



Supplement to the JOURNAL

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

ANNUAL REPORT 1981

APRIL 1982

PRESIDENTS OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

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

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

REPORT OF THE PRESIDENT

This Annual Report for 1981 summarizes the past year of activity for the Society and for its individual Centres. A glance at the reports of the Centres will impress the reader with the broad range of subjects presented at lecture meetings and with the numerous projects of telescope and observatory construction in progress. Presenting astronomy to the public is an important challenge for our Society and one which the Centres are meeting by organizing public star nights with telescopes, presenting astronomical displays in shopping centres, libraries or museums and even with astronomical programs on cable television. The factors which affect the membership of the Society are complex, but the substantial gain in membership during the past five years must be closely related to these educational activities.

At a meeting of National Council in September we approved the formation of a new Centre in Sarnia, our twentieth Centre and the second addition in two years. This extension of our activities into more areas of Canada is perhaps a more important aspect of our growth than total membership of the Society. In visiting many of the Centres during the year I was impressed with the enthusiastic response of members to the goals of their Centres and with the unique flavour that has developed in each Centre from our common interest in the pursuit of astronomy.

The 1981 General Assembly in Victoria was thoroughly enjoyed by all who had the good fortune to attend. The informal sessions for slides and songs provided a relaxed atmosphere while the sessions for papers, the displays, banquet and organized tours were all highly successful. Even the weather was decidedly pleasant and our thanks go to all the members of the Victoria Centre for their splendid hospitality.

During 1981 we elected a new Honorary Member of the Society, Dr. Ralph B. Baldwin of Grand Rapids, Michigan, a noted authority on the moon. In September I had the pleasure of presenting the Society's Gold Medal to Thomas Box at a meeting of the Toronto Centre. This medal has the longest tradition of our awards, with the first Gold Medal presented in 1906 to W.E. Harper during Dr. C.A. Chant's years as President of the Society. Outstanding service to the Society was recognized this year by the presentation of Service Award medals to Lucien Coallier, Arthur Covington, Harlan Creighton and Isabel Williamson. Recent achievements were noted when the Ken Chilton Prize was awarded to Craig McCaw of Vancouver and the Simon Newcomb Award to Christopher Rutkowski of Winnipeg.

As noted a year ago, we began 1981 with new editors in charge of our publications. Dr. Alan Batten has produced a fine volume of the *JOURNAL*, including a special issue emphasizing the history of the Society and the *JOURNAL*, to celebrate 75 years of continuous publication. The 1982 *Observer's Handbook* continues to attract much favorable comment with its new set of star maps and other changes introduced by Dr. Roy Bishop. The *National Newsletter*, under its new editor Dr. Ralph Chou, performs its varied functions of education and communication among members in a most effective manner. Let us not forget the numerous editors of Centre newsletters, whose long hours of work contribute very directly to the enjoyment members obtain from all the activities of the Centres.

My term as National President has been made easier by the support and assistance of many members. I would like to thank all members of National Council for the devotion they have shown to the Society and offer particular thanks to our solicitor, Miss Donna Haley, our auditor, Mr. Morris Altman, and to Captain Raymond Auclair for the guidance he has given Council as a spokesman for an important group of members, those who are unattached to Centres. During 1981 Rev. Norman Green retired as National Secretary and we lost the services of Miss Haley as our solicitor when she was appointed a Judge of the County Court in Toronto. We are particularly indebted to Judge Haley and Mr. Green for their many years of service to the Society and their advice will indeed be missed. Finally, I wish to thank our Executive-Secretary, Rosemary Freeman, for the efficient manner in which she handles the regular affairs of the Society, a fact we may take for granted but upon which we depend a great deal.

IAN HALLIDAY

REPORT OF THE NATIONAL SECRETARY

Before writing this report I had the opportunity to read resumé's of the activities of many of the twenty Centres across Canada. Their reports which comprise most of this booklet, show very clearly the diversity of interests and endeavours of our members. Anyone looking for ideas for meetings, for observing programs, for names of people with experience in building telescopes and observatories, or just for friends with similar interests in astronomy, should carefully read the reports from the Centres. There is an impressive amount of experience and knowledge out there waiting to be shared!

Many members are doing an excellent job of public relations. Certainly a lot of work goes into preparing public star nights, talks, and demonstrations, but the personal rewards derived from sharing one's enthusiasm often make the effort seem enjoyable. The benefit to the Society from these activities is evident in the growth in membership as shown by the following figures for September 30, 1981 and 1980:

	1980	1981
Calgary	96	81
Edmonton	96	113
Halifax	96	89
Hamilton	53	77
Kitchener-Waterloo	32	41
Kingston	18	38
London	68	57
Montreal	62	75
La Société d'Ast. de Montréal	128	114
Niagara	51	53
Ottawa	232	237
Québec	103	113
St. John's	18	9
Saskatoon	53	59
Sarnia	-	25
Toronto	630	702
Vancouver	123	128
Victoria	101	93
Windsor	41	41
Winnipeg	59	62
Unattached to Centres:		
Canada	215	396
United States	361	324
Overseas	50	38
Honorary	14	15
	2700	2980

While the past year saw our total membership grow dramatically by nearly 11%, such a large increase is not typical. Looking back over the years, the Society has generally shown less rapid growth recently than in its earlier history. For example, during the last decade the compounded annual growth rate was 1.6%, during the last 40 years, 3.1%, and during the last 80 years, 4.3%. Still we're ahead of the growth in Canada's population which increased at 1.2% annually over the last decade and at 1.9% annually over the last 40 and 80 year periods.

The Society is pleased to acknowledge the receipt of annual grants from the National Research Council of Canada, and from the Ministry of Colleges and Universities of the Province of Ontario.

As Secretary, my responsibilities seem to arise from meetings, correspondence and reports, but being new to the job, I may be overlooking things which my esteemed predecessor did. If any of you have suggestions as to how I might be of service to you, I would be pleased to hear. Finally, I wish to thank Rosemary Freeman for keeping the office running smoothly throughout the year.

PETER BROUGHTON, *National Secretary*

CALGARY CENTRE

The Calgary Centre continues to expand its horizons both in membership and in activities as it finalizes building plans and legal agreements for its observatory at the Strathcona-Tweedsmuir School near Okotoks, Alberta. Construction of the observatory is expected to begin in May 1982, and to be completed before the next parade of winter constellations begins to appear in the evening eastern sky. In addition to this major undertaking, the Centre participated in an Open House hosted by the Calgary Centennial Planetarium, held two public star nights in a city park in south Calgary, celebrated Astronomy Day at the Planetarium with displays of telescopes and astrophotography, held three observing nights, two at Strathcona-Tweedsmuir School and one at Plateau Mountain in the eastern Cordillera, had its annual barbeque and observing night at the School in August and put on a highly successful shopping centre display at South Centre Mall in Calgary. Socially the highlight of the year was the Annual Banquet at which Father Lucien Kemble was awarded a gift certificate donated by one of the Centre's members for the best article written and published in *The Starseeker*. Vice President Don Hladiuk then gave a beautifully illustrated after-dinner talk on "Astronomy in New Zealand".

Nine general meetings were held in the Engineering Building of the University of Calgary under the gracious auspices of the University. The program was as follows:

- January 16 Annual General Meeting. "Hladiuk's Almanac, 1980", D. Hladiuk
- February 19 "The Canada-France-Hawaii Telescope", Dr. Chris Pritchett, University of Calgary.
- March 19 "Evolution of High and Low Mass Stars", Dr. J. Ziolkowski, University of Calgary.
- April 16 "Planetary Nebulae", J.T. Himer.
- May 21 "Radio Telescopes", E. Bamberry.
- June 18 "Observing the Southern Skies from the southern United States", D. Beale and D. Belcher, Edmonton Centre.
- September 17 Members' Night. "Activities in Astronomy, University of Calgary, Summer, 1981", Dr. T.A. Clarke.
"The Victoria General Assembly, 1981", S. Morris.
"Observing from Plateau Mountain", S. Morris.
- October 15 Annual visit to the Rothney Astrophysical Observatory, University of Calgary.
- November 19 "Time and Tides Wait for No Man", Dr. T.A. Clarke, University of Calgary.
- December 10 Annual Banquet. "Astronomy in New Zealand", D. Hladiuk.

D.K. NORRIS, *Recorder*

EDMONTON CENTRE

Our Centre membership reached an all-time high this year. The development of our Buck Mountain observing site SW of Edmonton continued with the installation of a metal prefab building to serve as a warmup, storage and sleeping quarters. Completion of our 17-1/2 inch Dobsonian telescope was delayed by late shipping of the optics. The biggest news of the year was the final agreement by the Edmonton city council on where to locate the \$16 million Edmonton Space Sciences Centre. Construction of this new planetarium was scheduled to begin in February, 1982 not far from Canada's first public planetarium, the Queen Elizabeth II.

Our regular meetings for 1981 were as follows:

- January 12 Franklin Loehde: "Spectroscopy, the Universal Key."
- February 11 Dr. Paul Wesson: "Is the Universe Spinning?"
- March 9 Alan Dyer: "Collecting Starlight - Deep Sky Observing."
- April 8 Dr. George Cumming: "The Age of the Solar System."
- May 11 John Hault: "The Edmonton Space Sciences Centre."
- June 8 Dr. Chris Pritchard: "The Canada-Hawaii-France Telescope."

- September 14 Alan Dyer: "Voyager 2 – The Last Picture Show."
 October 21 Dr. Ferrell Christensen: "The Problem of the Passage of Time."
 November 23 Dr. Ian Halliday: "Meteorites."
 December 14 Ron Goodson: "Clouds and Cloud Formation."

ANTHONY J. WHYTE, *Secretary*

HALIFAX CENTRE

Our regular meetings for 1981 were as follows:

- January Member's night: Walter Zukauskas – observing sessions, "Cosmic Zoom" – a film, Roy Bishop – slides, Norman Scrimger – slides of Nova Scotia observatories, Helen Hogg on *Front Page Challenge*.
 February Barry Morgan, "Radio Astronomy".
 March Roy Bishop, "The 200th anniversary of Herschel's discovery of Uranus".
 April Glen Graham, "The Astronomer's view of Astrology".
 May Annual Dinner, Society's show at the Nova Scotia Museum, Astronomy Day.
 June Glen Graham, "The Victoria General Assembly reviewed".
 July Camping and observing weekend.
 August Perseid Party at Maktomkus Observatory.
 September Bill Calnan, "Review of camping/observing weekend and comments on King's College observatory".
 October David Chapman, "Pre Historic stone monuments in Scotland and their Astronomical Significance".
 November Murray Cunningham, "Ancient and Modern Astronomy in the People's Republic of China".
 December Wilf Morley, "High School Astronomy Projects".

During the year the Burke-Gaffney Award was presented to Diane Brooks and the Simon Newcomb Award to Christopher Rutkowski (Winnipeg Centre).

MURRAY CUNNINGHAM, *Secretary*

HAMILTON CENTRE

The Hamilton Centre continued to be very active in 1981, this time under the direction of our President, Peter Ashenhurst. Mr. Ashenhurst organized an excellent series of monthly meetings at McMaster University. Each meeting included a lecture on the Earth and Planetary Sciences, a talk by one of our members, and various observing reports. The main lectures were very well received, as evidenced by the lengthy question-answer periods which followed. Attendance has continued to improve, and an average of 35 members turned out to hear the following lectures:

- January 8 Mr. Peter Ashenhurst (Hamilton Centre) "Celestial Navigation"
 February 5 Mr. Paul Deans (McLaughlin Planetarium) "Voyager I Flyby of Saturn"
 March 5 Dr. Saul Cushman (University of Toronto) "The True Shape of the Earth"
 April 2 Dr. George Garland (University of Toronto) "Gravity Anomalies on and between the Earth and the Moon"
 May 3 Dr. David Dunlop (University of Toronto) "Earth Magnetism and Continental Drift"
 June 4 Dr. Henry Halls (University of Toronto) "Meteor Impact Craters on the Earth"

- October 1 Mr. Alf Latham (McMaster University) "Planetary Magnetism"
 November 5 Dr. Wayne Cannon (York University) "Long Baseline Interferometry, and the Measurement of Continental Drift"
 December 5 Dr. Ian Halliday (N.R.C.) "Meteorites and the Solar System"

Special thanks must go to Dr. Halliday, who made a long trip to Hamilton to speak at our December meeting!

Our Public Education program continued with much success. With the help of Les Powis, Peter Ashenhurst, Ian Stuart and Grant Dixon, the capacity crowds were given a tour of our facilities, a brief talk on the construction of the observatory, and a look through several telescopes. Also at every 'Public Night' one of our members presented a 20-minute talk on a topic of interest to the layman. All of these presentations were of high quality. Elsewhere, Mike Holmes continued to visit campgrounds and entertain various nature groups.

Of course, the main emphasis of activity at the Observatory centred around the Observer's Group. A strong interest in astrophotography has blossomed, and a number of our observers regularly produce first-class results. Barry Sherman, Mike Pendleton, Clive Gibbons, Grant Dixon and Ian Stuart all should be congratulated for their fine work in this field! Interest in Solar observing is growing, with regular sunspot counts being done by Brian Carr, and John Hudak continuing his research at radio frequencies. Bob Speck is continuing with his TLP program, and he also does drawings of Jupiter regularly. Highlights of the past year included the July Lunar eclipse, where a dozen members met at the Observatory to make drawings and take photographs. There was an equally encouraging turnout for the Perseid meteor shower in August, and despite hazy skies and the interference from the gibbous moon, observers were treated to the best Perseid display in years.

During the year, one of our Past-Presidents, Bob Lang, succeeded in obtaining a historical piece of equipment, a 5" refractor built by the late Dr. John Marsh, founder of the Hamilton Centre in the early 1900's. It is now in the dome of our observatory, and it is slowly being brought back and many of our observers feel that it is one of the best planetary 'scopes around! Our Centre's 17-1/2" reflector is very near completion, and we hope it will be in operation by summertime. In addition to these two fine instruments, Barry Sherman has been working diligently to put three other Centre telescopes into working order.

Our monthly newsletter, *Orbit*, continues to do very well. Over the past 12 months it has averaged around 20 pages per issue. As of late, cartoons and humorous articles have been included, reflecting the lighthearted approach to our science that our members occasionally take. Grant Dixon, Ian Stuart, and the editor Clive Gibbons must be commended for maintaining *Orbit's* quality during 1981.

The Hamilton Centre continued to support the activities of the NFAAAA. Half a dozen members travelled to meetings in Syracuse N.Y. and Rochester N.Y. in the summer and fall of '81. At the Syracuse Summer Seminar, two of our members (Clive Gibbons and Edna Mueller) won prizes in the astrophotography contest. A small delegation from Hamilton was present at the Victoria General Assembly, and members also attended an excellent banquet held by the Niagara Centre in November.

On a sadder note, I regret to report the passing of one of Hamilton's more distinguished members, Mr. Bert Fox. Mr. Fox, a longtime member of the organization and a past-president of the Hamilton Centre, will be sorely missed.

DEREK BAKER, *Secretary/Recorder*

KINGSTON CENTRE

1981 was a year of much activity by many members of the Kingston Centre. There was an increased growth in membership as there has been also in the early part of 1982. A few of the highlights are summarized below:

- February 27 London Centre Exchange during which Peter Jedicke and Tom Flinos came to give a talk.
- April 11 and 12 An incredible Auroral display as a result of a solar flare on April 10th gave us an opportunity for some fine auroral photography later shown by Leo Enright at our May meetings.
- May 8 Meeting with slide show entitled "*Observatories on Kitt Peak*" by Leo Enright.
- May 9 Astronomy Day – a mall display and public star night in which many members took part.
- June 28 Canada Day Weekend – General Assembly in Victoria at which four of our members were present and papers were given by Leo Enright and David Levy.
- August 14 Meeting featuring a talk by David Levy: "Observing and Other Astronomical Work in Tucson".
- August 30 Kingston Centre hosted the Syracuse Astronomical Society in a tour of the Holleford Crater, a very old meteorite impact crater.
- October 30 Meeting featuring a talk by Gerald Schievan: "Degenerate Stars".
- November 13 Meeting with a talk by Leo Enright: "Astrophotography: A Basic Introduction".
- November 27 Annual Banquet and Annual Meeting.
- December 11 Meeting featuring a talk by our president, Angelika Hackett: "Sunspot Observing".

LEO ENRIGHT, *National Representative*

KITCHENER-WATERLOO CENTRE

Throughout the year 1981, the Kitchener-Waterloo Centre held its regular and informal meetings at Wilfrid Laurier University in room 2C8 on the 2nd and 4th Tuesdays of the month.

Our program of public talks and films were:

- January "Journey to the Centre of the Milky Way Galaxy", Peter Daniel
- February Report on the AAAS Convention in Toronto, Clifford Cunningham
- March "Problems in Astronomy in Ancient Greece", Dr. M. Pim Fitzgerald (U. of W. Dept. of Physics)
- April "Observing the Planets", Rob Robotham (London Centre)
- May "Space-based vs. Ground-based Astronomy", Peter Jedicke (London Centre)
- June Slide shows on: Voyager Saturn Encounter, The PBS "Cosmos" Series, The launch of the Space Shuttle "Columbia"
- July Summer break
- August
- September "Stellar Evolution", Elisabet Jylänne; "Lunar and Solar Eclipses", Dave Schwartz.
Report on the Ottawa Centre and the IRO Observatory.
The I.A.P.P.P. symposium and the Fairborn Observatory, Murray Kaitting
- October Film "Eclipses & Lunar Dimensions" from Project Universe series on Television, Ray Koenig
- November "RS CVn Binaries", Murray Kaitting
"Astrophotography with the 12-1/2", Peter Daniel
- December "Construction of the New Observatory", Gerald Kennedy

The year was not totally consumed by the business aspects of our Centre. We did manage to achieve several goals and still participate in various projects and events.

The Centre's 12-1/2" telescope now is equipped with an eyepiece holder which will allow one to do prime focus photography. A 6" F/7 Newtonian is also available at the observatory for the

membership. Our observatory site is beginning to look like a scaled-down version of Kitt Peak. We now boast three observatories, the most recent owned and operated by Gerald Kennedy is a 10-foot diameter dome structure quite similar to the main observatory. Equipped with a C-14 and 8" Schmit camera, this excellent facility will allow Gerald to pursue his main interest, astrophotography.

The Dance Hill Observatory's differential photometric photometry program got under way in late spring. The owners, Clifford Cunningham and Murray Kaitting are mainly studying variable stars (chiefly RSCVn Binaries) and asteroids. Those interested in astrophotography can contact Erik Ekmanis and Gerald Kennedy who have initiated an astrophotographers group. Rob Robotham is in charge of observing the planets, Clifford Cunningham looks after minor planets, and for deep sky observing contact Peter Daniel.

Our Centre participated in Astronomy Day by featuring talks, slides, photos and a chance to view through several telescopes at our Conestoga Mall display. On several occasions we held public star nights in town and out at the observatory site. Our summer picnic at the observatories was enjoyed by all and next year's promises to be bigger and better. Dr. Jim Hunt of the University of Guelph spoke on Atmospheric Phenomena at our Annual Banquet. He proved to be a most entertaining speaker.

During this year, five (5) telescopes of 8" diameter or larger were purchased by Centre members and another observatory looms on the horizon in 1982. As you can gather, 1981 was a very busy year in both management and projects for the Kitchener-Waterloo Centre and it would seem there's no slow-down in sight for 1982. The only major thing that seems to be lacking is, and unfortunately always will be, clear skies!

Here's hoping for better things in '82.

MURRAY KAITTING, *Secretary*

LONDON CENTRE

On this cold day in January I think back with warmth to 1981. The year of 1981 can be noted as a year of individual achievements for the London Centre.

Our tireless core of variable star observers improves in quality and quantity their observations. Many thanks to Steve Sharpe, Tom Steckner, and Rob Robotham.

The achievements of Jack Brisbon and his prize winning Stellafane entry and of his recently published photos in *Sky and Telescope* and *Astronomy* must be noted.

Again this year our members have travelled far and wide to take in events of interest. The lone Centre excursion to Abrams Planetarium has been augmented by smaller delegations to more distant places such as J.P.L. the Johnson Space Centre, and Cape Canaveral to mention but a few.

The Centre continues to applaud Peter Jedicke for his hours of community service. Peter also helped to organize the official Society delegation to the premiere launching of the Space Shuttle. The delegation consisted of Society members from across the continent.

The Centre publication *Astronomy* London continues to thrive thanks to the prodigious efforts of editor and publisher Eric Clinton.

In 1981 the single most noteworthy event belongs to Zedenko Zaroch. His efforts together with help from the London Centre saw the culmination of a dream; the birth of a new Centre.

One can only hope that the year of 1982 will be as exciting as the year that has just passed. During the year of 1981 the program of public lectures held at the University of Western Ontario was as follows:

- January 16 Members' Night
- January 17 Ninth Annual Banquet and Annual Meeting, *Atmospheric Phenomena*, Dr. J. Hunt, University of Guelph
- February 20 Members' Night
- March 20 Annual Dr. H.R. Kingston Memorial Lecture, *Voyager Saturn Encounter*, Mr. Paul Deans, McLaughlin Planetarium.

- April 10 *The Arrow of Time*, Dr. Dean Gaily, U.W.O. Physics Department.
 May 22 *STS-1*, Jamie Mathews, London Centre.
 June 19 *Exobiology*, Pere Anderson, Brock University.
 July 17 *From OSO to Tuscon and Back*, Leo Enright, Kingston Centre.
 August 21 *The Siberian Eclipse* Mike Jewison, London Centre.
 September 18 *Pioneer Saturn and Life at J.P.L.*, Jill Carroll, London Centre.
 October 16 *The Death of Ground-Based Astronomy*, Peter Jedicke, London Centre.
 November 20 *Henry Draper*, Dr. H. Plotkin, U.W.O. Department of History of Medicine and Science.
 December 18 *The Goal of Astronomy in Astronomical Thought*, Bob Kent, U.W.O. Department of Applied Math.

TOM GLINOS, *Secretary*

OTTAWA CENTRE

Membership: Membership in 1981 reached 237 of which 32 are life members. Having in excess of 200 members, the Ottawa Centre is entitled to have two representatives on the National Council.

Meetings: The Ottawa Centre sponsored the following meetings during the year:

- January 14 Speaker, Dr. Sun Kwok, National Research Council: "White Dwarf, Neutron Star or Black Hole - The Effects of Mass Loss on Stellar Evolution".
 February 16 Speaker, Dr. A.F. Cook, Jet Propulsion Laboratory, Pasadena, California: "The Voyager Fly-by of Saturn". Movies and slides also shown.
 March 11 Speaker, Dr. Paul Feldman, National Research Council: "New (Astronomical) Light on the Extinction of the Dinosaurs".
 November 13 Speaker, Dr. M.D. Watson, Canada Centre for Space Science, Ottawa: "Canadian Directions in Space Science".

The Annual Dinner Meeting was held at the National Research Council on November 13. Awards were presented by the Honorary President, Dr. J.L. Locke to the following: Miss Margaret E. Bower and Mr. R.E. Rodgers received Membership Certificates, R. Meier won the Variable Star Award and Observer of the Year Award went to R. Dick. In addition, the Society's Service Award was presented to Dr. Arthur Covington by Dr. Peter Millman and a special presentation was made to Dr. Fred Lossing consisting of the first key to the Observatory mounted on a piece of mahogany beside a brass plaque. Finally, Frank Roy and Stan Mott received a hearty vote of thanks for outstanding services performed during the year.

General: The Council held four meetings in 1981. Attention was focussed on a number of key subject areas, the most important of which was the Centre's finances. In addressing this issue the Council established a new Committee, the Finance Advisory Committee, whose first report was considered in detail at the February meeting. Subsequently, a number of measures were taken to reduce costs, particularly in the production and distribution of *Astronotes*. This, together with the sale of certain unused assets and some other initiatives that were also taken, considerably strengthened the Centre's finances and permitted the repayment of an outstanding loan from the National Office. Other highlights of the year's activities included the production of an Observers' Manual and the completion of ten years of successful operation of the 16" telescope.

Observers' Group: The Observers' Group, under the able direction of Brian Burke, met on the first Friday of every month. Highlights of Centre members' presentations included Steve Dodson's illustrated account of building his 22" trailer-mounted telescope, Frank Roy's excellent photographs taken on the 16" telescope, Fred Lossing's talks on the orbit of the moon

and film hypersensitisation and Rob Dick's monthly review of solar activity both at radio and optical wavelengths. Illustrated talks by Charles Haggart on planetariums around the world and by Pat Brewer on his trip to view the solar eclipse in Siberia were also most interesting and provided some international flavour to the Observers Group Meetings.

Public star nights were held regularly both at the Observatory and in Ottawa parks. Over 70 people turned out for the one held at the Indian River Observatory in August, most of whom came to see Steve Dodson's 22" f/7 Newtonian. Steve's telescope won an award for mechanical design at Stellafane. Other winners from the Ottawa Centre at Stellafane were Dave Penchuk for mechanical design and construction for his 6" Newtonian and Neil Hunt who received the Porter Youth Award.

Observatory: The Centre's Observatory, located about 50 kilometers west of Ottawa, was used extensively throughout the year by a fairly small group of active and dedicated observers. It was also the scene of feverish activity by working parties which completed a number of improvements to the 16" telescope. These included the installation of a digital display system for the R.A. and dec. built by Fred Lossing and Frank Roy and the addition of a digital clock designed and built by Frank Roy showing both sidereal and standard time. A transformer isolating the telescope's electronics from the rest of the Observatory system was put in place to provide protection against lightning.

Improvements to the radio telescope were also carried out during the year. The change of frequency to 238 MHz solved the interface problems and, with new dipole feed arrays and preamplifiers, more consistent performance was obtained. Good reproducible recordings of the radio source Hercules A were made. Since this source is more than an order of magnitude from the theoretical sensitivity limit, a program of tests and measurements was carried out to identify the remaining problems. It was found that the antennas require further adjustment and that the preamplifiers have been damaged by water. Further antenna tests are planned and new, more resistant, preamplifiers are being built for installation in the new year. A new sidereal drive for the chart recorder was built during the year under review.

Finally, the Centre celebrated the 10th anniversary of the 16" telescope with a Grande Star Night at the Observatory on October 24th. After consuming a bar-b-q dinner, members gathered around the observatory to witness Ken Tapping unveil a plaque attached to the telescope in honour of those who built it. The ending of the first ten years of successful observing and discovery was suitably capped by a clear night and members were able to begin the next ten years of observing by pointing the telescope at the sky until the small hours of the following morning.

C.R. MOLSON, *Secretary*

CENTRE DE QUÉBEC

CONFÉRENCES 1981

- 18 février **VIE ET MORT DES OcéANS: L'ASPECT GÉOLOGIQUE**
Conférencier invité: Dr. Roger Laurent, Ph.D., professeur titulaire au département de géologie de l'Université Laval.
- 18 mars **LA PHOTOGRAPHIE ASTRONOMIQUE**
Conférencier invité: M. Damien Lemay, B.Sc. (Génie physique), ingénieur à la compagnie Québec Téléphone, à Rimouski.
- 22 avril **PROJET PANCANADIEN POUR LA CONSTRUCTION D'UN RADIO-TELESCOPE A TRES LONGUE BASE (V.L.B.A.)**
Conférencier invité: Dr. Jean-René Roy, Ph.D., professeur adjoint au département de physique de l'Université Laval.
- 20 mai **SOIREE DES REALISATIONS DES MEMBRES**
Présentation de télescopes construits par des amateurs. Expériences diverses sur films Tri-X et 2415. Hypersensibilisations des films. Projection de diapositives d'objets célestes de diverses natures.

14 octobre **L'ORIGINE DES PERIODES GLACIAIRES: LE POINT DE VUE ASTRONOMIQUE**

Conférencier invité: M. Alphonse Tardif, B.Sc., professeur de physique et directeur de l'observatoire du Collège de Lévis.

SOIREE D'OBSERVATIONS 1981

9 mai **ST-NEREE DE BELLECHASSE (Coll. de Lévis)**

Une quinzaine de membres ont profité d'une belle soirée de printemps pour observer de nombreux objets Messier, le début de l'occultation d'un des satellites de Jupiter ainsi que la planète Saturne.

16 juillet **ST-NEREE**

Une vingtaine de membres s'étaient rendus sur place. Malgré la présence des nuages, des observations intéressantes ont pu être réalisées.

19 septembre **MONT-MEGANTIC**

Cette soirée s'est avérée un succès au point de vue de la participations des membres de la région de Québec, soixante-cinq (65) d'entre-eux ayant répondu à notre invitation. Le ciel étant complètement couvert, il a fallu se résigner à de très intéressantes conversations autour du télescope.

L'ensemble et surtout la fin de l'année 81 a été désastreuse au plan de l'observation, plusieurs des soirées prévues pour les membres ayant dues être annulées. Nous ne pouvons qu'espérer une meilleure année en 82.

GILLES CAISSE, *Secrétaire*

SARNIA CENTRE

The Sarnia Centre was recognized by the National Council on September 26th, 1981. The organization had been known as the Sarnia Astronomy Club and had been operating along the lines of a "centre" for 2 years with its members being "unattached" members of the R.A.S.C. Important milestones this year included the acceptance of the Centre's constitution by the Society's solicitor and the increase of membership to the level of 25.

As the Sarnia Astronomy Club we met 7 times and published 2 journals during 1981. Later as the "Sarnia Centre" we had more activities including 3 more meetings.

Program

- January 30 Film and a discussion of the planets and solar system.
- February 27 Speaker, Zdenko Saroch discussed techniques of photographic astronomy and its application to variable stars.
- March 27 Speaker, Eric Clinton, London Centre.
- April 24 Executive Meeting, status of the Centre.
- May 29 Speaker, Peter Jedicke, London Centre.
- June 26 Executive Meeting, constitution, organization.
- July 16 Field Trip, lunar eclipse, Newton Park, Sarnia.
- October 2 Slides, John Thompson, telescopes.
- October 23 Field trip; Gil Finley, amateur radio reception and pictures of Saturn via Voyager.
- November 27 Films; we viewed and compared films on stars and discussed pulsars, black holes, etc.

Much thanks must go to Mr. Peter Jedicke who was the official liaison officer of the National Council to the Sarnia Astronomy Club. We also thank Eric Clinton (Editor, London Centre), Randy Groundwater (President, Windsor Centre), and Miss Rosemary Freeman (Executive Secretary of the R.A.S.C.) for all their kind assistance to us.

JAMES TOWNSEND, *Secretary*

SASKATOON CENTRE

The year started out mild for this part of the country, but things were heating up rapidly for the Centre. Planning was going on to ready a package for the 1982 G.A. for presentation at the 1981 G.A. in Victoria.

Astronomy Day was celebrated by the Centre by setting up a display at the city's newest mall. There were at least 10 telescopes on hand, along with other equipment and a good many members. A mirror grinding demonstration drew a lot of attention and a good number of inquiries each time a new charge was started. Lots of data on the Society, the Centre and telescopes were handed out.

The 1981 G.A. was attended by about half of the more active members of the Centre. It was a very interesting and informative time, enjoyed by all those who attended. Even with cloudy skies the evening at the D.A.O. was well attended, the ride there being half the fun. The Observatory staff not only accommodated us but seemed to enjoy it as well as we did.

The annual public star night seemed to go over very well again this year. People on holidays from all over Canada and other places seemed to appear – sometimes out-numbering the locals. The questions that are being asked at these affairs make it appear that the general public is showing more interest in astronomy and has a much better general knowledge of the topic now than in the past few years. By planning this event for two consecutive nights, we always seem to get at least one good viewing session.

With the approach of fall and the annual outing for the meteor shower, once again the committees for the '82 G.A. got into full swing. The turnout for the meteor count on a week-night was good as at least 2/3 of the active observers were out for some of the time.

The ongoing planning and activities in the Centre is not only for the 1982 G.A. but also for the construction of a 16-inch telescope for the Centre to replace the C8 now installed at the darksite.

We hope to see you all in SASKATOON at G.A. '82!

LILLIA WILCOX, *Secretary*

TORONTO CENTRE

The year ended 30 September 1981 was one of great activity and accomplishments for the Toronto Centre. Among other things, the Centre was instrumental in reviving the weekly astronomy column in the *Toronto Star*. With her column in the *Saturday Star* of 19 January 1981, Dr. Helen Hogg learned that there were no plans to continue the column. Letters from members of the RASC, and of the Toronto Centre in particular, led to the restoration of the astronomy column with Terence Dickinson, a Life Member of this Centre, as the writer, starting on 12 September 1981.

Many members observed the partial lunar eclipse in July, and the spectacular meteor showers of this year's Perseids. The Centre was well represented at the 1981 General Assembly of the Society at Victoria, B.C. Of the twelve members who attended, four (Brian Beattie, Ralph Chou, Thomas Clarke and Ian McGregor) presented papers, and Cathy Drake won a display award for her exhibit of sunsets photographed with a pinhole camera. Past President Harlan Creighton was presented with the Service Award Medal.

The Programme Committee under Dr. Seaquist, and since June, Dr. Bolton, organised 8 lectures and a film night. A wide range of topics was presented, including the history of astronomy and space exploration, new developments in space technology (Canada's space arm) and exploration (Voyager I), solar system research, black holes and extraterrestrial life. Distinguished visitors who lectured to the Centre this year were Dr. Ian Halliday, President of the RASC (Canadian meteor research), Professor Stillman Drake (Galileo and Neptune), Dr. Joseph Veverka (Voyager I) and the late Dr. Paul Herget (Early Astronauts). In September over 100 members attended the annual Open House at the David Dunlap Observatory. The Centre is most grateful to Dr. Fernie, and the staff and students of the Observatory, for their hospitality.

Thanks are also due Debbie Tonge and Paul Gunter who have arranged for refreshments following our meetings.

As announced in the September-October issue of *'Scope*, a new awards programme for the Toronto Centre has been adopted by Council. This will be administered at the Centre level and will be fully in place in the 1982 membership year. It is hoped to make the first awards next year.

Our Archivist, Phil Mozel, has been busy organising the records and equipment of the Centre. He has recently been nominated as Librarian of the Society.

The Optical Workshop is working on the optics for two Centre telescopes. The observatory's 12-1/2 inch mirror is being parabolised and a set of 10 inch optics for the Dobsonian telescope is being restored. Much work has also been done by the Observatory Committee under Ian McGregor and Richard McWatters. Repairs have been made to the telescope, a User Manual is being prepared, and several successful Star Parties have been held. A Director of Observers will be available next year.

The Public Education Committee under Phil Mozel organised 8 Star Nights at local libraries during the summer and fall. To observe Astronomy Day a display was set up at Bayview Village mall, and lectures were given at three libraries and a senior citizens' home.

'Scope's Editor, Randy Attwood, made several changes to its format. A new cover design was introduced with the January-February issue, and typesetting of the text with the March-April issue. We thank typist Terry Wang and typesetter Norah Kiraly for their contributions, as well as the distribution staff (Eric Galt, Bruce Waters, Joel Steinberg, Deirdre DeClara, Moody Kalbfleisch, Frank Gato, Nonna Russ, Alia Al-Sharif, Robin Kingsburgh, Peter Jones, Paul Graham and Carole Giangrande). We are also grateful to Tony Lopes for allowing the Centre to use his office for mailing of *'Scope*.

Astronomy Toronto, the Centre's cable television show, was produced at the East York facilities of Rogers Cable Television. Eight shows were hosted by Randy Attwood, and featured Dr. Helen Hogg, Ian McGregor, Paul Deans, Douglas Gies, and Chris Browning of Spar Aerospace. A live phone-in show and a tour of the David Dunlap Observatory were also presented. The production crew included Deirdre DeClara, Paul Graham, Peter Jones, Phil Mozel and Debbie Tonge.

The Solar Eclipse Expedition Committee reports there are 32 prospective participants on its mailing list. Many signed up following a special open meeting of the Committee in April, and others responded to an article in the *National Newsletter*. Details on the itinerary and costs will be announced very shortly.

After a slow start caused by Membership Secretary Rodney Nicholson's accident last January, the Membership Committee's campaign to improve membership services and welcome new members was a great success. The mailing of renewal invoices and follow-up telephone calls resulted in posting of 559 regular, 79 youth and 65 life members (703 total) by the end of June. This is an increase of 11% over the 1979-1980 membership of 638. There were also 27 associate members. Plans for 1981-1982 call for establishment of a permanent membership record system and further improvements in services. Rodney and his helpers, especially Nonna Russ, are to be congratulated on their achievements.

As in previous years, we have seen a number of changes in Council. Dr. Ernest Seaquist, our Second Vice-President, began a year's sabbatical leave in June and consequently resigned his position. Career commitments also forced Treasurer Richard DaCosta and Councillors Carole Giangrande and John Perkins to step down. We extend our thanks and appreciation to these members of Council for their valuable contributions to the Centre, and welcome to Council Dr. Tom Bolton of the Department of Astronomy, University of Toronto, who succeeds Dr. Seaquist, and Rick Francis, who replaces Carole Giangrande.

Finally, I thank our President, Ian McGregor, for his excellent leadership in the past year, and look forward to an exciting and successful programme in 1982.

B. RALPH CHOU, *Secretary*

VANCOUVER

The Vancouver Centre celebrated its Golden Anniversary on November 10, 1981 (exact date), with a party at the Gordon Southam Observatory, attended by many former presidents. For our 50th anniversary project, the observatory site on the property of member Art Holmes, in Langley, has been prepared and a small clubhouse set up.

The Centre continued to use the facilities of the Vancouver Museum for meetings, and through the courtesy of David Hurd, Director of the H.R. MacMillan Planetarium, members were able to attend special presentations of each Planetarium show. Thanks also go to David Dodge, director of the Gordon Southam Observatory, for the continued use of the lecture room for council meetings, coffee hour, and of the observatory for members' observing nights.

During the civic workers' dispute, which interrupted communications and denied access to files etc., meetings were held in Hennings 201 at the University of British Columbia, and council meetings in members' homes.

In all, ten general meetings and twelve council meetings were held in 1981, plus the annual dinner meeting and a special meeting to welcome Dr. Ian Halliday, National President.

Programs for 1981 were as follows:

- January 13 Craig McCaw, "Kobau to Chile with a Cold Camera." Planetarium show, "Astrology - Science or Magic."
- February 10 Dr. P. Gregory, "Radio Astronomy - an extraordinary new X-ray source." Slides by B. Chiu and Chandra Madhosingh.
- March 10 Alan Hildebrand, "Space Shuttle and the Future."
- March 21 Annual Dinner - Jack Newton of Victoria.
- April 14 Worksite update. Slides by K. Miller, B. Chiu, "Candid Camera," Kathy Stoddard. Planning for Astronomy Day.
- May 12 Ken Hewitt-White and Jim Bernath, "Space Shuttle Launching."
- June 9 Report on "Riverside '81" by Tom Tothill and Roman Stoiber.
- September 8 Report on summer activities. Ken Hewitt-White - "Perseid Meteors." The gift of an antique Dollond refractor telescope to the Planetarium by Basil Chiu.
- October 13 Planetarium Show, "Edge of the Universe."
- November 10 Reminiscences by several former presidents. Golden Anniversary party, with birthday cake by Joanne Dodge.
- November 25 Dr. Ian Halliday, National President, "Canadian Contributions to Meteor Research".
- December 8 Alan Hildebrand, "Possibilities for Mineral Research in the Asteroids". Tom Tothill - presidential address; Elections for Council.

S.R. BAKER, *Secretary*

VICTORIA CENTRE

The year 1981 was a particularly exciting and rewarding one for our Centre in a number of respects. Foremost to most of us perhaps was the hosting of our first-ever General Assembly at the University of Victoria, June 26-29. This occasion brought us together with members from most Centres from coast-to-coast and from "south of the border": 154 registrants plus members of their families swelled the attendance at some of the weekend's events to close to 200 people. The highlights of this gathering are probably as numerous and as individual as those in attendance, but we at Victoria were left with the satisfaction that our long preparations were more than repaid by the enthusiasm that the delegates brought with them.

Another landmark this year was the incorporation of the Centre under the B.C. Society's Act on September 22nd; the efforts of Robert Bryden in bringing this to fruition are noted with thanks. Our major construction project, a 50 cm mobile trailer-mounted telescope, came close

to completion thanks to Leo van der Byl's guiding hand on the optics and many of the mechanical parts.

Star parties were held May 9 and 24, the latter being rained out. As part of "Recreation Discovery Week", an RASC display was held at Mayfair Mall on September 26. George Ball and Philip Teece directed the Friday evening public observing sessions with the UVIC telescope. This year's Victoria Centre Book Prize was awarded to graduating UVIC student Geoff Fraser. An election was held at the Annual Meeting in October to approve incorporation under the new constitution, and for a representative and alternate representative to National Council; all other council positions were filled by acclamation. The council met eight times during the year, and there were ten general meetings as follows:

- January 14 "Dennison Olmstead and Ebenezer Mason: Forgotten Astronomers of the Nineteenth Century" – Philip Teece.
- February 11 "The Canada-France-Hawaii Telescope" – Murray Fletcher.
- March 11 "Voyager's view of Saturn" – Jack Newton and Leo van der Byl.
- April 8 Members' Night, with contributions by Leo van der Byl, Jack Newton, and George Ball.
- May 13 "New Ideas on How Binary Stars Evolve" – Stefan Mochnaki.
- June 10 "Space Shuttle Columbia's Flight" – Brian Whittaker and Bernadette Harris, and "The Tucson AAVSO Meeting" – Chris Spratt.
- September 9 Members' Night, with contributions by Leo van der Byl, Philip Teece, Phyllis Belfield, George Ball, Colin Scarfe, Roger Napier and Jack Newton.
- October 14 Annual General Meeting and dinner (at Holyrood House Restaurant): "Eclipse Over Siberia" – Jack Newton.
- November 4 "Moon Rocks" – Paul Paquin.
- December 9 "Facts and Fallacies of Mirror Testing" – Leo van der Byl.

CHRIS AIKMAN, *Secretary*

WINDSOR CENTRE

The Windsor Centre held eight regular meetings at St. Clair College and one regular meeting at the Windsor Public Library. Four Council meetings were held during the year. Field trips to Wheatly Provincial Park were undertaken in July and August as part of our summer observing program. A brief resumé of the regular monthly meetings follows:

- January 27 Our President had the honour of presenting an award for outstanding service to Dan Bawtenheimer on behalf of the Windsor Centre. Dan was deeply moved and thanked the membership for the award. Immediately after the presentation, a film, entitled "The Universe", narrated by William Shatner, was screened. This excellent NASA production was well worth seeing. The main presentation was a slide show presented by David Hamilton and Randy Groundwater. The slides were taken from the Windsor Centre's excellent NASA slide collection. These slides consisted of outstanding photographs of Jupiter, the Jovian moons, Venus and deep sky objects.
- February 17 David Hamilton presented a slide show of photographs taken "piggy-back" on his Celestron-8 telescope. The slides consisted of various deep-sky objects and some planetary shots. A brief explanation was given as to how each photo was taken. Our treasurer, Cyril Hallam, presented a History of the Windsor Centre from its early beginnings to the present. His slide show was very impressive, displaying old photographs and newspaper clippings covering the period from the 1930's to the present. I have never seen a presentation so well organized and so thoroughly researched as Cyril's History of the Windsor Centre.
- March 17 Dan Bawtenheimer delivered a historical talk that proved complimentary to

- Cyril Hallam's "History of the Windsor Centre", which was presented at our February meeting. Dan talked about his old observatory and the ten-inch telescope he operated during the late 1940's and early 1950's. At the end of his talk, Dan presented the original mirror and cell to our Centre. He felt that a possible restoration project may be taken up by some of our members.
- April 21 Brian Perry delivered a fascinating presentation on the "Space Shuttle". Brian's display consisted of an enormous Lunar Module, as well as several models of the space shuttle. His excellent lecture was enhanced by a superb collection of photographs and several of his outstanding drawings. The audience was completely captivated by Brian's informative and lively presentation.
- May 19 Perry Remaklus of Willmann Bell Inc. of Dundee, Michigan gave a talk on telescope making. Mr. Remaklus has won several awards at the amateur telescope-making competition in Vermont (Stellefane). After covering the history of telescope making, he proceeded to explain in great detail the construction of a telescope. To enhance his presentation, Mr. Remaklus displayed some of the materials needed to make a telescope.
- June 16 Lynn Staffin brought in a five-minute video-tape of a regular Astronomical program shown on one of the Florida networks. This five minute program, hosted by Jack Horkheimer deals with 'objects in the night sky'. The main presentation entitled 'A select list of telescopic objects in the summer sky' was given by our President. Randy's very practical discussion centred on the most interesting objects in the summer sky.
- September 22 Our director of Observing, Steven Mastellotto, has left the Windsor Centre in order to pursue a degree in Astronomy from the University of Western Ontario. Steve Pellarin delivered the educational talk which dealt with the vernal and autumnal equinoxes. Lynn Staffin commented on a letter he found in the Wall Street Journal, which dealt with Carl Sagan's *Cosmos*. Lynn found himself in agreement with this letter's criticism of Dr. Carl Sagan's views on science and the cosmos. Lynn stirred up quite a lively discussion on this very controversial topic. The President suggested that a debate might be organized in order to deal with these conflicting views. The main feature was given by our President, which dealt with the Schmidt-Cassegrain Telescope.
- October 20 The meeting opened with the fourth episode of Carl Sagan's *Cosmos*, "Heaven and Hell". A lively discussion between Lynn Staffin and Brian Perry followed this episode of *Cosmos*. The audience participation was impressively energetic.
- November 17 The meeting began with the nomination and election of officers for 1982. Dr. Arnold Harpaz, a visiting professor to the University of Windsor from Tel Aviv University, discussed "Basic elements of Astrophysics". The presentation centred around Dr. Harpaz's interests in Stellar Evolution.

LORISON A. DUROCHER, *Secretary*

WINNIPEG CENTRE

There were many notable highlights during the 1980-81 season for the RASC Winnipeg Centre. These ranged from public star nights to personal milestones for its members.

A new Honorary President was found in Mrs. Isabel Auld, Chancellor of the University of Manitoba. On October 19, 1980, there was an invited Winnipeg Centre display at the 50th Anniversary celebration of Bristol Aerospace in Winnipeg. November saw Mr. and Mrs. Roy Belfield move from Winnipeg to Victoria. Both Roy and Phyllis contributed a great deal to the Winnipeg Centre, and it was with regret that we wished them well in their transplantation to the

coast. In December, Mr. R. Storch donated his 75mm telescope to the Centre, along with many books and magazines for our library. A new typewriter was purchased for *Winnicentrics*. In February 1981, ten Winnipeg members took part in an instruction course in the use of the C-14 at Glenlea Observatory. In April, CKY-TV filmed an astronomy segment for a pilot TV show at our observatory. We made the news in May when an article on light pollution was featured in the *Winnipeg Sun*. Astronomy Day, May 9th, found the Winnipeg Centre as active as usual with displays and public demonstrations. However, torrential rains were soon determined to be causing extensive damage to the Observatory, leading to the request to National Council in June for some emergency funding for repairs. The Simon Newcomb Award was won by Mr. Chris Rutkowski, for his research on "Lunar Transient Phenomena." There were summer meetings in July and August at the Observatory, but these were eclipsed by the major event of the year, MASCON 1981.

MASCON was held at Riding Mountain National Park on August 1, 2, and 3, preceded by a week-long series of public viewing which saw many campers enjoy clear, warm nights under the stars with Centre members. MASCON itself, however, was not as well-attended as had been expected. Those who did attend were treated to talks and demonstrations by Dr. Ian Halliday, Dr. Martin Clutton-Brock, Mr. David Levy, Mr. Damien Lemay, Mr. Chris Rutkowski, Mr. Richard Hill and Mr. Jim Gould. There were also awards for the best telescope, door prizes, lots and lots of good food, but most of all, the good times found by making friends and meeting people with a common interest.

All in all, it was another busy and enjoyable year for the Winnipeg Centre.

C. RUTKOWSKI, *Secretary*

- October 10 The Annual General Meeting of the Winnipeg Centre, and the election of
1980 Officers and Councillors. Also, a discussion of telescope building by Bill Peters.
- November 14 Major Richard Hill from Canadian Forces Air Command Headquarters in
Winnipeg gave an illustrated lecture on Optical Satellite Tracking.
- December 12 Dr. John Scatliff, a veteran of many RASC eclipse expeditions, spoke on the
role of the Amateur Astronomer in modern Astronomy.
- January 9 Greg Bailey spoke on what Stonehenge can tell us about its builders. Also,
1981 Chris Rutkowski discussed his research of Manitoba archeo-astronomical sites.
- February 13 Ian Cameron presented a special planetarium program, "Hamlet's Mill", at
the Lockhart Planetarium, University of Manitoba.
- March 13 Chris Rutkowski gave an illustrated lecture, "Lunar Transient Phenomena",
discussing apparent activity on the moon.
- April 10 A vote on Centre By-Law changes was made. This was followed by the
audio/slide shows, "Cosmoose", "The Jupiter Close-Ups", and "The Saturn
Close-Ups".
- May 8 Courtesy of Bill Peters, a film, "An Arm in Space", was shown. This was
followed by two videotapes: the Space Shuttle Launch and "Eclipse
Manitoba '79" by Roger Tuthill.
- June 12 Greg Bailey, the Nominating Committee Chairman, reported on the
upcoming election in October. Then, "Voyager's Encounter with Jupiter",
narrated by Terence Dickinson (on tape). This was followed by a discussion
of the Gas-Hypersensitization of photographic film.
- September 11 Greg Bailey gave a talk on the observation of variable stars. Also, results of
testing the new XP-1 photographic film were presented.

LATE NOTE: The Centre records, with regret, the passing on May 12, 1981 of Mr. W. Lloyd Bunting, P. Eng. Born in Swan River, Manitoba in 1906, he served as the first town engineer in Flin Flon, before working for Ducks Unlimited and for the Manitoba Government. A member of Winnipeg Centre from about 1970, he surveyed the site for Glenlea Observatory and was instrumental in solving many of the technical problems connected with the project.

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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.

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1907 – *R.M. Motherwell	1937 – D.A. MacRae	1967 – R.H. Chambers
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1914 – G.S. Campbell	1960 – C.R. Purton	1976 – Chris Rogers
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1933 – K.O. Wright	1965 – A.F.J. Moffat	1981 – T.C. Box

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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)
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1948 – Isabel K. Williamson (Montreal)	1979 – Rolf G. Meier (Ottawa)
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1950 – *F. Keith Dalton (Toronto)	
1951 – DeLisle Garneau (Centre d'Astronomie de Montréal)	

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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.

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- | | |
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REVENUE										
Membership	\$1,428.00	\$2,453.20	\$1,879.50	\$1,482.49	\$539.50			\$ 1,289.00		\$ 895.00
Life Member Grants	89.60	—	—	19.20	25.60			102.40		12.80
Donations	—	124.75	—	677.58	4.54			43.00		120.00
Educational Activities	—	—	—	1,010.95	—			—		—
Interest & Dividends	712.43	852.14	53.54	124.22	1.53			—		3.11
Sales of Handbooks (Net)	—	—	153.61	37.00	2.40			3,515.30		26.00
Advertising	30.00	—	—	150.00	—			—		—
General Assembly (incl. Travel Grants)	—	—	252.00	190.00	—			—		192.50
Miscellaneous	—	79.93	76.36	206.85	34.95			—		89.87
Total Revenue	2,260.03	3,510.02	2,565.01	3,748.29	608.52			4,949.70		1,339.29
EXPENDITURES										
Fees remitted to N.O.	664.20	1,168.20	1,508.60	699.40	327.30			613.20		446.40
Library	—	—	86.07	55.00	—			278.30		—
Meetings & Newsletters	239.28	300.00	520.40	656.17	78.66			250.52		348.15
Annual Dinner (Net)	53.00	128.68	2.65	—	30.00			—		Gain (109.12)
General Assembly (incl. Travel Grants)	—	—	477.00	190.00	—			313.00		192.50
Equipment & Supplies	—	—	20.67	690.42	18.78			73.17		84.42
Office Administration	—	193.81	105.42	176.30	—			190.50		14.40
General Expenses & Audit	—	—	16.60	41.06	—			298.96		—
Educational Activities	35.92	181.29	—	620.00	—			—		—
Insurance	—	—	—	158.00	—			535.00		—
Awards & Donations	—	49.70	95.46	46.86	2.86			—		35.00
Operating Expenses - Observatory	—	4,378.33	—	784.82	—			1,403.08		—
Miscellaneous	35.00	54.92	91.39	—	36.60			68.63		.50
Total Expenditures	1,027.40	6,454.93	2,924.26	4,118.03	494.20			4,024.36		1,121.37
Surplus or (Deficit) on Operations	1,232.63	(2,944.91)	(359.25)	(369.74)	114.32			925.34		327.03
Balance from 1980	5,671.26	8,515.96	955.41	2,392.16	94.03			2,519.83		524.68
Balance to 1982	6,903.89	5,570.95	636.16	2,022.42	208.35			3,445.17		851.71
Other Assets				\$23,008.43				\$34,800.00		

NOT REPORTED ON TIME

NOT REPORTED ON TIME

TREASURERS REPORTS

	Ottawa	Quebec	St. John's	Saskatoon	Toronto	Vancouver	Victoria	Windsor	Winnipeg
REVENUE									
Membership	3,812.00	\$2,166.00		\$ 820.00	\$9,740.00	\$2,016.00	\$1,052.50	\$ 544.40	\$1,535.00
Life Member Grants	198.40	19.20		19.20	371.20	96.00	134.40	—	12.80
Donations	1,025.00	100.00		443.37	—	399.44	70.00	—	517.00
Educational Activities	227.00	500.00		21.00	—	—	—	—	1,025.01
Interest & Dividends	538.19	721.00		—	1,057.83	755.34	2,778.43	—	24.00
Sales of Handbooks (Net)	339.00	—		—	55.00	18.00	(46.50)	20.00	—
Advertising	—	—		—	981.25	230.00	—	—	—
General Assembly (incl. Travel Grants)	—	—		—	174.17	—	11,291.51	—	—
Miscellaneous	881.50	1,416.80		248.00	—	—	84.50	56.65	—
Total Revenue	7,021.09	4,923.00		1,551.57	12,379.45	3,514.86	15,364.84	621.05	3,113.81
EXPENDITURES									
Fees remitted to N.O.	2,264.00	930.00		511.20	5,902.00	1,191.20	870.30	355.20	585.60
Library	—	716.00		—	—	—	45.34	50.57	—
Meetings & Newsletters	777.18	—		188.51	2,797.77	1,282.06	514.07	132.64	605.10
Annual Dinner (Net)	1,049.25	—		—	—	62.00	—	—	—
General Assembly (incl. Travel Grants)	—	—		—	100.00	—	10,314.69	—	—
Equipment & Supplies	—	1,449.00		—	—	94.96	20.00	73.62	—
Office Administration	221.50	—		188.18	1,306.85	—	25.00	—	—
General Expenses & Audit	—	425.00		41.06	125.00	—	—	—	—
Educational Activities	298.14	75.00		165.00	58.00	—	—	—	2,008.19
Insurance	—	—		—	165.00	—	—	—	—
Awards & Donations	—	—		—	190.88	—	105.00	—	—
Operating Expenses - Observatory	832.13	—		16.50	309.12	1,930.95	—	—	—
Miscellaneous	88.64	734.00		—	—	185.90	6,100.06	74.47	—
Total Expenditures	5,530.84	4,329.00		1,110.45	10,954.62	4,747.07	17,994.40	686.50	3,198.89
Surplus or (Deficit) on Operations	1,490.25	594.00		441.12	1,424.83	(1,232.21)	(2,629.56)	(65.45)	(85.08)
Balance from 1980		1,317.00			17,626.70	6,864.71	21,671.28	412.60	668.86
Balance to 1982		1,911.00			19,052.53	5,632.50	19,041.72	347.15	583.78
Other Assets									107.75

NOT REPORTED ON TIME

A U D I T O R ' S R E P O R T

To the Members of
The Royal Astronomical Society of Canada

I have examined the balance sheet of The Royal Astronomical Society of Canada as at December 31, 1981 and the statements of income and expenditure and deficit for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances, except as noted in the following paragraph.

Sales of the Society's publications and payments of membership fees by individual members are by their nature not susceptible to verification by normal audit procedure. My verification of receipts from these sources was limited to a comparison of recorded receipts with bank deposits.

In my opinion, except for the effect of any adjustments which might have been required had I been able to completely verify publication sales and membership fees, the accompanying financial statements present fairly the financial position of the Society as at December 31, 1981 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.

Morris Altman

Chartered Accountant.

Toronto, Canada,
April 16, 1982.

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

BALANCE SHEET

DECEMBER 31, 1981

(With comparative figures as at December 31, 1980)

	<u>1981</u>	<u>1980</u>
<u>A S S E T S</u>		
Current Assets		
Cash and short-term deposits	\$ 44,824	\$ 16,137
Accounts receivable	23,728	33,497
Loans to R.A.S.C. Centres	1,000	1,000
Prepaid expenses	<u>739</u>	<u>245</u>
	\$ 70,291	\$ 50,879
Investments		
Marketable securities, at cost (Market value: 1981 - \$1,920; 1980 - \$2,224)	3,019	<u>\$ 3,019</u>
Special Purpose Funds (Schedule "C")		
Cash and short-term deposits (including accrued interest)	\$211,385	\$165,624
Marketable securities, at cost (Market value: 1981 - \$60,565; 1980 - \$70,143)	67,373	67,372
Deposits	<u>1,158</u>	<u>1,158</u>
	279,916	<u>\$234,154</u>
Office Furniture, Equipment and Library (nominal value)	<u>1</u>	<u>\$ 1</u>
	<u>\$353,227</u>	<u>\$288,053</u>
<u>LIABILITIES AND DEFICIT</u>		
Current Liabilities		
Accounts payable and accrued charges	\$ 12,792	\$ 11,142
Deferred revenue		
- Membership fees for ensuing year	14,536	10,916
- Journal and Handbook subscriptions	51,103	43,149
- Unappropriated life membership fees (Schedule "A")	<u>21,037</u>	<u>16,288</u>
	\$ 99,468	\$ 81,495
Special Purpose Funds	279,916	\$234,154
TOTAL LIABILITIES	<u>\$379,384</u>	<u>\$315,649</u>
Accumulated Deficit (per statement)	<u>(26,157)</u>	<u>(27,596)</u>
	<u>\$353,227</u>	<u>\$288,053</u>

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

STATEMENT OF INCOME AND EXPENDITURE

FOR YEAR ENDED DECEMBER 31, 1981

(With comparative figures for 1980)

<u>I N C O M E</u>	<u>1981</u>	<u>1980</u>
Membership Fees		
R.A.S.C. Centres	\$ 18,106	\$ 16,732
Individual members	9,297	8,696
Life membership - annual appropriation	<u>1,651</u>	<u>1,331</u>
	\$ 29,054	\$ 26,759
Grants and Donations		
Government of Canada - annual grant	\$ 8,000	\$ 7,000
Province of Ontario - annual grant	1,600	1,500
Miscellaneous donations	<u>810</u>	<u>85</u>
	10,410	\$ 8,585
Publications		
R.A.S.C. Journal - Subscriptions	\$ 14,928	\$ 11,403
- Reprints	1,850	2,639
- Publishing revenue	4,513	6,470
Observer's Handbook	<u>55,860</u>	<u>40,516</u>
	77,151	\$ 61,028
Miscellaneous Income		
Interest on investments	\$ 1,728	\$ 452
Insignia sales	<u>351</u>	<u>220</u>
	2,079	\$ 672
TOTAL INCOME	<u>\$118,694</u>	<u>\$ 97,044</u>
<u>E X P E N D I T U R E</u>		
Publications (Schedule "B")	\$ 80,449	\$ 73,523
Office salaries and employee benefits	20,715	20,018
Stationery, printing, and supplies	2,025	1,554
Office equipment purchases	1,238	3,776
Postage and shipping expense	3,261	3,216
General and office expenses	2,594	1,497
Life membership allotment to Centres	1,792	1,286
General assembly and travel expenses	2,068	1,865
Advertising and publicity	-	347
Telephone	469	441
Insurance	273	321
Library expense	1,363	486
Insignia, medals and awards	833	698
Bad debts written off (recovered)	<u>175</u>	<u>(269)</u>
	117,255	\$108,759
<u>EXCESS OF INCOME OVER EXPENDITURE (EXPENDITURE OVER INCOME)</u>	<u>\$ 1,439</u>	<u>(\$11,715)</u>

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

STATEMENT OF OPERATING DEFICIT

DECEMBER 31, 1981

(With comparative figures for 1980)

	1981	1980
Deficit at beginning of the year	\$ 27,596	\$ 15,881
Excess of income over expenditure (expenditure over income) for the year, per statement	1,439	(11,715)
Accumulated deficit at end of the year	\$ 26,157	\$ 27,596

SCHEDULE "A"

UNAPPROPRIATED LIFE MEMBERSHIP FEES

Balance at beginning of the year	\$ 16,288	\$ 14,819
Add: Life membership fees received in the year	6,400	2,800
	\$ 22,688	\$ 17,619
Deduct: Appropriation to operating income	1,651	1,331
Balance at end of the year	\$ 21,037	\$ 16,288

SCHEDULE "B"

PUBLICATION COSTS

R.A.S.C. Journal

Printing of Journal	\$ 39,233	\$ 36,149
Printing of National Newsletter	8,751	9,365
Editorial assistance	500	500
Distribution costs	3,944	3,026
Reprints	1,630	2,539
	\$ 54,058	\$ 51,579

Observer's Handbook

Printing	\$ 23,654	\$ 20,600
Editorial assistance	-	635
Distribution costs	1,722	467
Advertising	1,015	242
	26,391	\$ 21,944
	\$ 80,449	\$ 73,523

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

SCHEDULE "C"

ANALYSIS OF SPECIAL FUNDS

DECEMBER 31, 1981

(With comparative figures for 1980)

<u>BUILDING FUND</u>	<u>1981</u>	<u>1980</u>
Balance at beginning of the year	\$164,128	\$158,170
Add: Interest earned on investments	\$ 17,858	\$ 14,276
Dividends received	<u>1,363</u>	<u>1,306</u>
	19,221	\$ 15,582
	<u>\$183,349</u>	<u>\$173,752</u>
Deduct: Rent for Society's office	\$ 9,495	\$ 8,884
Discount on bonds redeemed	<u>-</u>	<u>740</u>
	9,495	\$ 9,624
Balance at end of the year	<u>\$173,854</u>	<u>\$164,128</u>
 <u>SPECIAL PROJECTS FUND</u>		
Balance at beginning of the year	\$ 41,875	\$ 39,595
Add: Gift received during the year (NOTE 2)	\$ 30,000	-
Interest earned on investments	<u>3,548</u>	<u>3,480</u>
	33,548	-
	\$ 75,423	\$ 43,075
Deduct: Grants to Centres	<u>-</u>	<u>1,200</u>
Balance at end of the year	<u>\$ 75,423</u>	<u>\$ 41,875</u>
 <u>RUTH NORTHCOTT MEMORIAL FUND</u>		
Balance at beginning of the year	\$ 16,746	\$ 15,577
Add: Interest earned on investments	<u>1,996</u>	<u>1,665</u>
	\$ 18,742	\$ 17,242
Deduct: Appropriation for designated purposes	<u>500</u>	<u>496</u>
Balance at end of the year	<u>\$ 18,242</u>	<u>\$ 16,746</u>

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

ANALYSIS OF SPECIAL PURPOSE FUNDS
(Continued)

	1981	1980
<u>EDWARD R. PATERSON BEQUEST</u>		
Balance at beginning of the year	\$ 11,405	\$ 10,695
Add: Interest earned on investments	992	969
	\$ 12,397	\$ 11,664
Deduct: Grants to Centres	-	259
Balance at end of the year	\$ 12,397	\$ 11,405

COMPOSITION OF SPECIAL PURPOSE FUNDS

AS AT DECEMBER 31, 1981

	BUILDING FUND	SPECIAL PROJECTS FUND	RUTH NORTHCOTT FUND	EDWARD R. PATERSON BEQUEST	TOTAL
Cash	\$ 11,456	\$ 8,844	\$ 4,706	\$ 1,961	\$ 26,967
Term deposits	94,000	65,000	9,000	10,000	178,000
Securities (at cost)	63,373	-	4,000	-	67,373
Accrued interest	3,867	1,579	536	436	6,418
Rent deposit	1,158	-	-	-	1,158
	\$173,854	\$ 75,423	\$ 18,242	\$ 12,397	\$279,916
Market value of securities	\$ 58,057	-	\$ 2,508	-	\$ 60,565

THE FINANCIAL STATEMENTS ARE APPROVED
ON BEHALF OF THE COUNCIL OF THE SOCIETY

Jan Halliday President

Chris Zales Treasurer

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 1981

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 deferred balance is applied to operating income each year.

(b) Publications:

Subscriptions to the R.A.S.C. Journal are credited to income for the subscription period. Advance sales of the Observer's Handbook, which comes off the press towards the end of the year for use in the ensuing year, are treated as deferred revenue. The cost of printing the Handbook is recorded as an expenditure in the year for which the Handbook is published.

(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. Purchases of any of these items are included in expenditure for the year.

2. Member's Gift

In December 1981, the Society received from one of its members a gift of \$30,000 with the provision that the money be used for purposes designated by Council. Since Council had not had time to deal with the matter before the year-end, the Executive Committee has directed that the gift be tentatively added to the Special Projects Fund pending appropriate disposition by Council.

3. Lease Obligation

The Society leases its office premises under an agreement expiring in June, 1983, at an annual rental of \$9,480 plus a proportionate share of certain operating costs and increases in realty taxes.

4. Comparative Figures

The comparative figures for 1980 have been reclassified where necessary to conform to the presentation adopted in the current year.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

NATIONAL OFFICERS AND COUNCIL FOR 1982

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

President — Ian Halliday, Ph.D., F.R.S.C., Ottawa

1st Vice-President — Franklin Loehde, B.Sc., B.Ed., Edmonton

2nd Vice-President — Roy L. Bishop, Ph.D., Halifax

Secretary — R. Peter Broughton, M.Sc., A.R.C.T., 124 Merton Street, Toronto M4S 2Z2

Treasurer — Mrs. Marie Fidler, 124 Merton Street, Toronto M4S 2Z2

Recorder — Harlan Creighton, B.Sc., Toronto

Librarian — Frederic L. Troyer, Toronto

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, 124 Merton Street, Toronto M4S 2Z2

Council — Past Presidents — Alan H. Batten, D.Sc., Ph.D., F.R.S.C., Victoria

John R. Percy, Ph.D., Toronto

Representatives from Centres —

Calgary: S. Morris	Centre d'Astronomie:	Toronto: Dr. K. Clute
Edmonton: T. Cadien	P. Mailloux	J. Cobban
Halifax: Ms. C. Chiasson	Niagara: Charles Fassel	Nonna Russ
Hamilton: J. Hudak	Ottawa: K.F. Tapping	Dr. B.R. Chou
Kingston: Leo Enright	R.G. Meier	Vancouver: D. Dodge
Kit.-Waterloo: Ms. E. Jylanne	Québec: D. Lemay	Victoria: J. Newton
London: T. Glinos	St. John's: G. Dymond	Windsor: J. Meredith
Montreal: Mrs. E.R. Pride	Saskatoon: D. Miller	Winnipeg: G. Bailey
	Sarnia: J. Thompson	

CENTRE SECRETARIES FOR 1982

CALGARY	Dr. D.J. Fry, Physics Dept., Univ. of Calgary, 2500 University Dr. N.W., Calgary T2N 1N4
EDMONTON	Yni Ebbers, 5526-145A Avenue, Edmonton T5A 2F1
HALIFAX	R. Brooks, 71 Woodlawn Rd., Dartmouth B2W 2S2
HAMILTON	J. Hudak, P.O. Box 1223, Waterdown L0R 2H0
KINGSTON	G. Schieven, Box 141, Station A, Kingston K7M 6R1
KIT.-WATERLOO	Ms. E. Jylanne, 17 Gail Street, Cambridge N1R 4M1
LONDON	Tom Glinos, 599 Chiddington Place, London N6B 2X3
MONTREAL	D. Chalmers, 1969 Victoria, Longueuil, P.Q. J4J 3E1
CENTRE D'ASTRONOMIE	P. Mailloux, Casier postal 206, Station St-Michel, Montreal, P.Q. H2A 3L9
NIAGARA	W. Jutting, 138 South Drive, St. Catharines L2R 4W2
OTTAWA	C.R. Molson, 2029 Garfield Avenue, Ottawa K2C 0N7
QUEBEC	Gilles Caisse, 4589 L, rue De la Futaie, Cap Rouge G0A 1K0
ST. JOHN'S	Peter Clarke, 86 Topsail Road, St. John's A1E 2A8
SASKATOON	Lillia Wilcox, 2527 Clarence Ave. So., Saskatoon S7J 1M3
SARNIA	J. Townsend, B.A., B.Ed., Box 1144, Corunna, Ontario N0N 1G0
TORONTO	Dr. B. Ralph Chou, 1 Wilket Road, Willowdale M2L 1N5
VANCOUVER	S. Baker, 2063 West 61st Ave., Vancouver V6P 2C6
VICTORIA	Chris Aikman, D.A.O. 5071 W. Saanich Rd., RR #5, Victoria V8X 3X3
WINDSOR	Lorison Durocher, RR #2, Belle River N0R 1A0
WINNIPEG	D. Sine, 1419-77 University Crescent, Winnipeg R3T 3N8