brydon and Jack Newton; and "The comets and the Return of Halley's in 1986" with Chris Spratt and Dave. The last night, Chris Aikman hosted an introduction to the 1.86 m telescope at DAO, and participants observed several objects with that instrument and with the 0.4 m telescope.

We had a display at the Victoria Hobby Show in April, to which several members contributed both time and display materials.

Apart from the above, our regular ten meetings attracted good attendance; all but the Annual Meeting are advertised and open to non-members, as part of our public education effort. We were particularly happy to have our Honorary President, 91-year-old Dr Joe Pearce, speak to us at the November meeting.

- September 14 "Whispers from Space", an astronomical videotape.
- October 5 Annual Meeting, and a trip to Java for the 1983 Eclipse with Jack Newton.
- November 9 "Some Interesting Supergiants", Dr John Climenhaga.
- December 14 "Quasar-Galaxy Association", Dr Howard Yee.
- January 11 "Cepheid Variables as a Means of Determining the Scale of the Universe", Dr Claudio Solazzo.
- February 8 "The Canada-France-Hawaii Telescope at the Frontier", Dr Bruce Campbell.
- March 14 "A New Look at Cold-Camera Photography: The VR-1000 Colour Film", Jack Newton.
- April 11 Activities Night, with talks by members on observing, instrumentation and so on, and demonstrations on an Apple II+ computer of several members' programs (keenly watched by everyone).
- May 9 "Unveiling Venus, the Shy Planet", Philip Stooke.
- June 13 "Galaxies Discovered by the Infrared Astronomical Satellite – Highly Obscured Galaxies or Star Bursters?", Dr Edward Olszewski.

Report by M. J. Enock for Tim Lomas, *Secretary*

WINDSOR CENTRE

The year 1984 turned out to be a very successful year for the Windsor Centre. The attendance at all of our monthly membership meetings has sharply increased, due to the quality of the presentations and the tremendous efforts of our council. The expansion of the Windsor Centre's contacts with other astronomical organizations, has enhanced our already successful speaker exchange program. Windsor Centre members attended the Lowbrow "Freeze Out" astronomical conference in Ann Arbor, Michigan on February 18th.

The most prominent event of the year, our impressive Astronomy Day Party held on May 5th, was a resounding success. We had well over 50 people attending, the largest turn-out to date. The local press was most co-operative, with extensive coverage in the *North Essex News* and *The Windsor Star*. This event created a great deal more interest in the Society than any other event in recent memory. We owe a great debt to Patrick and Jeanne Langan for hosting our Astronomy Day Party for the third consecutive year.

Our Vice-President Steven Pellarin and Dr. John Huschilt conducted a solar eclipse day for the general public held at the University of Windsor on May 30th to observe the annular eclipse of the sun. A delegation from the Windsor Centre attended the very successful General Assembly jointly sponsored by the Hamilton – Niagara Centres. A second delegation from Windsor joined us for the provincial banquet to witness the presentation of Service Awards to members of our centre, Cyril Hallam and Henry Lee. Eight Windsor Centre members and one Sarnia Centre member attended the fiftieth anniversary of Stellafane in Springfield, Vermont, from July 27th to the 29th.

Summer observing sessions were held at the Eagle sight just south of West Lorne, thanks to Al Legary. On October 27th, the Windsor Centre hosted a joint observing session with members of the Detroit Astronomical Society and the Chatham-Kent Astronomy Club, at Point Pelee National Park. The University of Windsor and the Windsor Centre sponsored a lecture by Jim Loudon, (Staff astronomer, University of Michigan Exhibit Museum) on November 9th, concerning "The Soviet Space Program".

As of September, all monthly membership meetings have been moved from St. Clair College to St. Mary's Anglican Church. Cyril Hallam stepped down as our Centre's Treasurer, after nearly a dozen years in that office.

The activities of the observatory research committee have been limited in order to deal with the incorporation of the Windsor Centre with the Ontario Government and the attainment of charitable status with the Federal Government.

The Windsor Centre would like to thank our special guest lecturers, Michael O. Best, Graham Miles, Dr. John Huschilt, Lynn Staffen and the Fassels of the Niagara Centre for their enthusiastic participation. We would also like to thank John Thompson of the Sarnia Centre for his generous participation in the Windsor Centre's Stellafane trip. Special thanks must go to Jack Brisbin of the Detroit Astronomical Society and Michael Flegel of the Chatham-Kent Astronomy Club for assisting in organizing the Point Pelee observing session. Finally we deeply appreciate the very useful advice concerning the incorporation of the Windsor Centre given by Don Hladiuk of the Calgary Centre, Dr. B. Ralph Chou of the Toronto Centre and R. Peter Broughton, our National Secretary.

The Windsor Centre held their first regular meeting at the main branch of the Windsor Public Library, the following five at St. Clair College and the last three at St. Mary's Anglican Church. Five council meetings were held during the year. A brief resume follows:

- January 17 The film "Universe" narrated by William Shatner was shown. For our main feature, Randy Groundwater reported on the restoration of the Dan Bawtenheimer telescope and the rich history behind it.
- February 21 The film "New Eye For Kitt Peak" was screened. Our President, Joady Ulrich, gave a presentation on the "History of Amateur Astronomy", from Sir William Herschel to the present. His emphasis was on British and Canadian amateur astronomy.
- March 20 Michael O. Best, science reporter for the Detroit News, past-president and founder of the Livonia Astronomy Club and official investigator with the "Center For U.F.O. Studies" gave a very exciting presentation on the subject of "U.F.O's". We had one of the largest turn-outs ever at a membership meeting.
- April 17 Lorison Durocher reported on the Sports Coliseum and Science Centre Task Force slide presentation given at Windsor's City Hall. Randy Groundwater screened 30 slides of our first two Astronomy Days. Graham Miles gave a presentation on the different applications of computers for astronomy.
- May 15 Alan Legary showed some photographs he had taken of deep sky objects with his 16" F4.5 Newtonian, using ASA 100-VR film. Dr. John Huschilt explained and analysed the Hertzsprung-Russell diagram.
- June 19 Edward Keith screened a large selection of slides on his recent trip to Mexico. His presentation centred on the astronomical contributions of the ancient Aztecs.
- September 18 The films, "New Eye for Kitt Peak", "Railroad to the Stars" and "Galileo Galilei" were screened. Lorison Durocher reported on the planned incorporation of the Windsor Centre. Randy Groundwater reported on "Starfest" and "Stellafane".
- October 16 Dale Armstrong from the London Centre distributed his "Amateur Astronomy Survey". Lynn Staffen gave a talk on Jupiter and its moons, as well as a report on the annular eclipse.
- November 17 Randy Groundwater showed some of his slides on our visit to Stellafane. The nomination and election of officers for 1985 were held. The Awards Committee presented the Windsor Centre's Service Award to Mr. James Meredith. Charles Fassel, President of the Niagara Centre gave a presentation on "The Space Shuttle and Canada's Involvement".

LORISON A. DUROCHER, *Secretary*

WINNIPEG CENTRE

The Winnipeg Centre held its monthly general meetings at the University of Winnipeg, Lockhart Hall, during the 1984 Session.

The Centre involved itself with the public on several occasions, by holding a pair of Public Star Party nights and with the lectures provided at the Annual MASCON held at Riding Mountain National Park.

The general meetings were as follows:

- October 83 The Annual Business meeting with the election of officers and Council. Two films were shown to close out the meeting.
- November 83 Dave Clingsmith, a member of the local junior astronomical group MAS, gave a presentation on the construction of his 6" F/10 Dobsonian telescope and identified the corrections he will use on his next project, a 10" scope.
- December 83 Our first 'Computer Night' was held with 6 types of computers on display and a variety of astronomy related programs.
- January 84 Two separate speakers gave presentations. The first, Paul Delaney, provided an interesting slide talk on "Astronomy in Australia". He was followed by Grant Gussie who spoke on the current theory for the "Composition of the Galaxy".
- February 84 President Guy Westcott showed the membership the proper way to disassemble, clean and reassemble a Celestron 8 telescope.
- March 84 Len Gamache presented a slide show introducing theories for the "Death of the Dinosaurs".
- April 84 National President Franklin Loehde, an exchange speaker, presented the "Edmonton Space Sciences Centre" and the efforts of the Edmonton Centre in its construction.
- May 84 Mike Wesolowski, an exchange speaker from Saskatoon Centre, gave a talk on "Charge-Coupled Devices" and their application in astronomy.
- June 84 Our final meeting before the summer break was a second "Computer nite" with an extension of the information provided at the first meeting.
- September 84 A member, Chris Rutkowski, gave an indepth view of the "U.S. Proposed Star Wars Defense System" and reviewed how the application of astronomical studies are involved in its development.

With the awarding of the 1986 General Assembly to Winnipeg and the Fall '85 return of Halley's Comet, the Winnipeg Centre expects a busy year.

Our Centre's publication "Astronomy, A Hobby of Many Colours" proved to be our most successful endeavour during the past year.

STAN RUNGE, *Secretary*

**THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
OFFICERS AND COUNCIL OF THE CENTRES FOR 1985**

CALGARY CENTRE c/o Calgary Centennial Planetarium, P.O. Box 2100, Calgary, Alta
T2P 2M5

Honorary President — Prof. Walter Stilwell, 855-55A Street, Delta, B.C. V4M 3M3
Past President — Neil Laffra, 827 Canna Crescent, S.W., Calgary, T2V 1N8
President — Robert Loblaw, 1135 Hunterston Road, N.W., Calgary, T2K 4M9
Vice-President — Geoff. Kennedy, 115 Fawn Crescent S.E., Calgary, T2H 0V8
Secretary/Recorder — William Krosney, #1-208 Sabrina Way, S.W., Calgary, T2W 2N6
Treasurer — J. Cam Fahrner, 115 Coleridge Road, N.W., Calgary, T2K 1X5
Librarian — Carl Savage, 46 Arbour Crescent, S.E., Calgary, T2J 0X7
Editor — Alison Laffra, 827 Canna Crescent, S.W. Calgary, T2W 1N8
Council — B. Clarke, P. Goosens, Fr. L. Kemble, A. Laffra, G. Loveseth, U. Matern, G. McAulay,
C. Savage, B. St. Goddard
National Council Representative — J. Cam Fahrner, 115 Coleridge Road, N.W., Calgary, T2K 1X5

EDMONTON CENTRE c/o Queen Elizabeth Planetarium, 10th floor, CN Tower, 10004-104
Avenue, Edmonton, Alta T5J 0K1

Honorary President — Dr. D.R. Crosby, Canmore, Alta.
Past President — A. Whyte, 9817-88 Avenue, Edmonton, T6E 2R2
President — Robert C. Carson, 10516-45th Street, Edmonton, T6A 1X3
Vice-President — David R. Belcher, #3, 10525-76 Avenue, Edmonton, T6E 1L2
Secretary — Yni Ebbers, 5526-145 A Avenue, Edmonton, T5A 2S1
Treasurer — Mel Rankin, 4203-106 B Avenue, Edmonton, T6A 1K7
Librarian — Vincent Cottrell, 36 William Hustler Crescent, Edmonton, T5A 4C2
Editor of Stardust — Craig Makarowski, 10174-89 Street, Edmonton, T5H 1P9
Observer's Co-ordinator — Peter Ceravolo, 199 Bush Pilot Road, Edmonton, T5G 2Z4
Observing Site Co-ordinator — Mark Zalcik, #207, 6 Gainsborough Avenue, St. Albert, T8N 0W4
Council — R.G. Drew, H.A. Gibbons, R. Reid, J. Melenczak
National Council Representative — Mel Rankin, 4203-106 B Avenue, Edmonton, T6A 1K7

HALIFAX CENTRE c/o 1747 Summer Street, Halifax, Nova Scotia B3H 3A6

President — Dr. Norman Scrimger, Dept. of Astronomy, S.M.U. Halifax, N.S. B3H 3C3
Vice-President — Cathy McLeod, 4 Mott Street, Dartmouth, B3A 2W4
Secretary — Ralph Fraser, 40 Murray Hill Drive, Dartmouth, B2Y 3A8
Treasurer — Randall Brooks, 71 Woodlawn Road, Dartmouth, B2W 2S2
Librarian — David Chapman, 8 Lakeview Avenue, Dartmouth, B3A 3S7
Editor — Patrick Kelly, 2 Arvida Avenue, Halifax, B3R 1K6
Observing Chairman — Gordon Hawkins, 327 Arklow Drive, Dartmouth, B2W 4S1
National Council Representative — Darren Parker, P.O. 249, Bridgewater, B4V 2W9

HAMILTON CENTRE P.O. Box 1223, Waterdown, Ontario L0R 2H0

Honorary President — Rev. N. Green, P.O. Box 1377, Niagara-on-the-Lake, L0S 1J0
President — J. Winger, 160 Renfrew Street, Caledonia, N0A 1A0
1st Vice-President — I. Stuart, 1704-21 Ben Lomond Place, Hamilton, L8V 2T1
2nd Vice-President — E. Orr, 74 Prince George Avenue, Hamilton, L9A 2V9
Secretary/Recorder — Mrs. T. Quinn, 11 Ridgewood Blvd., R.R. #3, Dundas, L9H 5E3
Treasurer — L. Powis, 22 Orchard Drive, Waterdown, L0R 2H0
Librarian — I. Stuart, 1704-21 Ben Lomond Place, Hamilton, L8V 2T1
Editor — R. Allen, 385 Queen Victoria Drive, Hamilton, L8W 1N6
Council — S. Bryant, J. Field, J. Gavereau, J. Kiss, H. Mueller, R. Speck
National Council Representative — Ian Stuart
(Alternate) — J. Field

KINGSTON CENTRE P.O. Box 1793, Kingston, Ontario K7L 5J6*Honorary President* — Dr. A. V. Douglas, 402-67 Sydenham Street, Kingston, K7L 3H2*Past President* — Martyn McConnell, 157 Church Street, Bath, K0H 1G0*President* — David M. Stokes, R.R. #3, Harrowsmith, K0H 1V0*Vice-President* — David Levy, Route 7, Box 414, Tucson, AZ. 85706 USA*Secretary* — Sue Knight Sorensen, 1 Victoria Terrace, 50 Montreal Street, Kingston, K7K 3E8*Treasurer* — Martyn McConnell, 157 Church Street, Bath, K0H 1G0*Librarian* — D. Stokes*Editor* — Leo Enright, Box 196, Sharbot Lake, K0H 2P0*National Council Representative* — T.D. Hicks, 797 Candover Crescent, Kingston, K7M 4V4*(Alternate)* — M. McConnell**KITCHENER-WATERLOO CENTRE***President* — Gerald Kennedy, 112 Westheights Road, Kitchener, N2N 1J9*1st Vice-President* — Bernard Brunner, 66 Royal Orchard Place, Kitchener, N2N 1Z6*2nd Vice-President* — John Araj, 147 Moore Avenue S., Waterloo, N2J 1X4*3rd Vice-President* — Dan Williams, R.R. #3, Wellesley, N0B 2T0*Secretary* — George M. Mudry, 10 Royal Orchard Place, Kitchener, N2N 1Z6*Treasurer* — Dr. Ray Koenig, 49 Sorrel Place, Waterloo, N2L 4H2*Editor* — Peter Daniel, 424 Tamarack Drive, Waterloo, N2L 4G6*National Council Representative* — Dr. Ray Koenig*(Alternate)* — George Mudry**LONDON CENTRE** P.O. Box 842, Station 'B', London, Ontario N6A 4Z3*Honorary President* — William Wehlau, R.R. #1, Hyde Park, N0M 1Z0*President* — Robert Cornforth, 585 Adelaide Street, Woodstock, N4S 4B8*1st Vice-President* — Peter Jedicke, 810-1297 Huron Street, London, N5Y 4L9*2nd Vice-President* — Grant Carscallen, 67-50 Fiddler's Green Road, London, N6H 4T4*Executive Secretary* — John Kay, 106 Pauline Crescent, London, N6E 2L3*Treasurer* — Eric Clinton, 405-583 Mornington Avenue, London, N5Y 3E9*Recording Secretary* — Mark Sinkins, 450 Ridout Street, London, N6C 4A1*Editor* — Eric Clinton*Librarian* — Vacant*Observer's Group Chairman* — Dale Armstrong, 1 Franklin Avenue, London, N6C 2G6*A.T.M. Chairman* — Thomas Steckner, 4230 Highgate Crescent, Mississauga, L4W 3H1*Council* — P. Brown, M. Flegel, T. Steckner*National Council Representative* — Peter Jedicke, #810-1297 Huron Street, London, N5Y 4L9*(Alternates)* — Eric Clinton, Thomas Steckner**LA SOCIÉTÉ D'ASTRO DE MONTRÉAL** Casier postal 206, Station St-Michel, Montréal, Québec H2A 3L9*Passé-Président* — Rolland Lacroix, 10975 Bellevois, Montréal-Nord, H1H 3E1*Président* — Dr. Pierre Bastien, 5540 Bordeaux, Brossard, J4Z 1Y2*Vice-Président* — M de Huberte Palardy, 6009 rue Pierre-Bedard, Montreal, H1M 1K3*Secrétaire* — Andre Bouchard, 10640 St-Hubert, #11, Montreal, H2C 2H7*Trésorier* — Marc Gelin, 1362 Holmes, St-Hubert, J4T 1P5*Bibliothécaire* — Pierre Lalonge, 1785 Monaco, St-Hubert, J3Z 1A9*Editeur* — M. Gelin*Conseillers* — L. Coallier, G. St-Onge, M. Legris, P. Lacombe, R. Lebrun, R. Lacroix*Représentant au Congrès National* — Dr. Pierre Bastien, 5540 Bordeaux, Brossard, J4Z 1Y2

MONTREAL CENTRE P.O. Box 1752, Station 'B', Montreal, Quebec H3B 3K3*Past President* — Burt Widdop, 5214 Marceau Avenue, Pierrefonds, H8Z 2T9*President* — Stewart Marshall, 35 Marian Avenue, #2B, Dorval, H9S 1A4*Vice-President* — Fred Clarke, 137 Larch Drive, Beaconsfield, H9W 2C3*Secretary* — Gary Boyle, 8660 Jean Brillon, App 404, LaSalle, H8N 2G4*Treasurer* — (Acting) Stewart Marshall*Recorder* — Gordon Lorimer, 1509 Sherbrooke Street, W., Apt 31, Montreal, H3G 1M1*Librarian* — Bill Strople, 8221 Vaujour, Ville d'Anjou, H1K 1H6*Editor* — Mrs. Elizabeth Pride, 2283 Canora Road, TMR, Montreal, H3P 2K4*Council* — Jimmy Letourneau, John Glaspey,*National Council Representative* — Garry Boyle, 8660 Jean Brillon, App. 404, LaSalle, H8N 2G4**NIAGARA CENTRE** P.O. Box 241, Niagara Falls, Ontario L2E 6T3*President* — Charles S. Fassel, 22 Murray Street, St. Catharines, L2M 1S4*Vice-President* — Hugh A. MacLean, 655 Vine Street, St. Catharines, L2M 3V8*Secretary* — Walter Jutting, 138 South Drive, St. Catharines, L2R 4W2*Treasurer* — Vic Golding, 6365 Caledonia Street, Niagara Falls, L2G 5A4*Editor* — Ron Gasbarini, 4 Springdale Avenue, St. Catharines, L2R 1G5*Council* — C. Fassel, R. Gasbarini, V. Golding, W. Jutting, H. Maclean, M. Scott*National Council Representative* — Charles S. Fassel, 22 Murray Street, St. Catharines, L2M 1S4**OTTAWA CENTRE** c/o Herzberg Institute of Astrophysics, N.R.C., 100 Sussex Drive, Ottawa, Ontario K1A 0R6*Honorary President* — Dr. J.L. Locke, 2150 Braeside Drive, Ottawa; K1H 7J5*President* — Brian Burke, 2201 Riverside Drive, #302, Ottawa, K1H 8K9*1st Vice-President* — R. McCallum, 18 Deerfield Drive, #504, Nepean, K2G 3R6*2nd Vice-President* — R. Meier, 4A Arnold Drive, Nepean, K2H 6V9*Secretary* — C.R. Molson, 2029 Garfield Avenue, Ottawa, K2C 0W7*Treasurer* — Mrs. L. Meier, 4A Arnold Drive, Nepean, K2H 6V9*Editor* — R. Meier, 4A Arnold Drive, Nepean, K2H 6V9*Librarian* — S. Mott, 2049 Honeywell Avenue, Ottawa, K2A 0S7*Recorder* — Ms. S. Ferguson, 3800 Richmond Road, Apt 202, Nepean, K2H 8K2*Council* — A. Fraser, M. Harrison, E.M. Lambourne, F. Roy, Dr. G. Susick*National Council Representative* — Brian Burke, 2201 Riverside Drive, Apt. 302, Ottawa, K1H 8K9**QUÉBEC CENTRE** C.P. 9396, Ste-Foy, Québec G1V 4B5*Président* — Pierre Bouliane, 718, rue Myrand, App. #2, Ste-Foy, G1V 2T9*Vice-Président* — Michel Lavoie, 6640, Place Delagrave, Charlesbourg, G1H 6P1*Secrétaire* — Mme Suzanne Gagné, 667 de Norvège, App #5, Ste-Foy, G1X 3G5*Trésorier* — Denis Martel, 1974, rue Dion, Duberger, G1P 2W1*Secrétaire du Conseil* — Julien Dompierre, 871, du Côteau, Ste-Foy, G1X 2P1*Directeur des Observations* — Gilles Caisse, 1102, J.-C. Cantin, Cap-Rouge, G0A 1K0*Bibliothécaire* — Francois Collin, 291, du Trait-Carré Ouest, C.P. 443, St. Henri, Co. Lévis, G0R 3E0*Directeur des Conférences* — Dr. Réjean Dutil, 977, rue Dauphin, St-Jean-Chrysostome, G0S 3B0*Conseillers* — Paul Darisse, Claude Shields, Dr. Anita Poulin, Jean-Marie Fréchette*Représentant à la S.R.A.C.* — Damien Lemay, 6230 Ravine Way, Orleans, Ont. K1C 2V4*Représentant Suppléant* — Alphonse Tardif, 9 rue Mgr. Gosselin, Lévis, G6V 5K1**ST. JOHN'S CENTRE***Past President* — Peter Alliston, 45 Smithville Cres., St. John's A1B 2V1*President* — Randolph Joyce, 74 Circular Road, St. John's, A1C 2Z3*Vice-President* — Kenneth O'Brien, 28 Keane Place, St. John's, A1C 6E3

Secretary — David M. Bourgeois, 365 Second Street, Mt. Pearl, A1N 1V5
Treasurer — Garry Dymond, P.O. Box 34, Portugal Cove, A0A 3K0
Librarian — Randy Dodge, 63 Forbes Street, St. John's, A1E 3L7
National Council Representative — R. Dodge, 63 Forbes Street, St. John's, A1E 3L7
Alternate — G. Dymond

SARNIA CENTRE Box 2583, Sarnia, Ontario N7T 7V8

Past President — John Thompson, 34 Maplestone Crescent, Sarnia, N7S 4X2
President — John Thompson, 34 Maplestone Crescent, Sarnia, N7S 4X2
Vice-President — James Townsend, 34 Maplestone Crescent, Sarnia, N7S 4X2
Secretary — Bob King, 335 Albert Blvd., Corunna, N0N 1G0
Treasurer — Brendan Fleming, 203½ Water Street, Sarnia, N7T 5T4
Recorder — Shawn Connally, 1003 Talfourd Street, Sarnia, N7S 1B8
Librarian — Miss Alice Lester, 1091 Emily Street, Sarnia, N0N 1M0
Editor — Shawn Connally
Council — John Sharest, Michael Marchand
National Council Representative — J. Thompson
(Alternate) — James Townsend

SASKATOON CENTRE Sub P.O. No. 6, Box 317, Saskatoon, Saskatchewan S7N 0W0

Honorary President — Dr. Ray Skinner, 319 Lake Crescent, Saskatoon, S7H 3A1
Past President — M. Wesolowski, 11 Brown Crescent, Saskatoon, S7J 2R9
President — John Greer, 3-1101-108th Street, North Battleford, S9A 2B1
Vice-President — Walter Fernets, P.O. Box 491, Biggar, S0K 0M0
Secretary — Lillia Wilcox, 2527 Clarence Avenue South, Saskatoon, S7J 1M3
Treasurer — Mike Williams, General Delivery, Grandora, S0K 1V0
Editor/Librarian — Joan Badger, 6-982-105th Street, North Battleford, S9A 1S3
Council — Evelyn Davis, Doug. Miller, Ron Waldron
National Council Representative — Jim Young, 2333-4th Avenue West, Prince Albert, S6V 5H6

TORONTO CENTRE c/o McLaughlin Planetarium, 100 Queen's Park, Toronto, Ontario M5S 2C6

Honorary President — Dr. Donald MacRae, 427 Glencairn Avenue, Toronto, M5N 1V4
Past President — Ian G. McGregor, Apt. 1205, 450 Walmer Road, Toronto, M5P 2X8
President — J. Randy Attwood, 4348 Dallas Court, Mississauga, L4W 4G7
1st Vice-President — Dr. B. Ralph Chou, 1 Wilket Road, North York, M2L 1N5
2nd Vice-President — Dr. Charles C. Dyer, 19 Broadmead Avenue, Scarborough, M1M 1C3
Secretary — Betty Robinson, 4348 Dallas Court, Mississauga, L4W 4G7
Treasurer — Steven D. Spinney, 4 Jacob Fisher Drive, Scarborough, M1B 3K7
Recorder — Kim G. Rowe, 111 Davisville Avenue, PH 1, Toronto, M4S 1G6
Editor — Betty Robinson, 4348 Dallas Court, Mississauga, L4W 4G7
Council — Brian Beattie, Karin Becker, Charles C. Dyer (2nd V.P.), Kathleen Falls, Paul Gunter,
 Douglas A. McWhirter, Dr. John R. Percy (2nd. Past-President), Scott, Ramsay, Cyril T.
 Youll
Honorary Councillor — Frederic Troyer
National Council Representatives — Randy Attwood, Ian McGregor, Steven Spinney, Michael Watson,
 (441 Davisville Avenue, Toronto, M5S 1H7)
(Alternates) — Brian Beattie, Karin Becker

VANCOUVER CENTRE c/o Gordon Southam Observatory, 1100 Chestnut St., Vancouver, BC
 V6J 3J9

Honorary President — Dr. Michael Ovenden, 2936 West 39th Avenue, Vancouver, V6N 2Z6
Past President — Tom Tothill, 1, 6437 West Boulevard, Vancouver, V6M 3X5
President — David Dodge, Gordon Southam Obs., 1100 Chestnut Street, Vancouver, V6J 3J9

Vice-President—Karl Miller, 4690 Sardis Street, Burnaby, V5H 1L3
Secretary—Mrs. Sally Baker, 2063 West 61 Avenue, Vancouver, V6P 2C6
Treasurer—Norval Clyne, 3288 West 21 Avenue, Vancouver, V6L 1L2
Librarian—P. Horrobin, 1, 6347 West Blvd., Vancouver, V6M 3X5
Editor—Ken Nelson, 5620 Marine Drive, West Vancouver, V7W 2R6
Director of Telescopes—Art Holmes, 22033-28th Avenue, Langley, V3A 7R2
Council—Chandra Madhosing, Dale McNabb, Howard Morgan, Barry Shanko, Greg Soderling, Jim Bernath
National Council Representative—Karl Miller, 4690 Sardis Street, Burnaby, V5H 1L3

VICTORIA CENTRE

Honorary President—Dr. Joseph Pearce, 1780 Fairfield Avenue, Victoria, V8S 1G7
President—Peter Garnham, 6878 Central Saanich Road, Victoria, V8Z 5V2
Past President—Leo Vander Byl, RR 1, 909 Klahanie Drive, Victoria, V8X 4G8
1st Vice-President—Ms. Muriel J. Enock, 1586 San Juan Avenue, Victoria, V8N 2L5
2nd Vice President—Roy Belfield, 2197 Otter Point Road, R.R. 1, Sooke, V0S 1N0
Secretary—Ms. Joan E. Stringer, 701 Esquimalt Road, Apt. 1004, Victoria, V9A 3L5
Treasurer—Mrs. Phyllis Belfield, 2197 Otter Point, R.R. 1, Sooke, V0S 1N0
Recorder—Ms. Maureen Parker, 410 Tipton Avenue, Victoria, V9C 2B7
Librarian—Ms. L. Friis, 2245 Victor Street, Victoria, V8R 4C6
Director of Telescopes—David Kopriva, 1732 Adanac Street, Victoria, V8R 2C5
Observation Coordinator—Chris Spratt, 2100 Granit Street, Apt 314, Victoria, V8S 3G7
Editor—Muriel J. Enock
Councillors—Bob Bryden, Dr. John Climenhaga, Dr. David Crampton, Jack Newton, Philip Stooke, Roger Williams
National Council Representative—George R. Ball, 54 Maddock Avenue, W, Victoria, V9A 1E7

WINDSOR CENTRE

Honorary President—Dr. John Huschilt, Physics Dept, Univ. of Windsor, Windsor, N9B 3P4
Past President—Randolf Groundwater, 1831 Front Road, LaSalle, N9J 2B8
President—C. Joady Ulrich, 243 Watson Avenue, #4, Windsor, N8S 3R8
Vice-President—Steven Pellarin, 3140 Parkwood, Windsor, N8W 2K4
Secretary—Lorison A. Durocher, 453 E. Belle River Road, RR #2, Belle River, N0R 1A0
Treasurer—John Hurley, R.R. #4, Amherstburg, N9V 2Y9
Asst. Treasurer—Felice Bondy, 756 Randolph Avenue, Windsor, N9B 2T8
Librarian—James Meredith, 842 Villaire Avenue, Windsor, N8S 2J4
Editor—Glenn Wagner, 6378 Thornberry Crescent, Windsor, N8T 3A2
Director of Observing—Randolf Groundwater, 1831 Front Road, LaSalle, N9J 2B8
Director of Public Relations—Lorison A. Durocher, 453 E. Belle River Road, R.R. #2, Belle River, N0R 1A0
Councillors—Robert Bezeau, Cyril Hallam, Evan Kayahara, Jeanne Langan, Patrick Langan, Henry Lee, Alan Legary, Brian Perry, Roger Purdy
National Council Representative—Henry Lee, 4271 Riverside Drive, E., Windsor, N8Y 1B6
(Alternate)—C. Joady Ulrich

WINNIPEG CENTRE P.O. Box 215, St. James P.O., Winnipeg, Manitoba, R3J 3R4

President—Stan Runge, 15 Albina Way, Winnipeg, R2R 1A5
1st Vice-President—Miss Brenda Belkin, 17 Royal Crescent, Winnipeg, R2B 1J7
2nd Vice-President—Len Gamache, 7-540 Croydon Avenue, Winnipeg, R3L 0P1
Secretary—Bernard Land, 18 St. Dunstan's Bay, Winnipeg, R3T 3H5
Treasurer—Bud Fairley, #318-3060 Pembina Highway, Winnipeg, R3T 4N1
Council—T. Cairns, E. Hlady, W. Jaworski, L. Mlodzinski, C. Rutkowski, D. Trimble
National Council Representative—Guy Westcott, 1374 Chancellor Drive, Winnipeg, R3T 4J3

GOLD MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

The Gold Medal of the Society was established in 1905 as an encouragement to the study of astronomy. It is awarded to the graduating fourth year University of Toronto Arts & Science student who has both an A standing in his fourth year and the highest average mark in the two full courses and two half courses in astronomy which are contained in the Astronomy specialist programme, provided this average is over 80%. If no student satisfies these criteria, the award is not made.

1906 – *W.E. Harper	1935 – Miss F.S. Patterson	1966 – W.A. Sherwood
1907 – *R.M. Motherwell	1937 – D.A. MacRae	1967 – R.H. Chambers
1909 – *R.K. Young	1940 – W.F.M. Buscombe	1968 – P.G. Martin
1910 – *R.J. McDiarmid	1948 – R.W. Tanner	1970 – J. Kormendy
1911 – R.S. Sheppard	1949 – I. Halliday	1971 – Blake F. Kinahan
1913 – *E.A. Hodgson	1956 – D.C. Morton	1972 – M.J. McCutcheon
1914 – G.S. Campbell	1960 – C.R. Purton	1976 – Chris Rogers
1926 – *F.S. Hogg	1961 – R.C. Henry	1977 – M. De Robertis
1929 – P.M. Millman	1962 – J.R. Percy	1978 – D.R. Gies
1931 – W.S. Armstrong	1963 – P.H. Reynolds	1979 – N. Duric
1933 – K.O. Wright	1965 – A.F.J. Moffat	1981 – T.C. Box
		1982 – M.J. Gaspar
		1984 – Glenn D. Starkman

*Deceased

CHANT MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

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. This 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 which he has carried out in astronomy and closely allied fields of original investigation.

Awards have been made to the following:

1940 – Bertram J. Topham (Toronto)	1953 – Jean Naubert (Centre d'Astronomie de Montréal)
1941 – H. Boyd Brydon (Victoria)	1955 – *Frank J. DeKinder (Montréal)
1942 – *W.G. Colgrove (London)	1956 – Maurice Drolet (Quebec)
1943 – *Cyril G. Wates (Edmonton)	1959 – Earl Milton (Edmonton)
1945 – Paul-H. Nadeau (Quebec)	1967 – R.R. Thompson (Toronto)
1948 – Isabel K. Williamson (Montreal)	1979 – Rolf G. Meier (Ottawa)
1949 – Frank Sisman (Hamilton)	1980 – David Levy (Kingston)
1950 – *F. Keith Dalton (Toronto)	
1951 – DeLisle Garneau (Centre d'Astronomie de Montréal)	

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.

Awards have been made to the following:

1978 – J. Newton (Victoria)
1979 – W. Morrison (Kingston)
1981 – C. McCaw (Vancouver)
1983 – C. Spratt (Victoria)

**SERVICE AWARD MEDAL
OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Service Award was established in 1959 and, on recommendation of a special committee of the National Council, this small bronze plaque is presented to members who have performed outstanding service to a Centre or to the National Society.

- | | |
|---|---|
| 1959 – *E.J.A. Kennedy (Nat. Secretary) | 1970 – Norman Green (Hamilton) |
| *J.H. Horning (National Treasurer) | J.E. Kennedy (Saskatoon) |
| 1960 – *Charles M. Good (Montreal) | 1971 – *K.B. Meiklejohn (Calgary) |
| Miss F. Laforest (Montréal) | J.N.R. Scatliff (Winnipeg) |
| Frederic L. Troyer (Toronto) | 1972 – Vern Ramsay (Toronto) |
| 1961 – *Robert Peters (Victoria) | B.F. Shinn (Winnipeg) |
| 1962 – Jean Asselin (Montréal) | F. Schneider (Hamilton) |
| Robert J. Clark (Vancouver) | 1973 – Fred P. Lossing (Ottawa) |
| *Jesse Ketchum (Toronto) | 1974 – Ian Halliday (Ottawa) |
| Joseph A. Pearce (Victoria) | Fred Williams (Victoria) |
| 1963 – Edwin E. Bridgen (Montreal) | 1975 – D.J. FitzGerald (Toronto) |
| Miss M. Burland (Ottawa) | 1976 – F. Loehde (Edmonton) |
| A. Vibert Douglas (Kingston) | *Ken Chilton (Hamilton) |
| 1964 – *C.S. Beals (Ottawa) | R. Belfield (Winnipeg) |
| *M.W. Burke-Gaffney, S.J. (Halifax) | Mrs. P. Belfield (Winnipeg) |
| W.T. Goddard (Hamilton) | 1977 – P. Marmet (Quebec) |
| 1965 – *D.C. Bawtenheimer (Windsor) | J.R. Percy (Toronto) |
| *John F. Heard (Toronto) | Mrs. D. Russell (St. John's) |
| A.M. Crooker (Vancouver) | 1978 – Mrs. Marie Fidler Litchinsky |
| *Ernest S. Keeping (Edmonton) | (Calgary & Toronto) |
| *W.S. Mallory (Hamilton) | 1979 – *R. Noel de Tilly |
| 1966 – P. Lemieux (Montreal) | (Centre d'Astronomie de Montréal) |
| *S. Litchinsky (Calgary) | A.W. Scott (Toronto) |
| W.J. McCallion (Hamilton) | 1980 – S.A. Mott (Ottawa) |
| W.A. Warren (Montreal) | 1981 – L.E. Coallier (Centre d'Astro. Montréal) |
| 1967 – H.S. Hogg (Toronto) | A. Covington (Ottawa) |
| P.M. Millman (Ottawa) | H. Creighton (Toronto) |
| *R.J. Northcott (Toronto) | Miss I.K. Williamson (Montreal) |
| *H. Simard (Montreal) | 1982 – D.P. Hube (Edmonton) |
| J.F. Wright (Vancouver) | G.N. Patterson (Saskatoon) |
| 1968 – *D.R.P. Coats (Calgary & Winnipeg) | 1983 – C. Aikman (Victoria) |
| George Ball (Victoria) | L.A. Higgs (Ottawa) |
| *Herbert Fox (Hamilton) | 1984 – L.V. Powis (Hamilton) |
| | J.A. Winger (Hamilton) |
| | P. Jedicke (London) |
| | H.N.A. Maclean (Niagara) |
| | C. Hallam (Windsor) |
| | H. Lee (Windsor) |

*Deceased

DECEASED MEMBERS FOR 1983

Mr. C.M. Brant (U.S.A.)
Mrs. Nena Drake (Toronto)
Dr. John J. Green (Toronto)
Dr. Wm. Holden (Halifax)
Dr. E.S. Keeping (Edmonton)
Mr. Al. Kindy (Niagara)
Dr. D.W. McKinley (Ottawa)
Dr. A. Maldacker (Toronto)
Mr. A.J. Nevers (Quebec)
Sir Martin Ryle (Honorary)
Dr. H.L. Welsh (Toronto)
Mr. R. Whitehurst (U.S.A.)

CENTRE TREASURERS' REPORTS FOR 1984

	Ottawa	Quebec	St. John's	Sarnia	Saskatoon	Toronto	Vancouver	Victoria	Windsor	Winnipeg
REVENUE										
Membership Fees	\$ 4,483.00	\$2,233.00	\$ 172.50	\$477.50	\$ 802.50	\$13,188.50		\$ 2,632.25	\$ 610.00	\$1,522.00
Life Members Grants	256.00	24.00	8.00	16.00	32.00	544.00		184.00	8.00	16.00
Donations	580.00	-	-	-	412.89	111.32		87.50	130.00	636.64
Educational Activities	-	-	-	-	-	-		-	-	150.00
Interest & Dividends	233.36	485.00	57.67	18.95	185.05	2,463.94		1,251.71	22.24	-
Sales of Handbooks (Net)	56.00	18.00	20.00	7.00	8.00	-		112.00	43.00	85.50
Advertising	20.00	-	-	-	-	1,313.40		117.00	-	44.00
General Assembly (incl. Travel Grants)	-	-	-	-	-	-		212.00	-	405.00
Other Grants	-	500.00	-	-	-	-		-	338.36	-
Miscellaneous	1,072.00	711.00	5.00	-	204.00	10,212.93		282.69	24.00	8.00
Total Revenue	6,700.36	3,971.00	263.17	519.45	1,644.44	27,834.09		4,879.15	1,175.60	2,867.14
EXPENDITURES										
Fees remitted to N.O.	2,005.50	1,430.00	123.00	286.50	486.50	8,050.70		1,349.50	366.00	694.00
Library	-	110.00	28.17	117.61	42.00	-		76.84	-	230.40
Meetings & Newsletters	615.52	91.00	-	8.00	191.32	4,149.49		1,031.94	143.20	292.47
Annual Dinner (Net)	1,281.00	71.00	-	-	-	-		42.30	-	-
General Assembly (incl. Travel Grants)	-	-	-	-	-	-		424.00	-	312.00
Equipment & Supplies	-	77.00	-	3.06	-	-		1,510.93	498.61	-
Office Administration	-	242.00	-	-	124.63	1,327.47		363.40	-	50.24
General Expenses & Audit	198.62	-	-	16.96	140.00	250.00		-	108.39	147.76
Educational Activities	-	380.00	-	6.50	173.00	272.01		-	-	81.88
Insurance	-	-	-	-	-	165.00		150.00	-	239.00
Awards & Donations	465.75	-	-	3.75	49.67	239.17		54.95	31.03	-
Operating Expenses - Observatory	189.37	1,335.00	30.14	27.25	598.40	9,564.55		522.23	-	893.83
Miscellaneous	-	-	-	-	-	-		12.50	20.00	205.62
Total Expenditures	4,755.76	3,736.00	181.31	469.63	1,805.52	24,167.72		5,538.59	1,167.23	3,147.20
Surplus or (Deficit) on Operations	1,944.60	235.00	81.86	49.82	(161.08)	3,666.47		659.44	8.37	(280.06)
Balance from 1983	9,332.22	7,183.00	-	229.68	15,727.51	28,767.43		-	311.00	336.45
Balance to 1984	11,276.82	7,418.00	1,601.79	279.50	15,566.43	32,433.90		-	319.37	56.39
Other Assets	-	-	-	-	-	-		38,797.05	-	-

C. J. Tinkham & Associates

Chartered Accountants

C. J. TINKHAM, C.A., C.M.C.
D. C. TINKHAM, B.COMM., C.A., C.M.C.
P. J. BROCKLESBY, B.B.A., C.A.

2842 BLOOR STREET WEST
TORONTO - ONTARIO
M8X 1B1

AUDITORS' REPORT

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

We have examined the balance sheet of The Royal Astronomical Society of Canada as at December 31, 1984, and the statements of revenue and expenditure and deficit, for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Society as at December 31, 1984 and the results of its operations for the year then ended in accordance with the accounting principles set out in Note 1 applied on a basis consistent with that of the preceding year.

C. J. Tinkham & Associates

TORONTO, Ontario
March 8, 1985

CHARTERED ACCOUNTANTS

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
BALANCE SHEET
AS AT DECEMBER 31, 1984

A S S E T S

	<u>1984</u>	<u>1983</u>
<u>CURRENT</u>		
Cash and short term deposit	\$ 49,189	\$ 27,053
Accounts receivable	15,582	15,005
Prepaid expenses	<u>193</u>	<u>164</u>
	<u>64,964</u>	<u>42,222</u>
 <u>INVESTMENTS</u>		
Marketable securities - at cost	<u>3,019</u>	<u>3,019</u>
 <u>SPECIAL PURPOSE FUNDS (Schedule C)</u>		
Cash and short term deposits (including accrued interest)	30,411	129,673
Marketable securities - at cost (Market value: 1984 - 3,468 1983 - 3,325)	4,000	4,000
Guaranteed investment certificate	<u>91,600</u>	<u>-</u>
	<u>126,011</u>	<u>133,673</u>
 <u>FIXED</u>		
Office building, furniture, equipment, library (nominal value)	<u>1</u>	<u>1</u>
 Approved on behalf of the Council of the Society		
..... <i>Royal Astronomical Society</i>President		
..... <i>Marie Leduc</i>Treasurer		
	<u>\$ 193,995</u>	<u>\$ 178,915</u>

LIABILITIES

	<u>1984</u>	<u>1983</u>
<u>CURRENT</u>		
Accounts payable and accrued charges	\$ 29,748	\$ 31,884
Deferred revenue		
- Membership fees for ensuing year	16,716	12,639
- Journal and handbook subscriptions	13,789	13,984
- Unappropriated life membership fees (Schedule A)	<u>25,605</u>	<u>22,765</u>
	<u>85,858</u>	<u>81,272</u>
<u>SPECIAL PURPOSE FUNDS</u> (Schedule C)	<u>126,011</u>	<u>133,673</u>
<u>OPERATING DEFICIT</u>	<u>(17,874)</u>	<u>(36,030)</u>
	<u>\$ 193,995</u>	<u>\$ 178,915</u>

C. J. Finkham & Associates

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
STATEMENT OF OPERATING DEFICIT
FOR THE YEAR ENDED DECEMBER 31, 1984

	<u>1984</u>	<u>1983</u>
Deficit, January 1	\$ 36,030	\$ 28,070
<u>Add: Excess of expenditure over</u> income for the year	-	7,960
	36,030	36,030
<u>Deduct: Excess of revenue over</u> expenditure	7,552	-
Transfer from special purpose funds	10,604	-
Deficit, December 31	\$ 17,874	\$ 36,030

C. J. Finkham & Associates

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
STATEMENT OF REVENUE AND EXPENDITURE
FOR THE YEAR ENDED DECEMBER 31, 1984

	<u>1984</u>	<u>1983</u>
<u>REVENUE</u>		
Membership fees		
- R.A.S.C. Centres	\$ 21,964	\$ 22,662
- Individual members	12,109	13,410
- Life membership: annual appropriation	<u>1,348</u>	<u>1,198</u>
	<u>35,421</u>	<u>37,270</u>
Grants and Donations		
- Government of Canada-annual grant	10,000	10,000
- Miscellaneous donations	<u>40</u>	<u>100</u>
	<u>10,040</u>	<u>10,100</u>
Publications		
- R.A.S.C. Journal: subscriptions	16,885	16,154
reprints	759	1,893
publishing revenue	6,513	9,614
- Observer's Handbook	<u>62,796</u>	<u>86,450</u>
	<u>86,953</u>	<u>114,111</u>
Miscellaneous income		
- interest on investments	6,937	594
- insignia sales	160	477
- rent	<u>7,100</u>	<u>-</u>
	<u>14,197</u>	<u>1,071</u>
	<u>146,611</u>	<u>162,552</u>
<u>EXPENDITURE</u>		
Publications (Schedule B)	90,309	126,857
Office salaries and employee benefits	26,097	26,097
Postage and shipping expense	4,593	4,333
General and office expense	2,805	4,217
Stationery, printing and supplies	737	119
Life membership allotment to Centres	1,920	1,832
General assembly and travel expense	2,313	2,241
Legal and accounting	1,869	-
Advertising and publicity	1,304	1,692
Insignia, medals and awards	328	1,160
Telephone	789	655
Insurance	668	478
Library expense	399	850
Office equipment purchases	227	-
Bad debts (recoveries)	110	(19)
Building expenses	<u>4,591</u>	<u>-</u>
	<u>139,059</u>	<u>170,512</u>
<u>EXCESS OF REVENUE OVER EXPENDITURES</u>	<u>\$ 7,552</u>	<u>(\$ 7,960)</u>

C. J. Tinkham & Associates

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
SCHEDULE A
UNAPPROPRIATED LIFE MEMBERSHIP FEES

	<u>1984</u>	<u>1983</u>
BALANCE, January 1	\$ 22,765	\$ 20,811
<u>Add</u> : Life membership fees received in the year	<u>4,188</u>	<u>3,786</u>
	26,953	24,597
<u>Deduct</u> : Appropriation to general account	<u>1,348</u>	<u>1,832</u>
BALANCE, December 31	<u>\$ 25,605</u>	<u>\$ 22,765</u>

SCHEDULE B
PUBLICATION COSTS

R.A.S.C. Journal

Printing of journal	\$ 37,808	\$ 41,060
Printing of National Newsletter	11,379	10,691
Editorial assistance	750	750
Distribution costs	10,838	9,580
Reprints	<u>1,468</u>	<u>2,225</u>
	<u>62,243</u>	<u>64,306</u>

Observer's Handbook

Printing	25,899	56,534
Distribution costs	1,739	4,386
Advertising	<u>428</u>	<u>1,631</u>
	<u>28,066</u>	<u>62,551</u>
	<u>\$ 90,309</u>	<u>\$ 126,857</u>

C. J. Fenham & Associates

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
SCHEDULE C
COMPOSITION OF SPECIAL PURPOSE FUNDS
AS AT DECEMBER 31, 1984

	<u>RUTH NORTHCOTT FUND</u>	<u>ENDOWMENT FUND</u>	<u>TOTAL</u>
Cash	\$ 7,037	\$	\$ 7,037
Term deposits	9,000	14,000	23,000
Securities	4,000	-	4,000
Guaranteed Investment Certificate	-	91,600	91,600
Accrued interest	374	-	374
	<u>\$ 20,411</u>	<u>\$ 105,600</u>	<u>\$ 126,011</u>

C. J. Fenham & Associates

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
NOTES TO FINANCIAL STATEMENTS
DECEMBER 31, 1984

NOTE 1 ACCOUNTING POLICIES

The financial statements of the Society have been prepared in accordance with accounting policies generally followed by similar non-commercial organizations. The significant accounting policies observed in the preparation of these statements are summarized below.

(a) Membership fees:

Members' fees are credited to income for the related membership year. Accordingly, fees received at the end of the year for the ensuing year are included in deferred revenue. Life membership fees are credited to deferred revenue when received. 5% of the life membership fund is transferred annually to the general account.

(b) Publications:

Subscriptions to the R.A.S.C. Journal are credited to income for the subscription period.

(c) Investments:

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

(d) Special purpose funds:

The special funds of the Society are classified in accordance with the objectives specified by the donors or in accordance with directives issued by Council. The income of the various funds is recorded on the accrual basis.

(e) Fixed assets:

The office furniture, equipment and the library of the Society are carried in the accounts at a nominal value of \$1. Any new acquisitions are included in expenditure for the year.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

NATIONAL OFFICERS AND COUNCIL FOR 1985

Honorary President — Peter M. Millman, B.A., A.M., Ph.D., F.R.S.C., Ottawa

President — Roy L. Bishop, Ph.D., Halifax

1st Vice-President — Mrs. Mary Grey, B.Sc., Ottawa

2nd Vice-President — Lloyd A. Higgs, Ph.D., Penticton

Secretary — R. Peter Broughton, M.Sc., A.R.C.T., 136 Dupont Street, Toronto M5R 1V2

Treasurer — Mrs. Marie Fidler, 136 Dupont Street, Toronto M5R 1V2

Recorder — Leo Enright, B.A., Kingston

Librarian — Philip Mozel, B.Sc., Oakville

Editor of JOURNAL — Alan H. Batten, D.Sc., Ph.D., F.R.S.C., Victoria

Editor of OBSERVER'S HANDBOOK — Roy L. Bishop, Ph.D., Halifax

Executive Secretary — Miss Rosemary Freeman, 136 Dupont Street, Toronto M5R 1V2

Council — Past Presidents — Ian Halliday, Ph.D., F.R.S.C., Ottawa

Franklin Loehde, B.Sc., B.Ed., Edmonton

Representatives from Centres —

Calgary: J.C. Fahrner

Edmonton: M.R. Rankin

Halifax: D. Parker

Hamilton: I. Stuart

Kingston: T.D. Hicks

Kit.-Waterloo: R. Koenig

London: P. Jedicke

Montreal: G. Boyle

Centre D'Astronomie

Mtl.: Dr. P. Bastien

Niagara: C.S. Fassel

Ottawa: B. Burke

Quebec: D. Lemay

St. John's: R. Dodge

Sarnia: J. Thompson

Saskatoon: J. Young

Toronto: J.R. Attwood

I. McGregor

S. Spinney

M. Watson

Vancouver: K. Miller

Victoria: G.R. Ball

Windsor: H. Lee

Winnipeg: G. Westcott

CENTRE SECRETARIES FOR 1985

CALGARY

W. Krosney, #1-208 Sabrina Way, S.W., Calgary, T2W 2N6

EDMONTON

Mrs. Yni Ebbers, 5526-145A Avenue, Edmonton, T5A 2S1

HALIFAX

R. Fraser, 40 Murray Hill Drive, Dartmouth, B2Y 3A8

HAMILTON

Mrs. T. Quinn, 11 Ridgewood Blvd, RR #3, Dundas, L9H 5E3

KINGSTON

Mrs. S. Sorensen, #1-50 Montreal Street, Kingston, K7K 3E8

KIT.-WATERLOO

G. Mudry, 10 Royal Orchard Place, Kitchener, N2N 1Z6

LONDON

J. Kay, 106 Pauline Crescent, London, N6E 2L3

MONTREAL

G. Boyle, 8660 Jean Brillon, #404, LaSalle, H8N 2G4

CENTRE D'ASTRONOMIE

A. Bouchard, 10640 St-Hubert, #11, Montreal, H2C 2H7

NIAGARA

W. Jutting, 138 South Drive, St. Catharines, L2R 4W2

OTTAWA

C.R. Molson, 2029 Garfield Ave., Ottawa, K2C 0W7

QUEBEC

Mme S. Gagne, 667, rue de Norvege, #5, Ste-Foy, G1X 3G5

ST. JOHN'S

D.M. Bourgeois, 365 Second St., Mt. Pearl, A1N 1V5

SARNIA

B. King, 335 Albert Blvd., Corunna, N0N 1G0

SASKATOON

L. Wilcox, 2527 Clarence Ave, So., Saskatoon, S7J 1M3

TORONTO

Ms. B. Robinson, 4348 Dallas Court, Mississauga, L4W 4G7

VANCOUVER

Mrs. S. Baker, 2063 W. 61 Ave., Vancouver, V6P 2C6

VICTORIA

Ms. J.E. Stringer, 701 Esquimalt Rd, #1004, Victoria, V9A 3L5

WINDSOR

L.A. Durocher, 453 E. Belle River Rd., RR #2, Belle River, N0R 1A0

WINNIPEG

B. Land, 18 St. Dunstan's Bay, Winnipeg, R3T 3H5