



Supplement to the **JOURNAL**  
of the **ROYAL ASTRONOMICAL**  
**SOCIETY** of **CANADA**

**ANNUAL REPORT 1977**

**APRIL 1978**

## PRESIDENTS OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

1890-1894	C. Carpmael	1936-1937	R.E. DeLury
1895	L.W. Smith	1938-1939	W. Findlay
1896-1897	J.A. Paterson	1940	J.A. Pearce
1898-1899	A. Harvey	1941-1942	F.S.Hogg
1900-1901	G.E. Lumsden	1943-1944	A.V. Douglas
1902-1903	R.F. Stupart	1945-1946	A.E. Johns
1904-1907	C.A. Chant	1947-1948	J.W. Campbell
1908-1909	W.B. Musson	1949-1950	A. Thomson
1910-1911	A.T. DeLury	1951-1952	C.S. Beals
1912-1913	L.B. Stewart	1953-1954	J.F. Heard
1914-1915	J.S. Plaskett	1955-1957	R.M. Petrie
1916-1917	A.D. Watson	1957-1959	H.S. Hogg
1918-1919	A.F. Miller	1959-1960	A. McKellar
1920-1921	J.R. Collins	1960-1962	P.M. Millman
1922-1923	W.E.W. Jackson	1962-1964	R.J. Northcott
1924-1925	R.M. Stewart	1964-1966	K.O Wright
1926-1927	A.F. Hunter	1966-1968	M.M. Thomson
1928-1929	W.E. Harper	1968-1970	J.E. Kennedy
1930-1931	H.R. Kingston	1970-1972	H. Simard
1932-1933	R.K. Young	1972-1974	J.L. Locke
1934-1935	L. Gilchrist	1974-1976	J.D. Fernie
		1976-1977	A.H. Batten

## 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
1900-1901	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		

## REPORT OF THE PRESIDENT

As I write this, I am nearing the end of my term as your National President and naturally tend to look back over the past two years. One of the aims I set myself was to visit all the Society's Centres and, at the time of writing, I have visited sixteen. I would like to record my appreciation of the hospitality that has been offered to me, and to my wife, when she has been able to accompany me. Often I have been an overnight guest in a member's home and always I have been made to feel very welcome. I have certainly learned a great deal about the Society by visiting so many Centres.

Most of the Centres are very active and are obviously doing much to increase the knowledge and appreciation of astronomy amongst the members of their local communities. It is almost invidious to single out particular Centres for praise but I think that our English-speaking members should be aware of the activity of the Society's two French-language Centres and understand the difficulties they have in working with a National Society that produces the bulk of its publications in English. Your Council has moved to ease the situation by making grants from the Northcott Fund to the Quebec Centre, but perhaps we should consider how we can offer more permanent support for their educational activities.

Notre Société n'est pas seulement une société nationale parce qu'elle a aussi un rôle international. Il est inevitable que les resultats des recherches scientifiques seront publiées, pour la plupart, dans la langue internationale de la science – c'est à dire l'anglais. Dans notre JOURNAL il y a beaucoup des communications que les membres amateurs trouvent difficile comprendre. Cependant, nous pouvons être fier de la contribution de notre société aux recherches astronomiques.

Once again the Society has enjoyed a very successful General Assembly, and our thanks go to the Toronto Centre for all the hard work that they put into the organization. Another good observing contest was held, and our congratulations go to the Saskatoon Centre for their achievements in this contest. A highlight of the meeting was the after-dinner lecture by Terence Dickinson. We also congratulate the three new winners of the Society's Service Award: Mrs. Dora Russell and Drs. Paul Marmet and John Percy.

The Society's Gold Medal was awarded again this year and our congratulations go to Mr. Michael M. de Robertis, who is the recipient. We also congratulate Dominique Voyer of Saguenay who won the Society's prize at the Canada-Wide Science Fair held in Victoria in May 1977.

I am grateful to all National Officers and Councillors who have given me so much support during my term of office. The Society owes a great debt to its Editors, who take on a heavy job for no remuneration, and to its Solicitor and Auditor who perform important services at nominal costs. We greatly regret that our former National Secretary, D.J. Fitzgerald, has felt obliged to resign his position, and offer him our sincere thanks for his many services to the Society. In his place, we welcome an "old hand", the Rev. Norman Green. Finally, I must record my debt to John Percy and Rosemary Freeman to whose personal support and hard work any achievements there may have been during my term of office are largely due.

A.H. Batten

## REPORT OF THE NATIONAL SECRETARY

1977 has been another year of extensive and varied activity by the Society's Centres across Canada as described in the reports which follow.

During the year Council meetings were held in Toronto on January 29th, April 23rd and September 24th; no Executive Committee meetings were called. The Annual Meeting was held in Toronto on June 30th in conjunction with the General Assembly.

Membership in the Society at September 30th, 1977, increased almost 10% , as follows:

	1976	1977
Calgary	78	87
Edmonton	78	89
Halifax	50	66
Hamilton	67	66
Kingston	9	12
London	31	38
Montreal	82	58
La Société d'Ast. de Montréal	62	75
Niagara	23	24
Ottawa	191	213
Québec	92	129
St. John's	11	14
Saskatoon	45	43
Toronto	544	606
Vancouver	155	141
Victoria	83	88
Windsor	46	40
Winnipeg	49	55
Unattached to Centres:		
Canada	189	213
United States	322	366
Overseas	36	41
Honorary	15	15
<b>TOTAL</b>	<b>2258</b>	<b>2479</b>

The Society gratefully acknowledges the receipt of annual grants from the National Research Council of Canada and the Ministry of Colleges and Universities of the Province of Ontario.

The success of our organization in the coming year will again be measured in terms of the individual contributions, large or small as these may be, to our over-all programme. We ask for the continued support of all our members.

D.J. FitzGerald, *National Secretary.*

## CALGARY CENTRE

1977 was a very successful year for the Calgary Centre. Membership increased and we had excellent attendance at our meetings. Nine regular meetings and two special meetings were held during the year. In August, a barbeque and observing night was held at the home of Mrs. Margaret Maltby as a farewell to Ulrich Haasdyk, who was moving to Vernon, B.C., and in September a special meeting was held for our National President's visit to our Centre. Dr. A.H. Batten gave a fascinating talk and his visit was truly appreciated by the members.

Council met nine times to consider the Centre's business and practical workshops were held nine times for members interested in observing and telescope making.

The meetings were:

January	Annual Meeting and election of officers; talk by Dr. R. Roche on "Interstellar Molecules and the Origins of Life".
February	Dr. T.A. Clark and Dr. D.J.I. Fry gave a lecture and demonstration on "Rotational Motion, or It Might As Well be Spin".
March	Mr. Tony Buchner: "Indian Medicine Wheels".
April	Annual Edmonton exchange speakers – Barry Arnold and Anthony Whyte spoke on the new 20" telescope at the University of Alberta and the 8" refractor at the Ellerslie Observatory.
May	Dr. T. Mathews: "Atmospheric Acoustic Sounding".
September	Members' Night: presentation re Science Fair winners.
September	Dr. A.H. Batten's talk and visit to the Centre.
October	Practical observing session at the Rothney Astrophysical Observatory at Priddis.
November	Dr. E.F. Milone: presentation on "Southern Hemisphere Observing".
December	Banquet at the Faculty Club of the University of Calgary; talk by Rev. Dunstan Pasterfield: "My Love Affair . . . With the Heavens".

The Centre suffered a great loss when Marie Litchinsky decided to return to Toronto; all our members wish her the very best in the future.

The Centre wishes to extend its grateful thanks to the City of Calgary and Mr. S. Wieser, Director, for the use of the Centennial Planetarium facilities and also to the University of Calgary for the use of rooms and the Observatory at Priddis.

John A. Findlay, *Secretary*.

## EDMONTON CENTRE

The Edmonton Centre held its regular meetings in the Queen Elizabeth Planetarium during the 1976-77 season. The first meeting was on October 18 at which time the new executive and council were elected. The Centre's Annual Banquet was held in November. Nine regular and five council meetings were held; the speakers and their topics for the regular meetings were as follows:

October	Dr. David Routledge: "Problems of Interstellar Communication."
November	Annual Banquet; Dr. Edward Nyland: "Seismic Exploration of the Moon."
December	John Brent Musgrave: "Unidentified Flying Objects."
January	A BBC film "The Planets" plus a report from the Observers' Group.
February	Dr. Alan Batten, RASC National President: "The Struves of Pulkovo – A Family of Astronomers." (Special meeting).
February	Planetarium presentation: "The Forgotten Worlds." (Regular meeting).
March	Gordon Patterson, exchange speaker from the Saskatoon Centre: "Astrophotography."
April	Dr. Karen Castle, exchange speaker from the Calgary Centre: "Mass Transfer Between Binary Stars."
May	Several members of the Telescope Making Group: reports and displays of telescopes under construction and completed.
June	Barry Arnold: "Figuring the Optics of the University of Alberta 50 cm. Telescope".

This year was a busy one for the Edmonton Centre with star parties in September and April plus a public Star Night in October. The Centre was well represented at the 1977 General Assembly in Toronto and many useful ideas were gained for planning the 1978 General Assembly in Edmonton. Since this report will be published before the G.A., the Edmonton Centre would like to take this opportunity to invite one and all to Edmonton in May.

Anthony J. Whyte, *Secretary*.

## HALIFAX CENTRE

The Halifax Centre continues to expand in both membership and level of activities. For the first time, regular monthly observing/mirror grinding sessions were instituted under the Chairmanship of Michael Edwards. A small but constant and enthusiastic group participated. Special observing meetings were held at the Castle Frederic observatory site, at Mount Uniacke House Museum and at Blomidon Provincial Park where our summer observing/camping weekend proved a great success.

Public education is also a high priority of our Centre. With the Nova Scotia Museum, we sponsored 3 public observing nights, a Saturday morning of activities for school children and, for the second year, we participated in the Museum's Societies Show in May and June. Schools continue to use our Centre's slide set library with an estimated 3000 students viewing one or more of the five different topics which were available.

In 1977, our Centre was fortunate to be visited by Drs. Batten and Percy, who gave interesting and well received presentations. They in turn had their "ears bent" with some of our views relating to the activities of the RASC. Thanks to a grant from National Council, several donations of books and a new librarian, our Centre library has substantially increased in size with a subsequent greater use by Centre members. 5 Centre members attended the General Assembly portraying our interests and activities with several papers and displays. We were particularly pleased to have Dr. Roy Bishop elected to the National Executive Council.

The activity of Halifax members is also in evidence in the pages of the *JOURNAL* and *National Newsletter* where a number of original articles and reprints from *Nova Notes* have appeared. *Nova Notes*, the Centre's newsletter, continues to prosper. The members' support for *Nova Notes* is one of the prime reasons that the Halifax Centre has become so active. The interest thus generated is in part responsible for a 3-fold increase in membership between 1973 and 1978 – is there any other Centre which can boast such a performance?!

- January 21 "Amateur Contributions to Astronomy": Walter Zukauskas.
- February 18 "Interacting and Colliding Galaxies": Dr. David DuPuy.
- March 18 "Propulsion in Space": Dr. C.H. Miller.
- April 29 "Radio Astronomy at St. Mary's": Dr. Wm. Lonc.
- May 20 "Star Gazing 1": Dr. Roy Bishop.
- June 1 "The Struves of Pulkovo": Dr. Alan H. Batten.
- June 17 "Star Gazing 2": Dr. Larry Bogan.
- July 15 "An 18th Century Nova Scotia Observatory": Dr. Roy Bishop.
- September 16 Activities Night.
- October 21 "Teaching Astronomy": Sherman Williams.
- November 23 "Pulsating Stars": Dr. John R. Percy.
- December 16 "Space Shuttle": David MacDonald. Film: "Black Holes of Gravity".

We cannot pass up this final opportunity to say how tickled to death we are at Dr. Bishop's discovery in our "backyard" of what may be the oldest optical observatory in the Americas – Castle Frederic observatory. Having more than 200 years of astronomical history (no other part of Canada can make that claim), we must live up to our heritage and this will spur us on to greater efforts in 1978.

Randall C. Brooks, *Secretary*.

## HAMILTON CENTRE

The Hamilton Centre held 9 regular meetings in 1977, on the first Thursday of each month, at McMaster University as follows:

January	AGM and "Members night".
February	"L5 Society and the Colonization of Space" P. Jedicke.
March	Film night: "Dunlap Observatory" "Communications Satellites" "Crab Nebula"
April	Slides of lunar eclipse – Clive Gibbons – P. Ashenhurst "Infrared Astronomy" Dr. Tim Tumusk
May	Film – "Galileo" "Pulsars" Dr. Peter Sutherland
June	Film – "Apollo II" "Clusters and Galactic Structure" Dr. Bill Harris
October	Telescope Display, slides and slide tape show – "The Universe"
November	"Astrophotography" Jack Newton
December	"A Matter of Gravity" Peter Jedicke

In addition, we were treated to a talk on "Close Binary Systems" by Dr. A.H. Batten on an extremely rainy evening in April.

Of our remaining varied activities, our scheduled "observers nights" were clouded out more often even than usual. The Discussion Group, chaired by Mr. Eric Orr, provided a program of 9 talks of great interest and variety.

The Secretary, Peter Ashenhurst, assisted "The Council of Muslim Communities of Canada" in calculating and producing a Muslim Calendar for 1978.

Michael J. Holmes, *Secretary*.

## KINGSTON CENTRE

Meetings were held every two weeks and during the first part of the year they were mostly devoted to making plans for building our own telescope. Happily, this past year has seen a concentration on increasing membership in the Centre and our increased activity is surely one of the reasons that membership has almost doubled.

There were three separate activities during the summer. These were: a picnic at the Holleford crater, a summer solstice celebration and a Perseid meteor observing session – which was an all-nighter and extremely worthwhile. In addition, we held an Orionid observing session in the fall.

Dr. A.H. Batten, our National President, honoured us with a visit and lecture as did Dr. John R. Percy, 1st Vice-President, and Dr. A.H. Bridle of the Physics Department of Queen's University.

Susan McDougall, *Secretary*.

## LONDON CENTRE

The London Centre held twelve regular meetings at the University of Western Ontario, and twelve Executive meetings. The program for 1977 was as follows:

January 21	"The Dominion Astrophysical and Radio Astrophysical Observatories", Henry Leparskas.
January 28	"The Struves of Pulkova – A Family of Astronomers": National President, Dr. A.H. Batten for "pseudo-banquet" (due to snowstorm, annual banquet postponed).
February 18	"Still Camera Astrophotography": Peter Ashenhurst, Hamilton Centre- London Centre Speaker Exchange Program.
March 4	Annual Meeting and Fifth Annual Banquet, "Nuclear Reactions in Stars": Martin Connors.

- March 18 Annual Dr. H.R. Kingston Memorial Lecture: "The Possibilities of Extraterrestrial Life", Dr. John R. Percy.
- April 15 "The Construction of the 200-inch Hale Telescope": Ronald B. Sawyer.
- May 20 "Deep Sky Astrophotography": Jack Newton, Toronto Centre-London Centre Speaker Exchange.
- June 17 "The Solar Neutrino Problem": Dr. R. Mitalas, UWO Astronomy.
- July 15 Second Annual President's Lecture: "The Schwarzschild Radius – A Topic of Great Gravity": Peter Jedicke.  
"G.A. 77", a film/slide presentation of Toronto General Assembly: Eric Clinton.
- August 19 "Member's Night": Richard McCammon, Walter K. Campney, and Joseph Soltys.
- September 23 "The ABC's of Astro Bio-chemistry": Daniel Heisler.
- October 21 "Space Art", slide presentation courtesy of Dr. K. Dewdney, UWO Comp. Sci.
- November 18 "The Surface of Venus": Dr. Luciano B. Ronca, Wayne State U.
- December 16 "My Summer Vacation": Rob Allen, Hamilton Centre-London Centre Speaker Exchange Program.

In addition to the foregoing, Past President Andreae addressed each of the regular monthly gatherings with a short topic of interest. At the Annual Meeting of the Centre Peter was presented with the London Centre Merit Award, for his work in teaching telescope making and his efforts in furthering the goals of the Centre.

The Centre also held several successful star nights in 1977 and a number of members participated in an excursion to the Strasenburgh Planetarium, Rochester, N.Y. on March 12th. President Peter Jedicke was very active this year with his programs of popularizing and the presentation of astronomy to Londoners through various media. Other members of the Centre were active, mainly in the summer months, with star nights and lectures to the Girl Guides and Boy Scouts of the London Area.

During 1977, "Astronomy London", the newsletter of the Centre, published two hundred and ten pages of interesting and informative reading. Editor Michael Flegel was pleased to announce to the membership the purchase for the Centre of a Gestetner duplicating machine required in the printing of the newsletter. During the latter months of the year the Constitution and By-laws of the London Centre were approved by the National Council and our hopes for official non-profit organizational status has progressed well, in preparation for the 1979 General Assembly of the Society to be held in the Forest City. Several organizational meetings were held, in the fall of this year, for this special event of our fifty-eighth year.

We look to 1978 with hope and expectation of an increased membership, a stronger sense of accomplishment, and a prosperous observing year.

Eric Clinton, *Secretary*.

## MONTREAL CENTRE

During this year, our observatory hosted a number of activities. It was open every Saturday night to the public for observations. On many of these occasions, a talk was also given by one of our members. Wednesday nights were reserved for members only. Other nights served for activities such as the production of our monthly newsletter "Skyward", Board meetings, and special observations, e.g. occultations, astrophotography, etc.

The members met for a variety of observational programmes, telescope making, and for such mundane activities as observatory repairs and snow shovelling.

There were several "deep-sky" nights in the Spring, Summer, and Fall which were well attended.

An "Astronomy Night" took place in August for the Mount St. Hilaire Nature Conservation Centre, some 30 miles south of Montreal.

Various groups visited the observatory during the year. On one notable occasion, 71 people from the McGill Survey School were present. That was quite a crowd for the size of our building but we managed.



A dozen of us made the pilgrimage to Stellafane again this year, and brought back a host of ideas on telescope design and construction.

The business session of the Annual Meeting in October was followed by a slide show of the year's activities and by refreshments.

Constantine Papacosmas, *President*.

## CENTRE D'ASTRONOMIE DE MONTRÉAL

L'année fiscale de LA SOCIÉTÉ D'ASTRONOMIE DE MONTREAL, terminée le 31 août 1977, est sans contredit la plus prospère depuis sa fondation, il y a 30 ans.

À quel phénomène attribuer ce succès? . . . Mentionnons tout d'abord la publicité. À cette fin, nous devons rendre hommage à la Fédération Québécoise des Loisirs Scientifiques qui, par son responsable de l'information, M. Félix Maltais, a transmis aux journaux, à la radio et à la télévision des communiqués. Nos activités étant toujours bien annoncées, nous avons pu le constater par les nombreux appels téléphoniques reçus au Secrétariat. Une autre cause est l'organisation de nos soirées hebdomadaires au cours desquelles nous avons attaché plus d'importance à l'initiation et à la vulgarisation de l'Astronomie pour le public en général. **Hommage** doit être rendu à notre président, M. Henry J. Coïa, à notre vice-président, M. Lucien E. Coallier, qui fut bien assisté par M. Raymond Pelletier et tous nos amateurs de nos soirées hebdomadaires. Les quelques conférenciers invités ont su présenter le côté scientifique de la "Science d'Uranie", en des termes et des explications que la généralité de nos visiteurs pouvaient suivre, sans trop de difficultés les matières exposées. Mentionnons le Dr René Racine, Pierre Demers, Jacques Trempe, Serge Demers, Georges Michaud, Pierre Couillard, qui furent des conférenciers invités.

Étudions le développement de la Société. L'année précédente, nous avons terminé avec un total de 384 membres. Cette année nous avons atteint 547 membres, répartis comme suit: 2 membres à vie; 348 membres titulaires et 197 membres abonnés. Toutefois mentionnons que 69 membres titulaires et 52 abonnés n'ont pas renouvelé leur cotisation, ce qui représente environ 30% d'abandon. Il semble que pour l'année qui débute, ce pourcentage diminuera malgré une hausse de nos tarifs.

74 de nos membres ont adhéres à LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA, soit 60 séniors et 14 à titre d'étudiants. De plus, 2 des nôtres sont membres à vie de cette Société et 16 se sont inscrits à la SOCIÉTÉ ASTRONOMIQUE DE FRANCE.

Un événement rare et exceptionnel s'est produit au cours de l'année. L'ANNUAIRE ASTRONOMIQUE DE L'AMATEUR nous a été remis à temps par l'imprimeur. En conséquence, il a pu être transmis aux membres dès le début de l'année 1977. À espérer que nous aurons le même succès dans l'avenir. Nous en avons fait imprimer 2000 exemplaires. 550 ont été distribués aux membres et plus de 700 ont été vendus à l'extérieur; ce qui nous a rapporté plus de \$1600.00.

Notre publication LE QUEBEC ASTRONOMIQUE est devenu de plus en plus populaire. Au cours de l'année, nous avons publié onze numéros, tentant le plus possible de l'expédier afin que les membres le reçoivent avant le début du mois. Nous regrettons de ne pas avoir toujours réussi. Mais nous devons remercier ceux qui nous ont assisté: MM. Mailloux, Joula, Franche, Chévrefils, Rivard, deux jeunes Yvan Ruel et Richard Tremblay, sans oublier M. Jean-Louis Neault chargé de les poster. Une mention spéciale doit être faite à tous ceux qui nous ont fourni des chroniques. La liste serait trop longue; aussi, nous bornerons-nous à leur dire un sincère merci. Nous avons expédié plus de 6000 copies, par la poste au coût de \$265.00. 75 abonnements ont été souscrits au journal. Les abonnés au journal se répartissent comme suit: 36 à des particuliers, 26 à des institutions scolaires et 13 à des bibliothèques publiques. De plus, environ 30 copies sont expédiées à titre de relation publique.

Petit à petit, nous cherchons à améliorer notre journal, mais nous devons tenir compte des conditions financières de la Société. Nous tenons à rappeler que nous ne recevons aucun octroi de nos gouvernements. Nous vivons que grâce aux cotisations et aux légers profits réalisés au magasin de la Société. Mentionnons toutefois la gracieuseté de la Ville de Montréal, qui met à votre disposition les locaux que nous occupons au Jardin Botanique. C'est donc dire que les dons faits à la Société sont précieux et cordialement bienvenus.

Rolland Noel de Tilly, *Secrétaire*

## NIAGARA CENTRE

During 1977, we continued to clean up details of our incorporation and to develop plans for our Observatory. The move of our meeting place to the new Victoria Avenue Library in Niagara Falls appears to be successful. Both attendance and interest in our meetings is up over previous years.

Eight regular meetings were presented in 1977 in addition to a number of Star Nights during the summer. Meetings and programmes for 1977 were as follows:

- January 13 Annual Meeting and Election of Board of Directors. Programme – Film “Fields of Space” and Raymond Osborne and Robert Jedicki, “Some Recent Developments and Discoveries in Radio Astronomy.”
- February 10 Ron Gasparini – “Venus”; H.N.A. Maclean, “Variable Stars” and “The Calendar.”
- March 10 R.C. Doran, “Radio Astronomy.”
- April 20 Annual Banquet – Speaker: R.A.S.C. National President, Dr. Alan H. Batten, “Case of the Hyades.”
- May 12 Movie: “The Crab Nebula.”
- October 13 Film Night: “Cosmic Zoom, Satellites of The Sun” and “The Universe.”
- November 10 Speaker: Dr. John Black, Professor, Brock University, “Stonehenge.”
- December 8 Members Display of Observing Equipment and Short Talks on Features of These Instruments.

Robert C. Doran, *Secretary*.

## OTTAWA CENTRE

Nineteen seventy-seven was a busy year for members of the Ottawa Centre: a varied and popular program of seven public lecture meetings was held, the Observers' Group had overflow attendance at its monthly meetings, our monthly newsletter 'Astronotes' maintained its popularity and sported a new and improved appearance, the North Mountain Observatory and the 16-inch telescope was moved to a new and improved site (and underwent a name change), a new project was initiated that may well result in the world's largest amateur radio telescope, the Centre became incorporated and a new Constitution was drafted, and for only the second time in its history the Centre passed the 200 mark in membership.

The public lecture meetings were held at the National Research Council building:

- January 21 Annual Dinner Meeting; Dr. Peter M. Millman, National Research Council: “Fad or Fact – A Scientific Dilemma”.
- February 22 Dr. Jean-René Roy, National Research Council: “Archaeoastronomy – Science or Romanticism”.
- March 23 Dr. Paul A. Feldman, National Research Council: “What You Always Wanted to Know About Chariots of the Gods (but were afraid to ask)”.
- April 1 Observers' Group – “How to Make your Own Sunspot Cycle in Four Easy Steps” by Jim Hayes; Instrumentation Reports; North Mountain Observatory Report.
- September 26 Film: “Universe”; Constitutional Revision; North Mountain Update.
- November 21 Dr. Alan H. Batten, Dominion Astrophysical Observatory: “The Case of the Hyades”.
- December 8 Dr. Gordon Walker, University of British Columbia: “Low Light Level Television Detectors for the Amateur and the Professional Astronomer”.

The Observers' Group was very active under its Chairman, Art Fraser. The major project of the year was the dismantling of the 16-inch telescope and North Mountain Observatory and its re-activation at a site near Almonte with a new name, Indian River Observatory.

Peter MacKinnon chaired an efficient committee that located a new site, organized the necessary funds, arranged the move and, in record time, saw the new and improved Observatory in operation. The generous support from members of the Centre plus special projects such as RASC T-shirts and colour slide sets of pictures taken with the 16-inch helped finance the move. The new Observatory was opened by Dr. C.S. Beals, former Dominion Astronomer and Honorary President of the Centre, on October 8, and it quickly became an active Centre for observations. The new Observatory site provided sufficient space to encourage a new venture – construction of a large radio telescope was started that will provide a new focus for amateur activities.

Because of the increased responsibilities associated with the new Observatory it was decided to incorporate the Centre and this was completed in December. A new Constitution was drafted and given approval by the members prior to formal adoption at the Annual Meeting in January 1978.

Astronotes continued as a focus for information exchange for the amateur members of the Centre under the editorship of Jon Buchanan. In May, Astronotes underwent a significant face-lifting that made it much more attractive. An Ottawa newspaper, The Citizen, offered to print the newsletter as a public service and this resulted in improved typesetting as well as permitting the inclusion of excellent quality astronomical photographs for the first time.

The increased interest in astronomy was evident as the membership of the Centre reached a new peak level of 213, the highest in its history.

E.H. Dudgeon, *Secretary*.

## CENTRE DE QUÉBEC

L'année 1977 s'est révélée encore une fois très riche en activités. Nous comptons actuellement 116 membres (année 1977-78) et 37 abonnés au "Bulletin", lequel a paru à 11 reprises. "L'Almanach graphique" a été édité pour la 33<sup>e</sup> année consécutive et "Les Ephémérides, 1977" pour la 2<sup>e</sup> année. "Le Supplément" à l'Almanach graphique a été publié pour la première fois.

Lors de la réunion annuelle de la S.R.A.C. à Toronto, deux de nos membres s'y sont distingués: le Dr Paul Marmet a obtenu la médaille "Service Award" et M. Mario Lapointe y a gagné un premier prix. Notre Centre a également présenté un exhibit à l'occasion de "L'Expo-Sciences régionale de Québec" et a participé au congrès annuel de l'A.G.A.A. (Ass. des groupes d'astronomes amateurs, pour la prov. de Québec). A l'occasion de l'Expo-Sciences, plusieurs de nos membres y ont remporté des prix: le Club d'astronomes du Collège de Lévis, MM. Jean-François Bégin, Mario Lapointe, Marc Tardif et Danny Bois.

Nous voulons également signaler la visite fort appréciée de M. et Mme Alan H. Batten. Notre président national nous a également donné une conférence des plus intéressante sur une famille célèbre d'astronomes.

Des conférences et des soirées d'observations qui s'adressaient à nos membres et au public en général ont été tenues.

- 5 janvier Soirée d'observation du groupe d'observateurs sur un terrain du Séminaire de Cap-Rouge.
- 9 février "L'Almanach graphique" par M. Jean-Pierre Bernier, Ph.D., Univ. Laval. Conférence.
- 9 mars "La matière qui manque dans l'univers" par M. Ermano Borra, Ph.D., Univ. Laval. Conférence.
- 19 mars Soirée d'observation des membres à l'observatoire du Collège de Lévis, à St-Nérée de Bellechasse.
- 13 avril "Les étoiles filantes et les Perséides" par M. Mario Lapointe, étudiant au Collège de Lévis. Conférence.
- 18 mai "Les neutrinos manquant de soliel" par M. Pierre Amiot, Ph.D., Univ. Laval, Conférence.
- 12 août Soirée d'observation: "Les Perséides", à l'observatoire du Collège de Lévis, à St-Nérée de Bellechasse.

- 28 septembre "Les Struves de Pulkovo: une famille célèbre d'astronomes" par M. Alan H. Batten, Ph.D., président national de la S.R.A.C.
- 9 octobre Soirée d'observation publique à l'observatoire de l'Université Laval, à St-Elzéar de Beauce.
- 2 novembre "Initiation à la photographie astronomique" par M. Damien Lemay, Rimouski. Conférence.
- 7 décembre "La navette spatiale" par M. Alphonse Tardif, B.Sc., Collège de Lévis. Conférence.

Réjean Dutil, *secrétaire*

## ST. JOHN'S CENTRE

Ten meetings were held during the membership year. The Annual Meeting was in November and the following were elected to office: Mr. Randy Dodge, President; Dr. John Pippy, Vice-President; Mr. Peter Allston, Secretary; Dr. Peter Lockwood, Treasurer. At this meeting it was agreed that Mrs. Dora Russell be nominated to receive a Service Award medal. Topics of other meetings were as follows:

- |          |                                                                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| January  | Mr. Randell Dodge gave a short talk on the positions of the stars and planets for the month of February and Mr. Peter Allston gave a talk on "The Moon". |
| February | A quiz on astronomy was headed by Dr. Ken O'Brien.                                                                                                       |
| March    | Member's Night including a demonstration of telescopes.                                                                                                  |
| April    | Dr. John Pippy spoke on "Gravity".                                                                                                                       |
| May      | Slide show on observing the planets by Mr. Gary Dymond.                                                                                                  |
| June     | We were honoured by a visit of the National President, Dr. A.H. Batten.                                                                                  |
| August   | Discussion of a "mini-observatory" to be located in Argentina – about 80 miles from St. John's.                                                          |

Peter Allston, *Secretary*.

## SASKATOON CENTRE

The year 1977 proved to be an interesting and active year for the Saskatoon centre.

Shortly after the start of the year, the astrophotography group started work on a "Star Atlas" from a dark site located 5 miles outside the city. Many chilly but enjoyable evenings were spent viewing the dark skies and taking the necessary photographs for this group project. The real work as was soon found, came later in the dark room and drafting tables which were necessary to arrive at the finished product. All the work proved worthwhile as it won the Grand Prize at the National General Assembly.

Six members of the Centre flew to Toronto and thoroughly enjoyed themselves during the long weekend.

The paper sessions this year were very informative and on the whole very well presented. Two highlights of the assembly were the trips to the Ontario Science Centre and The David Dunlap Observatory.

On July 22, the annual picnic was held at Diefenbaker Park; following this, several members set up their own telescopes for a night of viewing various celestial objects. The general public was invited to the viewing portion of the programme. This year the weather co-operated and the response from the public was very gratifying to see. Well over a hundred people came out and viewed the various objects being shown.

Our annual August outing at Aucklands farm was not as well attended this year as it has been in the past; the reason possibly being that the skies from Saskatoon were about 95% overcast, while at the farm the condition varied from about 80% - 30% overcast. During the night about 30 different Messier objects were observed along with doing two – one hour meteor counts.

After the fall elections and receiving the information from Edmonton for competition at the coming General Assembly, plans were being made on which category to enter.

Our Centre was honoured by a visit from our National President, Dr. Alan Batten, who arrived late evening November 23 and, after a brief visit to two private observatories, spent the night at the home of Mr. and Mrs. Gordon Patterson.

The following day he gave two lectures to University classes and a third that same night to our Centre. He continued his journey by plane the following morning. We are very grateful that he found the time to give us such an interesting and informative lecture on "Close Binary Systems".

Previous year programs were as follows:

January	Dr. Ray Skinner: "Black Holes in Space".
February	Dr. Alan Manson: "Weather and Climate Variables".
March	Mr. Barry Arnold: "Grinding of Large Mirrors".
April	Slide presentation on "Cosmology".
May	Film: "The Universe".
June	Member's Night – talks on different topics by: Merlyn Melby: "Eyepiece Drawings"; Greg Towstego: "Mount for an Eight-Inch 'Scope"; Mike Wesolowski: "Variable Stars".
July	Outing.
August	Outing.
September	Slide show on the Toronto General Assembly.
October	Election of officers.
November	Dr. A.H.Batten: "Close Binary Systems".
December	Slide presentation: "The Milky Way".

Lillia Wilcox, *Secretary*.

## TORONTO CENTRE

The Toronto Centre saw a major project carried successfully to completion in 1977, when it played host to the General Assembly of the Society on the Dominion Day weekend. Dr. John Percy chaired two excellent paper sessions on the mornings of 1 and 2 July. The Annual Banquet was held at the Ontario Science Centre Heritage Restaurant, and was attended by 233 delegates and guests. Dr. Percy was the surprise recipient of this year's Service Award. The evening concluded with a very well-received lecture by Mr. Terry Dickinson of this Centre. On Saturday evening, the David Dunlap Observatory was host to 200 delegates, who enjoyed a buffet supper organized by Dr. Clement. Awards for the display competition were presented at the end of the evening. Many delegates took advantage of the excellent skies to visit the astronomical observatories of the Toronto area that night. The final event of the 1977 General Assembly was a special presentation in the Star Theatre of the Planetarium. The General Assembly was a great success, thanks to Mrs. Scott and her organizing committee: Carol Boyne, Dr. Christine Clement, Cathy Drake, Terry Davidson, Nick Fraser, Andreas Gada, Jim McKenzie, Richard McWatters, Jack Newton, Dr. John Percy, Muriel Pigeon and Michael Watson.

Under Dr. Clement's able guidance, the Programme Committee organized 8 well attended lecture meetings, as well as a series of Members' Nights which were chaired by George Foster. Discussion covered a variety of topics, including astronomy of 2000 and 200 years ago, modern observations from aircraft and spacecraft, the solar system, stars and galaxies. Two open houses were held at David Dunlap Observatory, one in September, and one during the General Assembly. Richard McWatters and Andreas Gada served as projectionists.

The Optical Workshop under John Morris operated on a somewhat smaller scale this last year, and John hopes that more members will take advantage of this facility in the coming year. The Workshop members participated in the Planetarium's Astronomy Day on 25 July.

The Public Education Committee was quite busy this year, organizing 8 library programmes, 4 telescope sessions at Harbourfront and 2 in Mississauga, Star Nights at Albion Hills Conservation Area and Huron Park, and programmes with the YMCA. The Committee

also participated in Astronomy Day. Under Chairman Richard McDonald, the committee is now planning programmes for next winter and summer, and looks forward to your continued support. Richard would like to see more members come out to bring astronomy to the public, as these programmes are our most important contact with the general public.

The Toronto Centre Observatory was in use 53 nights last year, with total attendance of 238. On the night of 2 July 51 General Assembly delegates and guests were present. There are about 30 regular observers, who are engaged in deep-sky and planetary observations and piggy-back photography. Director Ted Howard reports that certain improvements to the observatory and the telescope are being planned for the coming year.

The Observatory Activities Group was active in setting up the observatory last year, and is now starting to plan programmes for its use. A photographic variable star monitoring programme was organized by Robert Pike, and regular observing sessions have been held to acquaint members with the observatory facilities. Kai Millyard has now assumed Chairmanship of this committee and is busy planning more projects for the observers.

After a brief hiatus caused by the departure to Winnipeg of Celeste Peters, SCOPE is once again on schedule under the able direction of Nick Fraser.

Over this last year, Ted Howard has been trying to compile a record of the equipment owned by the Centre. Among the instruments now in our possession are an antique 4-inch refractor by Brashear, a number of first-rate homemade instruments, and the 12-1/2 inch Glassford telescope. During the summer, Mr. Robert Johnston presented the Centre with a 3-1/2 inch Questar telescope and Linhof tripod. The Centre acknowledges the very generous donation of this instrument, which is now in regular use at Star Nights and is available to individual members.

While my report last year closed on a rather pessimistic note, I am pleased to report that the efforts of Dr. Clement and her *ad hoc* committee, and the work of the Public Education Committee have paid a handsome dividend. As of 30 June, when our membership list for 1977 was closed, the Centre had 454 regular, 103 student and 41 life members, as well as 25 associate members – a total of 623. This represents an increase of 15% over last year.

A common problem of any voluntary organization is where to find people willing to do the work in day-to-day operations. This year, we have nine vacant seats in the Council and Executive to fill, because many of the familiar faces are disappearing. Experienced members have moved on to other interests, while some of the very active younger members have departed to pursue their careers. Among those whose absence from Toronto is greatly felt are Harlan Creighton, George Foster, Bill and Celeste Peters, Steven Morris and Robert Pike. I am sure that all members of the Centre join me in wishing all of them well.

B. Ralph Chou, *Secretary*.

## VANCOUVER CENTRE

The activities of 1977 began with the Centre's third annual banquet on January 21st. Guest speakers on this occasion were both Council members. President Ken Hewitt-White showed slides of last year's solar eclipse taken in Australia. He was followed by Dr. Charles Schwerdtfeger who gave a very interesting presentation on "The History of the Vancouver Centre".

Other programmes and activities during the year were as follows:

- February 8 "Instrument Night" – Allen Miller and Robert Bishop spoke on various aspects of Amateur Telescope Making.
- March 8 The guest speaker was Dr. Leigh Palmer of Simon Fraser University whose presentation was on "Possible Origins of some of the satellites of Jupiter". The evening concluded with the presentation of a special award to Mrs. Sally Baker for her long record of contributions to this Centre.
- April 12 The featured speaker was Dr. Harvey Richer, Professor of Astronomy at U.B.C. whose topic was "Joys of being an Observational Astronomer".

- May 17 Mr. Terry Dickinson spoke on "Speculations on Extra-terrestrial Civilization".
- June 14 This was a member's night with contributions from the following:  
 Allen Stoneberg – "The Planetarium Community Astronomy Program".  
 Perry Olsen – "A Ten Inch Cave/Meade telescope"  
 Bill Phillips – "Teaching a night school class in Astronomy".  
 Mal Corey – "A Telescope Drive Corrector".  
 Glen Spencer – "The Lough Observatory in Sedro Woolley, Washington".  
 Ken Hewitt-White – "The Perseid Meteor Shower".
- September 13 This meeting featured reports on some of our members summer astronomical activities. Neil Laffra told of his trip to the Toronto General Assembly. Craig McCaw showed photographs taken through the 16" Cassegrain telescope on Mt. Kobau and Leigh Palmer showed Star Trail photographs taken on Mt. Kobau.
- October 11 The guest speaker was Dr. William McCutcheon of U.B.C. whose subject was "UBC's Millimetre Radio Telescope and Associated Research."
- November 8 Dr. Thomas Webber of the University of Iowa spoke on "Quasars and Super Light Expansions".
- December 13 Mr. Alan Dyer came to us as an exchange speaker from the Edmonton Centre. His presentation on "Astrophotography" was well received.

During 1977, ten issues of the Centre Newsletter "NOVA" were published under the guidance of our editors David Dodge and Ken Hewitt-White. We also welcomed contributions of the Seattle Astronomical Society who used the pages of "NOVA" to announce meetings of their group.

Thanks of the membership must be given to the Vancouver Museums and Planetarium Association for providing a home for our meetings and the Centre library. Thanks also to the H.R. MacMillan Planetarium for inviting our members to each of their new shows throughout 1977.

James F. Wright, *Secretary*.

## WINDSOR CENTRE

During 1977, the Windsor Centre held six regular meetings at St. Clair College, one at the main branch of the Windsor Public Library, a star viewing night at the St. Clair College Observatory, a field trip to Jackson, Michigan, and four council meetings at the home of our President, Dr. Shannon Sanborn. The following were the highlights of the meetings:

- January 18 Mr. Lambert Huneault discussed "Current Events". Mr. Richard Lawrence gave an illustrated talk on "Rotation and Revolution". A film titled "Beyond the Moon" was also shown.
- February 15 Mr. Jim Meredith discussed "Current Events". Mr. Pat Mitchell gave a talk titled "Space Odyssey". Mr. Gary Drouin showed the 16 mm film which he had produced for the Windsor Centre, and showed some slides of telescopes and telescope mounts. Mr. Mike McEvoy showed some slides of Comet West.
- March 15 Ms. Felice Bondy discussed "Current Events", including a recent theory on the end of the dinosaur age. Dr. Shannon Sanborn talked on "Novas and Supernovas". Mr. Clayton Smith gave a very comprehensive illustrated talk titled "The Construction and Theory of Sundials", followed by a draw for an actual sundial he had made.
- April 19 Mr. Lambert Huneault discussed "Current Events" and reported on his research on the "batting average" of the weather forecasts in The Old Farmer's Almanac. Mr. Walter Manzig talked on "Black Holes". Mr. John McDermott read a transcript of a radio program titled "Expanding Universe". Special guest speaker was Mr. Mal Sillers from the WJR

**MORRIS ALTMAN**

CHARTERED ACCOUNTANT

95 KING STREET EAST

TORONTO 1

CANADA

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, 1977 and the statements of income and expenditures and accumulated deficit for the year ended on that date. My examination was made in accordance with generally accepted auditing standards and accordingly it included such tests and other procedures as I considered necessary in the circumstances, except as hereinafter noted.

The receipts of the Society, because of their nature are not susceptible to verification by normal audit procedure and are shown in the financial statements as they have been recorded in the books of the Society. My verification of these items was limited to a comparison of recorded receipts with bank deposits.

In my opinion, subject to the limitation in the scope of my examination noted in the preceding paragraph, the accompanying statements present fairly the financial position of the Society as at December 31, 1977 and the results of its operations for the year then ended, in accordance with generally accepted accounting principles which, except for adjustments in the fixed assets and equity accounts referred to in the notes to the financial statements, have been applied on a basis consistent with that of the preceding year.

*Morris Altman*  
Chartered Accountant.

Toronto, Canada,  
April 28, 1978.



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

BALANCE SHEET

DECEMBER 31, 1977

(With comparative figures as at December 31, 1976)

	<u>1 9 7 7</u>	<u>1976</u>
<u>A S S E T S</u>		
<b>Current Assets</b>		
Cash	\$ 6,427	\$ 6,452
Short-term deposits	2,000	2,000
Accounts receivable	18,839	11,429
Loans to R.A.S.C. Centres	1,600	600
Accrued interest on investments	604	604
Prepaid expenses	<u>187</u>	<u>496</u>
	\$ 29,657	\$ 21,581
<b>Investments</b>		
Marketable securities at cost (Market value \$2,940)	3,019	<u>\$ 3,019</u>
<b>Special Funds</b>		
Building Fund	\$181,377	\$173,579
Ruth Northcott Memorial Fund	14,084	13,467
Edward R. Paterson Bequest	10,000	10,000
J. F. Heard Memorial Fund (note 4)	<u>505</u>	<u>-</u>
	205,966	\$197,046
<b>Office furniture, equipment and library</b> (nominal value)	1	<u>\$ 1</u>
<b>TOTAL ASSETS</b>	<b>\$238,643</b>	<b>\$221,647</b>
<b><u>ACCUMULATED DEFICIT</u></b>	<u>19,882</u>	<u>18,269</u>
	<u>\$258,525</u>	<u>\$239,916</u>
<u>L I A B I L I T I E S</u>		
<b>Current Liabilities</b>		
Accounts payable and accrued charges	\$ 14,227	<u>\$ 6,856</u>
<b>Deferred Income</b>		
Membership fees for ensuing year	\$ 9,997	\$ 8,899
Subscriptions to Journal and Handbook	19,734	19,845
Unappropriated life membership fees (Schedule "A")	<u>8,601</u>	<u>7,270</u>
	38,332	\$ 36,014
<b>Reserve for Special Funds</b>	<u>205,966</u>	<u>197,046</u>
	<u>\$258,525</u>	<u>\$239,916</u>

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

STATEMENT OF INCOME AND EXPENDITURES

FOR YEAR ENDED DECEMBER 31, 1977

(With comparative figures for 1976)

	<u>1 9 7 7</u>	<u>1 9 7 6</u>
<b><u>I N C O M E</u></b>		
Membership Fees		
R.A.S.C. Centres	\$11,867	\$10,371
Individual members	7,043	6,364
Life membership reserve - annual appropriation	769	663
	\$19,679	\$17,398
Grants and Donations		
Government of Canada - annual grant	\$ 7,000	\$ 6,500
Province of Ontario - annual grant	1,500	1,000
National Research Council of Canada - special grant (note 1)	2,500	-
Miscellaneous donations	115	82
	11,115	\$ 7,582
Publications		
Journal of the R.A.S.C. - subscriptions	\$ 5,966	\$ 6,682
Observer's Handbook	29,135	27,452
Reprints from the Journal (note 1)	4,901	4,133
Publication charges (note 1)	12,057	1,660
	\$52,059	\$39,927
Less: Agents' discounts	5,624	5,369
	46,435	\$34,558
Miscellaneous Income		
Interest on investments (note 2)	\$ 1,435	\$ 1,237
Gain on foreign exchange	1,964	-
Insignia sales	189	511
	3,588	\$ 1,748
<b><u>TOTAL INCOME</u></b>	<b>\$80,817</b>	<b>\$61,286</b>
<b><u>E X P E N D I T U R E S</u></b>		
Publications		
Printing and binding	\$54,329	\$46,226
Editorial fees	500	300
Distribution costs	4,697	3,518
Advertising	457	135
National Newsletter expense	354	-
	\$60,337	
Office salaries	14,065	13,530
Stationery, printing and office supplies	1,583	1,181
General and office expenses	1,018	1,028
Telephone	565	618
Postage and shipping	1,035	750
Life membership allotment to Centres (note 3)	1,084	706
Assistance grants to Centres	372	-
General assembly and travel expenses	596	1,037
Contribution to International Astronomical Union	500	-
Library expense	299	151
Insignia, medals and awards	193	436
Building maintenance	-	506
Insurance	348	209
Canada pension plan and unemployment insurance	392	380
Bank charges and exchange	13	390
Bad debts	30	83
<b><u>TOTAL EXPENDITURES</u></b>	<b>82,430</b>	<b>\$71,184</b>
<b><u>EXCESS OF EXPENDITURES OVER INCOME</u></b>	<b>\$ 1,613</b>	<b>\$ 9,898</b>

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

STATEMENT OF ACCUMULATED DEFICIT

FOR YEAR ENDED DECEMBER 31, 1977

(With comparative figures for 1976)

	<u>1 9 7 7</u>	<u>1 9 7 6</u>
Deficit (surplus) at beginning of the year	\$18,269	(\$19,069)
Excess of expenditures over income for the year (per statement)	1,613	9,898
Book value of assets eliminated from the accounts in consequence of the sale of Society's property	<u>-</u>	<u>27,440</u>
Deficit at end of the year	<u>\$19,882</u>	<u>\$18,269</u>

S C H E D U L E " A "

UNAPPROPRIATED LIFE MEMBERSHIP FEES

Balance at beginning of the year	\$ 7,270	\$ 5,983
Add: Life membership fees received in the year	<u>2,100</u>	<u>1,950</u>
	\$ 9,370	\$ 7,933
Deduct: Appropriation to income account	<u>769</u>	<u>663</u>
Balance at end of the year	<u>\$ 8,601</u>	<u>\$ 7,270</u>

S C H E D U L E " B "

COMPOSITION OF SPECIAL FUNDS - DECEMBER 31, 1977

	<u>BUILDING FUND</u>	<u>NORTHCOTT FUND</u>	<u>PATERSON BEQUEST</u>	<u>J. F. HEARD FUND</u>
Cash in bank	\$ 8,552	\$ 1,432	\$ -	\$ 505
Term deposits	86,000	8,354	10,000	-
Marketable securities (at cost)	80,757	4,000	-	-
Accrued interest	4,910	298	-	-
Security deposit on office lease	<u>1,158</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>\$181,377</u>	<u>\$14,084</u>	<u>\$10,000</u>	<u>\$ 505</u>
Market value of securities	<u>\$ 81,525</u>	<u>\$ 3,735</u>	<u>-</u>	<u>-</u>

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

SCHEDULE "C"

SPECIAL FUNDS

	<u>1977</u>	<u>1976</u>
<u>BUILDING FUND</u>		
Balance at beginning of the year	\$173,579	\$ -
Add: Proceeds from sale of property	\$ -	174,930
Mortgage interest earned	770	3,878
Interest earned on investments	13,901	3,250
Dividends received	<u>882</u>	-
	15,553	<u>-</u>
	<u>\$189,132</u>	<u>\$182,058</u>
Deduct: Rents for Society's office premises	\$ 7,755	\$ 3,718
Moving costs and new installations	<u>-</u>	<u>4,761</u>
	7,755	<u>\$ 8,479</u>
Balance at end of the year	<u>\$181,377</u>	<u>\$173,579</u>
<u>RUTH J. NORTHCOTT MEMORIAL FUND</u>		
Balance at beginning of the year	\$ 13,467	\$ 12,419
Add: Public contributions	100	150
Interest earned on investments	<u>1,017</u>	<u>1,098</u>
	\$ 14,584	\$ 13,667
Deduct: Appropriation for designated purposes (note 5)	<u>500</u>	<u>200</u>
Balance at end of the year	<u>\$ 14,084</u>	<u>\$ 13,467</u>
<u>EDWARD R. PATERSON BEQUEST</u>		
Balance at beginning and end of the year	<u>\$ 10,000</u>	<u>\$ 10,000</u>
The interest earned by the Paterson Bequest in the year, amounting to \$983, has been applied to general income.		
<u>J. F. HEARD MEMORIAL FUND</u>		
Contributions received during the year	<u>\$ 505</u>	<u>-</u>

(For composition of the funds see Schedule "B")

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

NOTES TO FINANCIAL STATEMENTS

FOR YEAR ENDED DECEMBER 31, 1977

1. Grant from National Research Council

A special enlarged issue of the R.A.S.C. Journal was published in April 1977, containing the proceedings of a symposium on astronomical spectroscopy held at the Dominion Astrophysical Observatory in Victoria, B.C., in honour of its retiring director, Dr. K. O. Wright. A grant of \$2,500 to help defray the cost of printing this issue of the Journal was received from the Herzberg Institute of Astrophysics which sponsored the symposium. Additional revenue of \$3,900 was derived from page charges for the publication of papers presented at the symposium and a further sum of \$1,161 was realized from the sale of reprints of the published material.

2. Interest on Investments

The sum of \$1,435 shown under this heading in the statement of income includes \$983 earned by the Edward R. Paterson Fund, which has been credited to the general account.

3. Life Membership Allotment to Centres

The allotment for the current year in respect of life membership fees includes an adjustment for deficient allotments in prior years.

4. J. F. Heard Memorial Fund

This fund was established by resolution of the National Council on June 30, 1977 to provide the means for publication of Dr. Heard's editorials from the "David Dunlap Doings". The fund is to remain open for contributions for a period of one year.

5. Appropriation from Ruth Northcott Memorial Fund

The appropriation from this fund for the year covered a grant of \$200 to the Quebec Centre of the Society in support of French language publications and a grant of \$300 to the Winnipeg Centre to assist in the publication of a history of that Centre.

## TREASURERS REPORTS

	Calgary	Edmonton	Halifax	Hamilton	Kingston	Centre d'Astronomie		Montreal	Niagara
						London	Montreal		
<b>REVENUE</b>									
Membership Fees	\$ 981.50	\$1,387.50	\$1,094.50	\$ 711.50	\$ 162.25	\$ 145.00	\$37.00	\$1,554.00	\$ 523.00
Life Members Grants	94.00	12.00	31.00	15.00		10.00	10.00		
Donations			270.00		80.00	22.28		15.00	100.15
Educational Activities	198.53	78.38	11.47	1.70	39.00	184.50			6.95
Interest & Dividends			4.35	14.00		9.75	9.00		10.00
Sales of Handbooks Net									
Advertising	160.00		364.00		72.00				
General Assembly	25.00	111.66	18.00	58.30	87.00	36.03			172.50
Miscellaneous									
<b>Total Revenue</b>	<b>\$1,459.03</b>	<b>\$1,589.54</b>	<b>\$1,523.32</b>	<b>\$1,070.50</b>	<b>\$ 440.25</b>	<b>\$ 407.56</b>	<b>\$556.00</b>	<b>\$1,569.00</b>	<b>\$ 812.60</b>
<b>EXPENDITURES</b>									
Fees Remitted to N.O.	484.50	892.50	792.00	426.00	72.00	84.00	501.00	301.00	175.00
Library	7.65		233.48			23.57		15.00	
Meetings & Newsletters	166.17	243.12		92.35	51.60	170.45		122.00	51.00
Annual Dinner-Net	5.30	32.10							172.65
General Assembly	160.00	232.88	192.00		101.00				
Equipment & Supplies			22.63	115.02	35.00	29.32		49.00	51.65
Office Administration			85.50			65.75	14.00	28.00	
General Expenses & Audit	39.83	14.86	65.57	6.57	15.20	79.19		357.00	46.10
Educational Activities			62.17						
Insurance				35.00				185.00	
Awards & Donations			25.00		25.00				
Operating Expense-Observatory								7.00	
Miscellaneous	12.00		15.00		142.31	49.83			50.00
<b>Total Expenditures</b>	<b>\$ 875.45</b>	<b>\$1,415.46</b>	<b>\$1,493.35</b>	<b>\$ 674.88</b>	<b>\$ 442.11</b>	<b>\$ 502.11</b>	<b>515.00</b>	<b>\$1,064.00</b>	<b>\$ 546.40</b>
Surplus or (Deficit), on Operations	583.58	174.08	29.97	395.62	(1.86)	(94.55)	41.00	505.00	266.20
							8.00		
<b>Balance from 1976</b>	<b>4,004.90</b>	<b>1,287.98</b>	<b>573.26</b>	<b>318.09</b>	<b>68.01</b>	<b>1,098.17</b>		<b>not reported</b>	<b>209.39</b>
<b>Balance to 1977</b>	<b>\$4,588.48</b>	<b>\$1,459.06</b>	<b>\$ 603.23</b>	<b>\$ 709.65</b>	<b>\$ 66.15</b>	<b>\$1,003.62</b>	<b>\$ 49.00</b>		<b>\$ 475.59</b>

	Ottawa	Quebec	St. John's	Saskatoon	Toronto	Vancouver	Victoria	Windsor	Winnipeg
<b>REVENUE</b>									
Membership Fee	\$2,222.50	\$1,702.25	\$ 170.00	\$ 475.00	\$6,542.50	\$1,582.50	\$ 990.00	\$ 435.00	\$1,187.50
Life Members Grants	161.00	10.00		7.00	277.00	18.00	68.00		16.00
Donations	274.32	1,023.25		134.00	10.00	441.00	375.00	1.25	300.00
Educational Activities	409.64						123.85		
Interest & Dividends	18.37	179.63		117.22	476.04	60.75	1,370.04	11.58	27.14
Sales of Handbooks Net	31.50				422.00	28.22	24.00	6.75	6.00
Advertising									
General Assembly			134.00	138.00		191.00	193.00		
Miscellaneous	1,018.00	443.40			2.36	77.67	420.00	34.35	128.00
<b>Total Revenue</b>	<b>\$4,135.33</b>	<b>\$3,358.53</b>	<b>\$ 304.00</b>	<b>\$ 871.22</b>	<b>\$7,735.40</b>	<b>\$2,399.14</b>	<b>\$3,563.89</b>	<b>\$ 488.93</b>	<b>\$1,664.64</b>
<b>EXPENDITURES</b>									
Fees Remitted to N.O.	\$1,339.90	\$1,135.00	\$ 102.00	\$ 285.00	\$3,884.00	\$ 949.50	\$ 502.50	\$ 273.00	\$ 516.25
Library	234.17		49.24	201.47		2.35	36.28	15.53	
Meetings & Newsletters	391.30	1,201.23		47.67	2,259.90	722.87	195.21	49.70	124.90
Annual Dinner-Net	1.65					5.00	501.00		
General Assembly			142.00	138.00	150.00	282.00	300.00		15.98
Equipment & Supplies	46.63			76.49	4.39		48.22		
Office Administration	101.21	251.25		41.99	700.91		32.48		
General Expenses & Audit				2.00	18.76	55.47			
Educational Activities	2,057.85	419.60		140.03	130.00		6.23	33.75	
Insurance	60.00				165.00				
Awards & Donations	14.00	25.00			75.00	50.69	52.00		510.00
Operating Expense-Observatory	193.75				10.00				
Miscellaneous		276.75	15.00			228.28	47.65		436.32
<b>Total Expenditures</b>	<b>\$4,440.51</b>	<b>\$3,308.83</b>	<b>\$ 308.24</b>	<b>\$ 932.65</b>	<b>\$7,397.96</b>	<b>\$2,396.16</b>	<b>\$1,721.57</b>	<b>\$ 371.98</b>	<b>\$1,603.45</b>
Surplus or (Deficit) on Operations	(305.18)	49.70	(4.24)	(61.43)	337.44	2.98	1,842.32	116.95	61.19
<b>Balance from 1976</b>	<b>2,973.89</b>	<b>103.54</b>	<b>189.51</b>	<b>363.64</b>	<b>1,692.42</b>	<b>1,229.94</b>	<b>\$15,604.80</b>	<b>315.13</b>	<b>321.33</b>
<b>Balance to 1977</b>	<b>\$2,668.71</b>	<b>\$ 153.24</b>	<b>\$ 185.27</b>	<b>\$ 302.21</b>	<b>\$2,029.86</b>	<b>\$1,232.92</b>	<b>\$17,447.12</b>	<b>\$ 432.08</b>	<b>\$ 382.52</b>
Other Assets					\$9,661.60				

- Weather Centre, who gave an interesting and humorous talk on meteorology, weather forecasting and air pollution. Refreshments were served after the meeting.
- May 23 A public star viewing night was held at the St. Clair College Observatory, in conjunction with the "Nova" astronomy club.
- June 25 Field trip, by chartered bus, to the new "Michigan Space Centre" in Jackson, Michigan.
- September 20 Mr. Henry Lee covered "Current Events" and reported on the General Assembly and Annual Meeting of the RASC which he attended in Toronto in July. Mr. Lambert Huneault gave an illustrated talk on "Clouds", handed out Cloud Charts to the audience and donated a textbook on "Modern Astronomy" for a draw among the audience.
- October 18 Mr. Randy Groundwater showed a home-made 12-inch reflector telescope and discussed its fabrication and use. Mr. Gary Drouin gave a talk titled "A Look At Variable Stars".
- November 15 Annual Meeting of the Windsor Centre, including election of officers and council for 1978. Special guest speaker was Dr. Orren C. Mohler from the University of Michigan who gave a most interesting illustrated talk on "Sunspots". Following the meeting, refreshments were served by ladies of the Windsor Centre.

Lambert C. Huneault, *Secretary*,

## WINNIPEG CENTRE

During the year eleven regular meetings were held at the University of Winnipeg, and eight council meetings to discuss business of the Centre. Programmes for the regular meetings were as follows:

- October 8 Annual Meeting, Election of Officers – Film: "The Milky Way".
- November 12 "The Study of Matter Using Antimatter" – Prof. Donald Kerr. Film: "Decoding Stoneage Mysteries".
- December 10 "Telescopes For The Beginning Amateur" – Mr. John Wunderlich.
- January 14 "Stonehenge Visited" – Mr. Greg Bailey.
- February 11 "Solar Observing Techniques" – Dr. John R. Scatlift.
- March 11 Two films were presented, courtesy of: Dr. Martin Clutton-Brock:  
1) "The Solar Atmosphere"  
2) "The Sun In Action"  
"The Planet Mars" a slide presentation, – Mr. Don Hladiuk.
- April 15 "Mechanical Aids To Astronomical Learning Experiences" – Mr. B. Franklyn Shinn.
- May 13 "Occultations" – Mr. Berton Stevens of Chicago, USA.  
Film: "The Crab Nebula"
- June 10 "Comparative Planetology" – Mr. Hans Thater.
- September 9 "The Building of Winnipeg Centre's Observatory" a slide presentation – Mrs. Phyllis Belfield and Mr. Greg Bailey.
- September 30 Special Meeting of the Winnipeg Centre to welcome Dr. Alan Batten and his charming wife, Lois. "Close Binary Systems" – Dr. Alan Batten.

Members of the Winnipeg Centre participated in three of the Lockhart Lectures Series, conducted by the University of Manitoba. They were as follows:

- January 20 "Venus, from an Astronomical and geological viewpoint" – Dr. L. B. Ronca  
January 24 "The Lost Planet" – Dr. N.W. Overden  
April 5 "The Raging Surface of the Sun" – Dr. Martin Clutton-Brock

Our Centre's weiner roast/star party, held at the observatory building site, on Oct. 2/76, was a tremendous success despite the partial cloudy skies. Since the completion of our observatory in 1977, various groups such as astrophotography, meteor watching, lunar and



planetary, are holding their observational and lecture meetings at this facility, with good member participation.

Public Education Programmes continue to be varied and extensive. The observatory was open to the general public every Saturday evening throughout the summer months, regardless of climatic conditions. A total of fifteen lectures and/or slide presentations were conducted in various schools around the city, and five star-parties were held at the observatory.

Our library continues to grow through the donations of many people; our sincere thanks to each donor for their generosity. Another milestone for the Centre was the publication of "A History of The Winnipeg Centre, 1911-1977".

In retrospect, the Winnipeg Centre has had a very active and successful year.

Ella Dack, *Secretary*.

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

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

### 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)	1964 – C.S. Beals (Ottawa)
J.H. Horning (National Treasurer)	M.W. Burke-Gaffney, S.J. (Halifax)
1960 – Charles M. Good (Montreal)	W.T. Goddard (Hamilton)
Miss F. Laforest (Montréal)	1965 – D.C. Bawtenheimer (Windsor)
Frederic L. Troyer (Toronto)	*John F. Heard (Toronto)
1961 – *Robert Peters (Victoria)	A.M. Crooker (Vancouver)
1962 – Jean Asselin (Montréal)	Ernest S. Keeping (Edmonton)
Robert J. Clark (Vancouver)	*W.S. Mallory (Hamilton)
*Jesse Ketchum (Toronto)	1966 – P. Lemieux (Montreal)
Joseph A. Pearce (Victoria)	*S. Litchinsky (Calgary)
1963 – Edwin E. Bridgen (Montreal)	W.J. McCallion (Hamilton)
Miss M. Burland (Ottawa)	W.A. Warren (Montreal)
A. Vibert Douglas (Kingston)	

\*Deceased

- 1967 – H.S. Hogg (Toronto)  
 P.M. Millman (Ottawa)  
 \*R.J. Northcott (Toronto)  
 \*H. Simard (Montreal)  
 J.F. Wright (Vancouver)
- 1968 – \*D.R.P. Coats (Calgary & Winnipeg)  
 George Ball (Victoria)  
 Herbert Fox (Hamilton)
- 1970 – Norman Green (Hamilton)  
 J.E. Kennedy (Saskatoon)
- 1971 – K.B. Meiklejohn (Calgary)  
 J.N.R. Scatliff (Winnipeg)
- 1972 – Vern Ramsay (Toronto)  
 B.F. Shinn (Winnipeg)  
 F. Schneider (Hamilton)
- 1973 – Fred P. Lossing (Ottawa)
- 1974 – Ian Halliday (Ottawa)  
 Fred Williams (Victoria)
- 1975 – D.J. FitzGerald
- 1976 – F. Loehde (Edmonton)  
 \*Ken Chilton (Hamilton)  
 R. Belfield (Winnipeg)  
 Mrs. P. Belfield (Winnipeg)
- 1977 – P. Marmet (Quebec)  
 J.R. Percy (Toronto)  
 Mrs. D. Russell (St. John's)
- \*Deceased

It is with regret we record the decease of the following members in 1977:

- Mr. J.W. Bardsley (Toronto)  
 Mr. Robert Morham (Toronto)  
 Rev. Alphonse Oberstatter (France)  
 Mr. Fred J. Perkins (U.S.A.)
- Prof. Charles H. Smiley (U.S.A.)  
 Miss Ada L. Staples (Winnipeg)  
 Prof. Ralph N. Van Arnem (U.S.A.)

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# THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

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