



Royal Astronomical Society of Canada

Annual Report



Comet Levy, the astronomical highlight of 1990. Photograph taken by Damien LeMay.

1990

La Société Royale
d'Astronomie du Canada

The year 1990 was the centennial of the incorporation of the R.A.S.C., which was marked by special events on the occasion of the General Assembly hosted by the Ottawa Centre at Carleton University. In addition to the regular program, there was a successful one day long public symposium entitled "YOU AND THE UNIVERSE", with four well known speakers, Lydia Dotto, Terence Dickinson, Richard Jarrell and René Racine. After dinner, that day concluded with the popular HELEN SAWYER HOGG LECTURE, entitled "Exploration of the Solar System", by Joseph Veverka. I offer my sincere thanks to those who made the symposium possible, i.e. the Centennial Committee, the Lecturers and the organizing committee of the 1990 G.A. These lectures were published in the October 1990 of the *Journal*.

Another highlight of the G.A. was certainly the Omnimax theatre at the new Canadian Museum of Civilization in Hull where we enjoyed "The Dream Is Alive". After the banquet at the National Arts Centre, there was a presentation of the Ken Chilton Prize to Doug George of Ottawa, the Service Award to Mary Grey, a special award to Peter Millman for his long active membership and to Rosemary Freeman in recognition of her many years of dedicated work at the National Office. In the same line of thought, earlier during the year, the Plaskett Medal went to Pierre Bergeron of the University of Montréal.

Congratulations to our well known member David Levy who has struck again with his sixth comet, 1990c. A naked eye object, very high in the summer sky of the northern hemisphere, it is probably safe to say that it has been the best observed comet since Halley in 1986. Astronomy Day coordinator, Steve Dodson, reported that the International Astronomy Day prize was won by our Society, specifically, the Toronto Centre had captured this recognition with their ten day stretch of dynamic events. At their Glenlea Observatory, the Winnipeg Centre has really entered the computer age with a personal computer now collecting their photometer readings and reducing them on the spot to standard fully corrected magnitudes. This has been made possible in part by a grant from the R.A.S.C. In order to address special grant requests, at its meeting of June 29, 1990, the National Council voted on Special Projects Grants guidelines for future applications by Centres.

It is with great regret that we learned the passing away on December 11th, of our long time (since 1926) member, Dr Peter M. Millman. Dr. Millman was well known to many in the Society, having served in a large number of ways. He was President for 1960-1962 and, until very recently, as Chair of the Historical Committee, he took a special interest in preserving Canadian astronomical achievements. He will be sorely missed by all of us.

Initially a Toronto organization, the R.A.S.C. has grown tremendously, counting now twenty-two Centres from St. John's to Victoria, and has become more than a Canadian Society with some 400 members from abroad, for a total membership of more than 3500. We must be proud and thankful for those pioneers of one hundred years ago who founded the Society we enjoy today. Many challenges have marked the life of the R.A.S.C. and though we have become a mature Society, we must remember that it will continue to be so only if members at large and Councillors display the vitality of their predecessors. The last two years have been marked by large deficits and, as if this was not enough, it was recently announced that Canada's economy has entered a recession. Willingness to counter these difficulties has been demonstrated at the G.A. in Ottawa when new membership fees were approved. Further changes may also affect our publications; for example this Annual Report is now a special issue replacing the usual April issue of the *Bulletin*. These re-adjustments are necessary to optimize the services provided to our members, taking in account the limited resources of our Society.

The Long Range Planning Committee and the Membership Survey Committee should have much to say about the future of our Society. Members will be invited to provide inputs to the membership survey; it is important that we all give it serious and realistic consideration, for its results will be used to shape the services provided by the R.A.S.C., including the format of our very important publications. Talking of publications, I would like to thank our editors, Jeremy Tatum (*Journal*), Roy Bishop (*Observer's Handbook*) and Patrick Kelly (*Bulletin*) who took over from Ian McGregor, the latter having completed a five year term.

Special thanks go to Rosemary Freeman, our Executive Secretary, for the growing load she handles at the National Office. With twenty-two Centres and over 700 unattached members, this is a busy place to be. A number of things can be done to improve the situation. It is believed that one of these is finding new applications for computers. For example, membership lists could be provided by way of diskettes; electronic mail or a computer bulletin board could be used to assist communications with/from N.O. and among Centres, etc... The Computer Use Committee is preparing recommendations in that regard. Meanwhile, anytime you correspond with N.O., be as concise as possible and make sure you provide all required attachments. You will then get a better service while reducing the load on our Executive Secretary.

Since the beginning of my term, I have visited Calgary, Montréal, Halifax and St. John's and, by the time you read this, I should have added Windsor and London to the list. Like my predecessors, I cannot really hope to visit all Centres, but based on the enthusiasm I have met so far, I am looking forward to visiting as many as possible.

Damien Lemay, President

Before writing this report, I had the pleasure of reading the reports from the Centres of the Society. They make fascinating reading and I encourage you to read them to see a snapshot of the many activities which our members are involved in from coast to coast. You may even pick up some ideas for additional activities in your Centre. It is particularly pleasing to see that our two newest Centres (Regina and Thunder Bay) are thriving.

As noted in the President's Report, 1990 was our Centennial Year. Damien Lemay has covered most of the notable events in his report but I would like to note one further one: the Society was honoured by the naming of asteroid 4113 "RASCANA".

Actions of National Council during the year of particular interest to Centres are the following: (a) There is now a liability insurance package which covers Centre events; (b) Posters are available for publicising Centre events and (c) Special Project Grant guidelines have been approved. For details of these I refer you to the minutes of Council which have been sent to your National Council Representative(s).

Our membership remained stable at about our all-time high. It remains to be seen what the effect of the membership fee increase implemented for the 1991 year will be. The membership figures as of September 30th, 1990 are compared with those of previous years in the following summary:

CENTRES	1990	1989	1988	1987	1986
Calgary	213	277	213	242	240
Edmonton	130	123	136	115	117
Halifax	174	171	138	145	121
Hamilton	87	76	86	84	79
Kingston	48	38	35	46	44
Kitchener-Waterloo	34	30	32	29	19
London	48	46	43	46	46
C.F. de Montréal	36	38	43	39	44
Montréal	116	123	103	111	118
Niagara	61	81	64	48	54
Ottawa	263	254	228	241	276
Québec	70	73	60	74	75
Regina	57	-	-	-	-
St. John's	30	16	19	22	18
Sarnia	8	12	8	11	19
Saskatoon	47	42	45	41	48
Thunder Bay	31	40	-	-	-
Toronto	1038	1022	1052	1035	1123
Vancouver	132	167	167	147	116
Victoria	127	137	135	143	146
Windsor	56	46	49	48	52
Winnipeg	70	59	60	61	69
UNATTACHED					
Canada	275	306	301	318	298
U.S.A.	328	351	306	369	371
Overseas	60	58	62	57	57
Honourary	14	14	14	13	14
TOTAL	3553	3600	3399	3534	3564

Once again, it is my pleasure to record the Society's appreciation to all members of our committees without whose work behind the scenes the Society could not function. Of course, our Executive Secretary, Rosemary Freeman, again deserves our thanks for continuing to keep the Society running smoothly.

David Tindall, National Secretary

Secretary's Report

Condensing a whole year's activities into an annual summary is no easy task, especially when the year has been as active as this one was for the Montréal Centre.

This year, *Skyward*, our newsletter, underwent a thorough modernization. Among the improvements were: computerized word processing, graphics, laser printing and, for the first time, advertising. We also enjoyed a much wider contributor base which led to a broader, more interesting range of articles. As a result, *Skyward* received unanimous acclaim from the readership. Those instrumental in effecting the improvements were Paul Biro, George Ascroft, Khurram Syed and Louis Bernstein.

On the subject of readership, the Montréal Centre's library also underwent a full scale modernization, owing to the tireless efforts of Gary Angers. Many new books were acquired and library use rose dramatically. Thanks to those who donated books, money, time and material, our library is once again first rate. Those people are: Tony Moffat, Allan Moore, Ginette Robert, Bill Stropole, Jacques Chenard, Gaetan Cormier and Steve Cekovic.

George Ascroft created a Montreal Centre brochure and has been busy revising the Centre bylaws. He and Suzanne Moreau, our Treasurer, have begun compiling a sequel to *50 Times Around the Sun*, which will chronicle the Centre's history from 1918 to 1993. It should be ready in time for our seventy-fifth anniversary.

The observer's group met once a month this year. The group now numbers thirty people, most of whom are very dedicated. Its purpose is to promote an exchange of ideas, information and findings; to co-ordinate observational programs; and to organize outings.

Mario Caluori, our President, organized two interesting observing projects. The Galileo Project, which currently has twenty-one adherents, is an effort to measure the universe using the methods employed by the earliest astronomers. The group has already succeeded in its first experiment – measuring the circumference of the Earth. The other project is the Sight Seeing Tour of the Heavens. Its purpose is to acquaint observers with "one of everything" in the universe. This includes solar and lunar events, asteroids, comets, all the planets down to Pluto, variable and double stars and deep sky objects, including a quasar. At present, twenty-three members have signed up.

Solar Saturday, took place at the Dow Planetarium, and was held in conjunction with two French speaking groups, Club Espace and La Société d'Astronomie de Montréal. Despite the rain, over 800 people attended. We displayed an array of telescopes rigged for solar viewing, an H-alpha filter, solar slides and a panorama of auroral photographs taken by Centre members. The feature presentation at the planetarium was called "The Angry Sun" – a show about solar activity. Credit must go to everyone who helped to make the day a tremendous success.

One activity, which has developed into a tradition at the Montréal Centre, is **Astronomy Day**. The theme this year was "Amateur Astronomy in the 1990's / High Tech". It appears that we may be the only Centre using a "trade show" approach to **Astronomy Day**. I doubt that we could have crammed more astronomical equipment into the building! We also had an outdoor tent display which sheltered the latest in computer assisted telescopes, including an Ultima 11 and a Compustar 8. There were also demonstrations of computer image processing and lots of astronomy software. Our special guest speaker, David Levy, delivered two inspiring talks and autographed copies of *The Joy of Gazing*. In a ten hour period we received about 300 people and managed to raise \$500, despite the weather.

This past year, the Montréal region was unusually cloudy. As a result, our telescope rental program suffered. The clouds actually cost us money since there was less demand for instruments. A brass 4" refractor was added to the program thanks to the refurbishing efforts of Bill Widdop and Keith Withnall.

Our list of speakers was as impressive as ever. George Ascroft and I organized the **Townsend Lecture**, which was held on October 20th at the Dow Planetarium. The speaker this year was Dr. David Malin, a research astronomer

with the Anglo-Australian Observatory. Dr. Malin, whose slides are among the most breathtaking we have ever seen, spoke before an unexpectedly large crowd of 300 people. The event was an enormous success.

We also had the honour of being the first centre to receive our newly appointed National President, Damien Lemay. He addressed the crowd on "What Amateurs Can Contribute to Astronomy" and presented us with a signed 16x20 inch enlargement of Comet Levy which he had photographed and printed himself.

David Levy, an "alumnus" of the Montréal Centre, visited us on two occasions this year. On **Astronomy Day**, he presented two talks, on comet hunting, and a few months later he spoke about the joy of gazing. It's always a real pleasure when David comes home to visit.

Our Vice-President, Dr. Anthony Moffat, director of the Mont Mégantic Observatory, gave several talks this year on Wolf-Rayet stars. We also received one of his colleagues from the Soviet Union, Dr. Sergei Marchenko, who spoke about the Observatory of the Ukraine and the world's largest single-mirror telescope, the 236" reflector.

Ian Bonnell, a student of Dr. Moffat's addressed the group on the subject of stellar formation. This talk, which was particularly well received, covered bipolar outflows and accretion disks surrounding T-Tauri stars.

Harvard astrophysicist Marc Seguin, a dynamic speaker and regular guest lecturer at the Centre gave a talk entitled, "Is the Universe a Free Lunch?" – a question that weighs heavily during these "inflationary times". As always he attracted a full crowd and delighted everyone.

In addition, we held our Saturday night talks which are given by regular members. The speakers, too numerous to mention here, are to be commended for putting tremendous effort and research into their presentations and making them a mainstay at the Centre. Attendance this year was excellent.

Having our own observatory and building has its advantages, but it also brings responsibilities and sometimes problems. This year, thanks to the unflagging efforts of Keith Withnall the basement cupboards and ceiling were painted; a front step and a new R.A.S.C. sign were installed; a display case for our products was made; the upstairs passage was insulated and the exterior rails and dome were painted. Mario Caluori constructed a storage shelf for our telescopes and installed a programmable thermostat. Our leaky oil pipe was properly repaired and we finally completed plans for the renovation of the dome. Thanks once again those who helped with the work.

The Montréal Centre was very well represented at the 1990 **General Assembly**. This year, for the first time, the Montréal Centre applied to the National Council for a special projects grant. The project involves the purchase of a video system to record special lecturers and astronomical events. The resulting video library would then make tapes available to our members, to other centres, to various educational institutions and to the media. These tapes would also be shown at public exhibits and open houses. The project, however, got snagged in red tape and at present we are still waiting for a final decision. On an optimistic note, our efforts show a positive attitude and a strong will to fulfill our mandate which is to popularize amateur astronomy and to generate enthusiasm for the subject.

1990 turned out to be a great year for the Montréal Centre. What you have read about here are just some of the highlights! There were also several visits to the 1.6 metre observatory at Mont Mégantic, a number of school shows, and even a booth at **Stellafane** to mention a few more.

The Montréal Centre has come a long way since its beginnings in 1918. It has known many ups and downs, many triumphs and defeats. Yet, in all those years, one thing has remained constant and that is our steadfast devotion to amateur astronomy and to making this a universe we can all share. In closing, I am proud to say that thanks to the unwavering dedication of our membership, this past year ranks as one of the best in Montréal Centre history. Though it will be hard to top in 1991, we are sure going to try!

Louie Bernstein, Vice-President

The 1989-1990 year was extremely eventful for the Toronto Centre of the Royal Astronomical Society of Canada.

The sixth annual Awards Banquet of the Toronto Centre was organized by Miss Mary Anne Harrington and held on 19 November 1989 at The Old Mill Restaurant. The guest speaker, Prof. Derek York of the University of Toronto, presented a talk entitled "Science and Literature". The Centre award recipients were:

Bertram Topham Award: "28 Sagittarii/Saturn Occultation Team", Mr. David Aylsworth, Mr. William Braithewaite, Mr. Brian Cheaney, Mr. David Christmas, Mr. David Harris, Mr. Andrew Livingston, Mr. James Livingston, Mr. Guy Nason and Mr. Brian Tremble

Bert Winnearls Award: Dr. John Percy

Andrew Elvins Award: Mr. Darnley Wright

Jesse Ketchum Award: Mr. Tom McCollum

Membership Award For Service: Miss Mary Anne Harrington

25-Year Membership Certificate: Dr. D.A. Lane, Mr. B. Ramsay,

Mr. W.J. Stephenson, Mr. R.E. Welch and Mr. J. Zeglinski

Toronto Centre Gold Medal: Miss Shauna Sallmen (Miss Sallmen received her award at a special presentation during the regular meeting of June 22nd).

The Editorial Committee, led by Editor Mary Anne Harrington, continued its vital role of publishing and distributing six bimonthly issues of our newsletter, *Scope*. Included in the January-February issue was a special new members supplement prepared by Mr. Paul Fjeld, New Members Committee Chairman.

Mr. Fjeld's committee also presented a special Member's Night entitled, "The History of the Universe From Your Backyard" which addressed new members' interests and issues.

Membership Secretary Steven Spinney recorded 898 regular, 55 youth/senior and 86 life members for a total membership of 1039. This represents a slight increase (17) over the previous year.

It is with regret that we record the death of Mr. Alfred W. Scott.

The Programme Committee under Dr. Rachel Webster organized nine Regular Meetings. The speakers and their topics were:

International Lunar Initiative by Mr. Dan Blanchard

Planetary Rings by Prof. Scott Tremaine

Star Formation in the Milky Way by Prof. Ralph Pudritz

Liquid Mirror Telescopes by Prof. Michael Drinkwater

Active Galaxies Through Radio Eyes by Mr. Edward Zukowski

Dark Adaptation for Astronomical Observers by Prof. Ralph Chou

The Aurora From Ground and Space by Prof. Gordon Shepherd

Black Hole Thermodynamics by Prof. Matt Choptuik

Star Clusters by Prof. Patricio Ortiz

The Toronto Centre and the Royal Canadian Institute held two joint meetings in the fall of 1989. In October Prof. Hubert Reeves spoke on "The First Moments of the Universe" and in November Prof. Marshall McCall presented his address entitled "Supernovæ".

Eleven **Members Nights** were organized by the Observational Activities Committee led by Chairman Guy Nason. Topics of some of the presentations included: astronomy and the public, astronomical equipment, light pollution and the quest for dark skies, "An evening With Charles Messier", aurorae, the Finland solar eclipse, comets and meteors, astrophotography and solar astronomy. The October, February, April and June meetings were preceded by demonstrations in the McLaughlin Planetarium Star Theatre conducted by Messrs. Phil Mozel and Bruce Waters. Mr. Paul Markov organized observing sessions at Long Sault Conservation Area and Messrs. John Ginder and Robert Chapman led **City Observing Workshops** in Metropolitan Toronto parks. Thanks go to all those who assisted in these activities.

We offer our thanks also to Eric Galt and Darnley Wright for providing refreshments at all Regular and Members Meetings.

The Centre established a voice mail box telephone message system in April at (416) 777-4300. On average approximately 130 calls per month have been

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received – most to gain information provided by the recorded message and about one caller per day has left a message requesting more information.

After several consecutive rain-outs, the annual **Toronto Centre Picnic** took place this year on September 15th on the grounds of the David Dunlap Observatory. Mr. Otmar Eigler and members of the photographic workshop group organized the event and provided baked goods and cheese trays for the refreshments table. The annual **D.D.O. Open House** was held later that evening. Although clouds precluded observing, the tour of the facility by Dr. Tom Bolton and staff was appreciated by those in attendance. The Centre thanks Dr. Bolton and the D.D.O. staff for their hospitality.

Mr. Jack Winzer reported that the Telescope Makers Group continued its activities throughout the year. The group of about twenty members have completed four 6-inch mirrors and three 12-inch mirrors. Work on twelve other mirrors is progressing.

The Observatory Development Committee is continuing in its efforts to locate a suitable site and sufficient funding for the planned Centre observatory. Chairman Randy Attwood reports steady progress toward these ends. The Centre warm-up hut located on the Kelsch property in Schomberg, was transferred to the North York Astronomical Association.

By far the most active committee of the Centre was that of Public Education. Chaired by David Aylsworth (1989) and John Ginder (1990) and assisted by scores of volunteers, the Committee planned and produced numerous events. **Astronomy Week** in Toronto ran from April 19th to April 29th in celebrating the centenary of the R.A.S.C. John Ginder coordinated over one hundred volunteers and staff from the Toronto Centre, the McLaughlin Planetarium, the Ontario Science Centre, the University of Toronto and York University to produce the most extensive **Astronomy Day** week ever held in Toronto. For these efforts in “taking astronomy to the people”, the Toronto Centre was selected as the 1990 winner of the Sky & Telescope Astronomy Day Award.

Mr. Darnley Wright coordinated five shopping mall displays at five different sites across the Greater Metropolitan Toronto area. The two **Public Star Nights** might better have been named “Public Planet Nights” as they took on the planetary themes of “Jupiter Night” in January and “Saturn Night” in July.

No fewer than nine group talks were presented to schools, libraries and Wolf Cub Packs during the year. The Centre continued its tradition of assisting the staff of the David Dunlap Observatory with their Saturday night public viewing programme. Coordinated by Mr. Steven Spinney, many of our members joined Mr. Len Chester on clear nights from April through October in setting up their telescopes and meeting with the public. Members also helped the Ontario Science Centre at two **O.S.C. Star Nights** held at Bruce’s Mill Conservation Area.

This meeting marks the retirement from Council of Honorary President Dr. Kenneth Clute and Councillors Paul Fjeld, Karl Miller, Kim Rowe and Tony Sosnkowski. The thanks of the Membership and Council is extended to them for their contributions to the operation of the Centre during the last several years. The Centre also thanks all members of Council and other volunteers who continuously and tirelessly contribute their time and talents to the Toronto Centre. Finally, we thank the staff of the McLaughlin Planetarium for allowing us to use their facilities and mailing address.

Guy Nason, Secretary

Sarnia

The Sarnia Centre maintained existing programs in 1990, such as independent observing, small group observing and public service. The Sarnia Centre also published three issues of its journal, *Urania* during 1990.

Members of the Sarnia Centre also attended functions of other centres and astronomy clubs. Plans for 1991 include the possible purchase of a new Centre telescope to be used in our public education and service program.

A. Lester, Secretary

Centre Reports

The Calgary Centre had an extremely active year under the leadership of our President, Don Hladiuk, with membership topping the 200 mark. The annual elections were moved from the month of January to the preceding November, partly to facilitate the timely submission of this report to the National Secretary. The Centre bylaws were rewritten by Jim Himer, Glenn Hawley and Mel Head with much valuable input from many interested members. The Centre is looking forward to the approval and implementation of these bylaws during 1991.

Bruce Shier headed an enthusiastic group of fund raising committee members, who from members and corporate donations raised \$12,000 which was used to purchase a fully equipped Celestron C14! This instrument is now in service at the Wilson Coulee Observatory site south of Calgary. Bruce has taken over as Treasurer, a position held by our long time member Cam Fahrner, who held this position for the last ten years.

Ruth Lewis, Vice-President and Light Pollution Committee Chairperson, in her ever growing drive against light pollution, has made the Calgary Centre a full-fledged Section of the International Dark Sky Association. Public star gazing nights at Fish Creek Park and the Calgary Zoo attracted over 7,800 people. So successful was the evening at the zoo that we have been invited back in 1991. The **Alberta Star Party**, held near the town of Brooks, attracted 100 avid participants and over 400 people were taken on a tour of the Wilson Coulee Observatory during the year. In September, the I.A.U. honoured member Andrew Lowe by naming an asteroid after him in recognition of his work in the determination of the orbits of minor planets based upon only a few observations.

The Mars opposition observing sessions were clouded out on all but two of the six Friday/Saturday public observing sessions. These were held in conjunction with the Alberta Science Centre. Programs sponsored by the Calgary Board of Education with participation from the Calgary Centre included introductory astronomy courses, teachers' workshops and classroom visits.

Nine general meetings were held in 1990.

- January 18 Annual Elections and several short talks
- February 15 **Auroral Imaging from Orbit** by Dr. Debbie Hearn
- March 15 **Space Highlights 1989-1990** by Joel Powell
- April 19 **The Lost Iron Creek Meteorite** by F. John Howell
- May 17 **Observing Jupiter** by Dave Clyburn
- June 21 Several short talks
- September 20 **Minor Planet Orbits** by Andrew Lowe
- October 18 **Eclipsing Binaries** by Dr. Eugene Malone
- November 15 Annual Elections and several short talks

Last, but not least, one of the major accomplishments of the Calgary Centre was having Calgary selected as the host site for the 1992 General Assembly, to be held during the Canada Day weekend in July 1992.

On the lighter side, the Centre newsletter report on the Centennial General Assembly, held in Ottawa last July, showed a picture of several R.A.S.C. members posing as the "G.A. pyramid". The caption included the names of all, except for one "unknown member", a name which has haunted Glenn Hawley ever since that picture was published.

Glenn Hawley, Secretary

The Regina Centre has completed another very successful year thanks to the dedication and hard work of its members. During the summer an observation compound was constructed at Davin, Saskatchewan and it has proven to be a popular site for observing. On November 7th, the Saskatchewan Science Centre's Kalium Observatory was officially opened. The installation of the observatory's telescope was made possible with the help of Peter Bergbusch, Robert Klein, Roger Nelson and other members.

Throughout the year the Regina Centre held star parties, star nights for Guides, Scouts and Beavers, public viewing nights and the annual star party at Cypress Hills Provincial Park. The guest speakers this year were Peter Bergbusch and Father Lucien Kemble. The Regina Centre also had the misfortune of having three of its executive, Ed Morrell, Roger Nelson and Grace Nelson resign because they plan to emigrate from Saskatchewan.

Stephen Szute, Secretary

The Halifax Centre has completed another very busy year. Our main event this year was, as always, **Nova East**. For those of you not familiar with **Nova East**, it is our annual camping (or moteling) weekend, held at the group campsite of Fundy National Park in New Brunswick (yes, the park that is now missing a bridge)! The park boasts extremely dark skies and excellent facilities. It is co-sponsored by the Halifax Centre and the Saint John Astronomical Society. Many of our friends from the eastern United States, Québec and the Maritimes returned this year, as well as several new participants, one from as far away as Labrador City. The public events at Nova East remained strong. Talks were held Saturday night and public observing on two other evenings, at which about 500 members of the public filed past the eyepieces of our telescopes.

Many members were very active again this year, giving lectures at the Halifax Planetarium and astronomy talks to various groups. The Centre purchased a slide projector to help make the speakers more self sufficient when they travel to give talks.

The Halifax Centre continued to support out-of-town astronomy clubs in two ways. Firstly, a rebate system was developed which provides financial support for "satellite" groups with five or more members belonging to the Halifax Centre. Also, an **Astronomy Weekend** was held in the spring which provided talks and a planetarium show for our out-of-town guests.

The main speakers were the highlights of the general meetings held at the Nova Scotia Museum on the third Friday of each month. The September and October meetings were advertised to the general public and sported capacity crowds. As can be seen by the list below, the lectures varied from those of a technical nature to those that were informative and sometimes humorous.

- January 19 **Wolf-Rayet Stars** by Dr. David Turner
- February 16 **The World of Amateur Radio Astronomy** by Father William Lonc
- March 16 **Demonstration of the Voyager Program for the Macintosh** by Patrick Kelly; **Astronomical Computer Artwork** by Doug Pitcairn
- April 20 **Members' Night** plus the annual Trivia Contest
- May 4 Annual Banquet; **Astronomy from the Humid Subtropics?** by Brian Segal
- June 15 **Ring Galaxies** by David Wing; **A Visit to the Florence and George S. Wise Observatory in the Negev Desert in Israel** by Nat Cohen (Following the talk, Nat went directly to the hospital where he was given an emergency quadruple bypass operation!)
- August Nova East '90 and the annual rained out Perseid Party/Picnic
- September 21 **Creationism versus Real Science** by Dr. John Percy (University of Toronto); **Nova East '90 Report** by Mary Lou Whitehorne
- October 19 **Rainbows** by Dr. Roy Bishop
- November 16 **Amateur Astronomy** by Damien Lemay (National President)
- December 14 **SO Galaxies** by Dr. Gary Welch

Due to lack of attendance, our Observer's Group meetings had to be discontinued at about midyear. This is by no means an indication that the Halifax Centre does not contain active observers. Observing sessions were unscheduled again this year, with many new faces presenting themselves on every clear moonless night at the Beaverbank Observing Site north of Halifax. The weather has been abysmal this year, especially in the fall which is usually our best observing season. It could be because "The Doug" Pitcairn didn't yell at the sky gods at **Nova East** this year. I guess if we want clear skies in '91 it will be up to me as I am taking over as Observing Chairman, although somehow I don't think they will listen to me!

Our annual **Perseid Party** went as planned (meaning it rained) this year at Oakfield Provincial Park. This year we also had a family barbecue so our gas would

not be totally wasted!

One of our members, Dan MacLellan, was awarded first prize at the **Ottawa General Assembly** for the solar section of the display competition. Dan observed and photographed the Sun daily (weather permitting!) to keep track of developing sunspots and reported his results.

Some distinguished members received awards this year at the **Annual Banquet**. For example, Walter Zukauskus was named "Ho Hum Astronomer of the Year" and Bill Thurlow was bestowed with the designation "Most Whacked Out Messier Hunter".

My final note of the year is that the centre has started an award entitled the R.A.S.C. (Halifax Centre) Science Fair Award for Astronomy. It is intended to be awarded to the best astronomy entry at the high school level at the regional science fair. All donations to the fund for this award are being matched by the Centre.

David Lane, Secretary

Halifax

1990 was an active year for the Thunder Bay Centre. We have thirty-six R.A.S.C. members and ten additional club members. For the first two general meetings we continued our series of "Finding Your Way in the Night Sky". This series was provided by executive members and its aim was to teach beginners and refresh regular viewers on how to find things and what to look for in the night sky. These sessions were to lead to viewing sessions outside after the meeting but unfortunately, both of these were clouded out. However, both meetings drew a good turn out by members of the club. In January, we ran a survey to feel out what facets of astronomy our members were interested in. We had quite a range and we used this information to help organize future meetings. Through this survey we determined there was interest in putting together a workshop for telescope making. Another interest area led to the use of computers. Our focus was to gather information for our members on computer software ranging from driving software to educational applications.

In the month of April, we ran a three session series of discussions and activities at one of the main libraries in Thunder Bay. This was to coincide with **Astronomy Week**. The presentations were: "The Night Sky - A Gentle Introduction", "Exploring the Night Sky with Binoculars", and "Exploring the Night Sky with Your Telescope and Camera". All three drew reasonable gatherings of twenty to thirty people. **Astronomy Week** was very successful in having our organization recognized in our community. With the launch of the Hubble Space Telescope and the unveiling of our president's 17 inch home built telescope, we had a great performance with our annual mall display. Our annual **Sibley Campout** on July 1st was a disappointment. We had to postpone it by two weeks due to club members being tied up with other activities and even near the end of July, we had a poor turnout.

August was a better month for astronomers. On August 9th a few of our members gathered together at Quetico Provincial Park for a viewing session. A large crowd attended a slide show followed by public viewing. On August 16th we were visited by Science North. We had a great representation by young people. From this point we started back up in the fall with our regular general meetings. As the executive has been comprised of the same members for the last two years, we felt that a change of people for the new year would be appropriate. A nominating committee was put together to gather nominees for the new executive. Results will be passed on to the R.A.S.C. once the new executive has been formed. The final general meeting of 1990 was one of very big interest. Two local gentlemen gave a wonderful discussion on how to build a 3.5" Newtonian from a piggy bank. The display and discussion was a big hit. These were the 1990 events for the R.A.S.C. Thunder Bay Centre. We will hope for more activities in the next season and welcome a new executive.

Mrs. B. Connell, Secretary

Thunder Bay

Saskatoon

Yes, the Saskatoon Centre is alive and kicking! 1990 has shown more progress in making the Saskatoon Centre more active again. The past three years have seen significant changes in the core group of members.

The Saskatoon Centre held a total of ten executive and general meetings in 1990 on the University of Saskatchewan campus. The meetings were held on the third Monday of each month, with the exceptions of July and August.

1990 has seen a change in the format of the Centre's newsletter, *Saskatoon Skies*. Thanks go to the editor Jeff Phillips and Carol Blenkin for their efforts. 1990 also saw the Saskatoon Centre represented on the National Council after a lengthy absence. Ed Kennedy was our Centre Representative.

The Saskatoon Centre hosted three public star nights in 1990. The first two were during **Astronomy Week** on April 21st and 29th. The other public star night was the Centre's **Annual Star Night**, which was held on July 20th and 21st. The **Annual Star Night** also coincided with a partial solar eclipse. The public turnout was excellent for this event. In addition to these events, the Saskatoon Centre set up a display at the Western Development Museum for **Earth Day 1990**, which was manned by our President, Daryl Rybotycki. As well, the Saskatoon Centre was invited to put on a **Mini Star Night** hosted by the Beaver Creek Conservation Area which was held on October 20th. The annual **Perseid Meteor Shower Watch** was held on August 11th and was well attended.

The Saskatoon Centre has also seen the re-establishment of the Observers' Group. The Observers' Group meets monthly at our dark site. As well, the Telescope Committee was revived and work on the mirror for the Centre's 16 inch telescope has started.

Finally, due to the efforts of two members, Mike Wesolowski and Rick Huziak, the R.A.S.C. is getting exposure in the Saskatoon public school system. These two people have given nine lectures on astronomy to grade school classes so far.

Bill Hydomako, Secretary

Niagara

Our regular meetings were held on the fourth Thursday of the month in the LaMarsh Room of the Niagara Falls Centennial Library. No meetings were held in June, July and August.

- January 25 Annual Meeting; reports of officers; election of new executive; **The 1981 Total Penumbral Eclipse** by Darwin Christy (Buffalo)
- February 22 **Mars** by Dr. Fred Price
- March 22 **The History of the Planetarium** by Norman Green
- April 26 **Canada in Space** by John van Ophem
- May 24 Member's Night; slide presentations; video presentation of the first episode of Carl Sagan's **Cosmos**
- September 27 Reporting on this summer's activities, including Comets Austin and Levy
- October 25 **Astrophotography** by Mike de Villaer
- November 22 **Stephen Hawking's A Brief History of Time** by Dr. John Black
- December 27 Two National Geographic Society videos: **Space Exploration** and **The Sun**

On August 5th we finally held our Centre **Barbecue**, which had been postponed three times because of the weather. There were five **Public Star Nights** at L.B. Pearson Park in St. Catharines during the summer. On September 26th, the centre supplied six telescopes with operators for Dr. Black's astronomy class at Brock University. On November 10th we had the **Fall Banquet** at the Victoria Park Restaurant in Niagara Falls. Our guest speaker was Dr. Doug Welch of McMaster University.

The year's activities included refurbishing the 17" telescope, which now has a solid mounting on a pier at Rick de Rosa's farm. It is easier to set up and is used much more than before, weather permitting. Several members attended **Starfest** and the **Syracuse Summer Seminars**.

W. Jutting, Secretary

Centre Reports

1990 proved to be another full year for the Kitchener-Waterloo Centre of the R.A.S.C. A blend of new activities with ones from past years made for an exciting twelve months. January started off with the sale of T-shirts with our new logo emblazoned on the front. At our first meeting of the year, Ray Koenig gave a talk on astrophotography and made use of his vast collection of equipment and pictures. As well, a summary of the coming year's astronomical highlights was given.

Our February meeting was a review of the Voyager spacecraft's passage by the planets Jupiter to Neptune, including some recently released slides of the Neptune flyby. In March we were given a talk on the Sun by George Mudry with emphasis on his involvement in sunspot reporting to the A.A.V.S.O. The group was also treated to more pictures from Peter Daniels, our astrophotographer extraordinaire.

In April we had a guest speaker from the University of Waterloo. Dr. Paul Wesson spoke on cosmology, covering everything from the start of time to S.E.T.I. As we approached the warmer weather it was decided to hold the June meeting at the observatory where Jeff Brunton gave a talk on the progress of the club's 10" sidewalk Dobsonian. Hopes of turning the meeting into a viewing session were dashed by the weather.

Summer turned out to be a rather busy season for the club. Rather than taking a break during the summer months as in the past, it was decided to hold viewing sessions on our normal meeting nights. Attendance was good and it was decided to continue the practice in the coming year. The annual picnic at the observatory was rained out as was the rain date so we will try again next year. In late August a workday was held at the observatory and thanks to a good turnout a lot of necessary maintenance was carried out.

There was a good representation by our club at **Starfest** this year and we managed to get most of our group camping together for a change. David Levy's talk on comets was enjoyed by all and helped brighten a weekend that the weather dampened. Our new 10" Dobsonian got its first use between the clouds, when possible, and results were promising.

To start off our first meeting of the fall, in September we had Steve Horvath of the Canadian Space Society speak on Canada's entry in the 1992 Earth to Mars solar sail race. His description of the engineering feats to be overcome just to get the ship out of Earth's orbit gave us a good idea of what they are up against.

October saw the club set up a display again at the **Midwestern Ontario Leisure and Hobby Show**. Our booth operated throughout the show and was very informative for those stopping by. Our October meeting featured Joady Ulrich from the Windsor Centre who spoke on space art. His presentation ranged from the accuracies in Van Gogh's drawings to the latest paintings seen today.

November's meeting was a talk and slide show by Peter Daniels on many of the things he has seen and places he has been as a result of his interest in astronomy. As always, it was enjoyable and informative. Our final meeting of the year, in December, featured Ray Koenig who gave a talk he had presented in the previous month at the Windsor Centre entitled "Things we Can See Because the Sun is There". It ranged from rainbows to planetary photography. Our year closed out with our annual Christmas dinner and get together afterwards at Ray Koenig's house.

It has been a very busy year with much accomplished but with much still yet to be done. Repairs on the 12.5" reflector are still ongoing. *Pulsar*, our newsletter, continues to improve in quality with each issue and a special thanks to editor Paul Bigelow must be given for his excellent work. With the election of our new executive completed, we have seen to it that the accomplishments of the past year will only be exceeded by those of the year to come.

Jeff Brunton, Secretary

The Ottawa Centre membership for 1990 totals 263 members consisting of 219 regular, nine junior, and thirty-five life members. This number represents continued growth in the Ottawa Centre with an increase of nine from the 1989 membership totals.

The Ottawa Centre Council met four times in 1990. At the January meeting of Council, the following committees were appointed; *Astronotes* Editorial Advisory Board, Dinner, Programme, Observatory, Constitution and Nominating, Awards, Membership, Activities and Facilities, **General Assembly**, and the Library Committee. The passing of member Mr. Walter Peshke was noted with sadness.

Members were treated to a wide selection of topics at this year's Centre Meetings. Our first speaker of the new year was President Rolf Meier. His talk about atmospheric phenomena was illustrated with many interesting photographs. In February, Ottawa Centre member Dr. Ian Halliday vividly illustrated his talk about the recent Voyager flyby of Neptune titled "The Voyagers Explore the Outer Solar System". Many members also enjoyed the March talk "New Maps of Worlds in Space" by member Dr. Peter Millman. He related his personal experiences with the naming and mapping of the outer planets' satellites which were discovered during the Voyager flights through our solar system. It was with tremendous sadness we noted the passing of Dr. Millman, a staunch supporter of the Ottawa Centre, in December.

In April, National President Dr. Lloyd Higgs explained how a modern radio telescope works in his talk titled "The Magic of Aperture Synthesis". He enthused the audience by also describing proposals for future, high resolution, radio telescopes. In May, a joint Ottawa Centre/Museum of Science and Technology talk was given by Dr. David Malin of the Anglo-Australian Observatory. He proved the value that photographic film still has for scientific research with a series of excellent photographs.

The fall schedule of meetings began with a talk by Tom Harris titled "The Second Golden Age of Planetary Exploration" which showed members what to expect in future unmanned missions in the solar system. In October, the year was capped off by a thoroughly fascinating comparison of European and Chinese astronomy in a talk given by member Ronald Rodgers titled "Ancient and Medieval Comets".

Much of the work this year centered on the **General Assembly** held in Ottawa for the first time since 1973. The **G.A.** was chaired by Robert McCallum. With his dedicated organization and the help of many Ottawa Centre members, this **Centennial G.A.** was very successful. It was a pleasure for the Centre to host many members from the R.A.S.C.

The Observatory Committee, which included members Robin Molson, Frank Roy, Rick Crook, Doug George, Sandra Ferguson, William Dey, and Gary Mussar made major improvements to the Indian River Observatory (I.R.O.). In the latter half of the year, the Centre received a very generous donation, from Mr. Robert Haughton, of an eight foot dome. This new dome will house our 10 inch reflector. The annual gate key fee to the observatory site was raised to \$5.00 and the full keyholder fee was raised to \$35.00. The Ottawa Centre does not have a general surcharge and so these fees help defray the costs required for the upkeep of I.R.O.

During the year, the Indian River Observatory was the site for a number of star parties and other events such as the **Messier Marathon**, the **Deep Sky Weekend**, school group observing, and organized meteor shower observing. The Mississippi Valley Conservation Authority, on whose land I.R.O. is situated, was our guest for a star night held in August.

The radio survey, which began in April of 1989, is progressing well. So far 57% of the sky from -33° to $+79^{\circ}$ declination has been scanned by a team of people coordinated by Frank Roy. In 1990 there was one major failure when lightning struck one of the antennae and destroyed the preamplifier and part of the receiver. However, the system was off the air for only three weeks while the receiver was repaired.

The Observers' Group, which generally meets the first Friday of each month,

was the setting for many interesting talks organized by Chairman Hilderic Browne and Vice Chairman Patrick Laffey. The talks included a discussion by Paul Boltwood on his CCD camera project and a talk by Brian Burke which showed how light pollution has affected his neighborhood. Dr. Gary Susick described a display he co-authored with Dr. Fred Lossing. The display, which described the transmittance characteristics of light pollution filters, was entered into competition at the **General Assembly**. Peter Ceravolo shared his optical knowledge about good and 'not-so-good' mirrors to curious members. George Ayer gave several talks throughout the year on observing variable stars. Paul Comision took a historical perspective by describing the expanding ability of astronomers to observe across the electromagnetic spectrum. As well he gave a practical discussion on telescope optical accessories, describing eyepieces, Barlow lenses and rich field adapters.

Astronotes is a valuable source and record of information and stories. Editor Doug George regularly devotes many hours to bringing the Centre's newsletter together. His appreciation for the articles he received during the year was exemplified by the award to Brian McCullough, at the **Annual Dinner Meeting**, for one of his many interesting articles this last year. The guest speaker at the 1990 **Annual Dinner Meeting** was David Levy. He recalled several comet experiences and shared with the audience his personal passion and fascination with comet hunting.

In addition to the many R.A.S.C. members who visited Ottawa for the **G.A.**, several Ottawa members did some travelling this year. Over twenty members trekked off to **Starfest** in August. Past President Doug George and President Rolf Meier together with David Levy contributed to an informative and entertaining panel discussion. Chaired by author Terence Dickinson, they discussed their comet hunting experiences. Member Peter Ceravolo demonstrated the intricacies of testing the optical quality of different types of telescopes to an audience riveted by fascination (and worry) until the early hours of the morning. In September many members were given a first class tour of the Solar Observatory by Dr. Vic Gaizauskas. The weather cooperated for this last chance to view the sun through this world class telescope.

Derek R. MacLeod, Secretary

Well, here we are about to emerge from another very busy year. This year, the so-called "experts" had warned that the hobby was likely to experience a bit of a drop in public interest from the public. There would be no Halley's Comet, no total eclipses. The dates for the launching of the Hubble Space Telescope had not yet been determined with any certainty, and N.A.S.A. was still struggling with a public image that reflected a loss of confidence in its ability to successfully carry out its missions. As we all know, what actually happened was quite the opposite!

For most of the spring and summer we enjoyed a spectacular Comet Levy, which, while it did not enjoy the publicity surrounding Halley, actually outperformed its predecessor. The clear skies of late July framed a stunning partial eclipse. And Hubble? Our special guest speaker, Dr. John Hutchings, demonstrated the H.S.T.'s impressive contributions thus far. As if all of this weren't enough, there was **Space '90**. This project, run as a cooperative effort between the Royal British Columbia Museum and the Herzberg Institute of Astrophysics (D.A.O.) attracted thousands of participants. The Victoria Centre is proud to have been able to assist by members' participation in some of the panel discussions and the offering of nightly evening observing from Beacon Hill Park.

Our future looks very encouraging. Thanks to the hard work of a number of our members, we have succeeded in establishing an Education Committee. The fifteen or so volunteers on this committee are in increasing demand to speak to groups in various elementary and high schools and have made presentations to Cubs, Boy and Girl Scouts and Beavers.

Finally, I'd like to take a moment to thank all of the members who offered their time and skills to our Centre's varied activities.

Alice Newton, Secretary

At last year's annual meeting, it was Dennis Ryan's decision, after many years as a member of the R.A.S.C., and only about a year in St. John's, to decide to challenge himself and become President. At the time, he made the promise that if things didn't go well he would offer to resign in three or four months. On the other hand, if the membership thought he wasn't doing a good job, they could offer him a petition to resign! Although it might have been taken as something of a joke, he was serious about the offer, but neither has happened.

All in all, the St. John's Centre has had a pretty successful year. One of the executive's first acts was to get an inventory of Centre equipment and try to set up a system where we would know who might possess a particular piece at any given time. The system consisted of a form to be made out and signed by a board member. It has worked well so far, although there was much discussion on how much the rental fee should be, or if one should be levied at all. This issue has not yet been resolved. There was also the fact that one of the telescopes needed repairs and the decision to initiate repairs was made at one of the executive meetings and successfully accomplished.

We chose to have executive meetings the Sunday before the monthly meetings and these have proven useful and, to a certain extent, time saving. At one of these meetings it was decided that Peter Allston, at that time the Editor of *All About Stars*, the Centre's newsletter, should be on the board and this was done.

We also decided to have the Centre's first Christmas party and the reason for doing this was not only to celebrate that festive time of the year, but also to bring about a situation where members could get together in a casual setting. Randy Dodge offered the use of his house and the party was fairly successful.

It was also about this time that our new President, having been here for only a year, was informed that 1990 was the St. John's Centre's Silver Anniversary and that we should, of course, have events to celebrate it. After much discussion, we came up with six basic ideas: to put together a history of the Centre; to make the media more aware of our existence; to participate in **Astronomy Day**; the **Starbeque**; invite an original member of the Centre to address us; and to invite the National President to address us.

The history of the Centre has been an ongoing activity by Randy and he has promised something in time for Damien Lemay's visit.

As for the media, our P.R. has been good there, starting with Dennis appearing on the C.B.C.'s Morning Show with Peter Miller in February and Randy appearing on the show in March. This has happened a number of times now on an irregular basis. Randy and Dennis have also appeared on C.B.C.'s Coffeebreak, a local show, to celebrate Comet Austin. The comet was a dud, but at least we got the publicity. N.T.V., C.T.V.'s local affiliate, contacted Dennis a short time ago about a mysterious object seen over Hickman's Harbour, and Randy, Gary Dymond and Dennis went down to look at the tape they had. While this might cause some members concern about getting involved in a U.F.O. case, we did what we're supposed to do. We confirmed that it was not some astronomical phenomenon. To that end we did our job.

In April we celebrated **Astronomy Day** at the Village Mall and once again it was a success despite the fact that the day was sunny when most people would have liked to be outdoors. Dennis said later that it was a chance to see how our growing membership would respond to a Centre activity and that he was thrilled by the response. Everyone who said they could come, did. The display that we set up was impressive and a good day was had by all.

With June came a special celebration – the Centre's incorporation. It came after years of hard work by Centre members and Randy, Gary and Peter can be mentioned as the long time members who have had to deal with the ups and downs through the years of trying to get this accomplished. Our President said that the fact that it happened during his first term in office is no kudo for him, but for the fact that the law changed in our favour and we were now able to accomplish it. We did it mainly to obtain some crown land to observe from and this is presently an ongoing process.

One thing that members seemed to want over the summer was opportunities

to observe together. The quarry off Cochrane Pond Exit, only fifteen minutes outside of town, proved to be a very good spot and we spent an average of two hours out there on each of eleven nights during the summer. One of those nights was spent taking in the glories of Comet Levy. It also seemed to have the beneficial side effect of solidifying us as a Centre.

Then, of course, came **Starbeque**, and Gary Dymond happily reported its success and how impressed they were with William Short's equipment, of which he seemed to have plenty. Since then he has joined the Centre, even though he lives in Corner Brook.

At our meeting in September, the first meeting of the fall, Randy, as one of the original members of the Centre, spoke to us about the early days and it was most informative.

The last Silver Anniversary event will be Damien Lemay's visit in November and we believe it will be a fitting end to our celebration of twenty-five years as a Centre. Future plans include obtaining the observing land and having an observatory on it. Also in the not too distant future we hope to be able to host a **General Assembly** in Newfoundland.

The executive this year was great: Dennis, for good leadership; Randy, tireless in his efforts to help the Centre; Gary, who took on two demanding jobs as both Treasurer and Observing Chairman in addition to demanding home duties; Peter, who, in the opinion of the executive, though he may have decided to resign as Editor, did so in a blaze of glory by putting out excellent newsletters; and we thank John Bell, who has had the courage to step into Peter's shoes.

Last summer, Dennis attended the Society's centenary celebrations in Ottawa and was proud to represent St. John's. The Centre's membership is up, originally at eight and now around thirty. The Centre has experienced a year of accomplishments and has a lot to look forward to for 1991.

David Bourgeois, Secretary

As the 20th century entered its final decade, the London Centre endeavoured to experiment with new programs and approaches to some of its established practices, in a determined effort to attract new members and to involve all personnel in the Centre's activities. A series of **Members' Nights** were staged in which everyone present had the opportunity to describe personal projects, show off their astrophotographic accomplishments, or simply participate in general discussions on a variety of topics of interest and concern to the Centre.

During the year a number of guests spoke to us on a variety of subjects. One of these, Murray Kucherawy, of the London Board of Education, presented a most interesting and challenging address. Earlier in the year he attended the American Space Camp in Huntsville, Alabama, where young people from all over the U.S., Canada and Europe are trained in a variety of space-related activities. Mr. Kucherawy wants to create a similar facility in London. He is endeavouring to enlist the support of the Board of Education, the Ontario Ministry of Education, corporations and universities. He is particularly keen to have our London Centre participate in the planning and development of the project. He foresees the possibilities of such a program as extremely beneficial to young folk across the entire country.

The Centre's Observers' Group has had a busy and enjoyable year. There have been regular observing sessions at various sites around London, as well as visits to **Stellafane** and **Starfest**. During the year, our President, Joe O'Neil, completed construction of an excellent 4-inch refractor. Recently the Centre took advantage of a great opportunity to purchase a nearly-new Meade DS16 reflector. These fine instruments, along with our 8-inch Dobsonian, are made available to all members for their observing pleasure. A long-standing goal of the London Centre has been the eventual creation of an observatory, and we will continue to plan for the day when this becomes a happy reality.

Eric Clinton, our long-time newsletter editor, has continued to publish a fine monthly journal, *Astronomy London*, that brings us news of astronomy everywhere and faithfully reports all activities of the Centre.

London

All in all, 1990 has been a most productive and enjoyable year, and we are looking forward to an equally exciting 1991.

Our monthly meetings were as follows:

- January 19 **Relativistic Geometrical Distortions** by Ken Hunt
- February 16 **The World's Oldest Rocks** by David Atkinson
- March 16 Members' Night. **CCD Video Images of the Moon, Jupiter and Saturn** by Frank Lockner
- March 24 Annual Banquet; **The Meteorite Story** by Dr. Howard Plotkin
- April 20 Members' Night. **CCD Video Images of the Sun and Moon** by Frank Lockner
- May 18 **Meteorology for Astronomers** by Frank Lockner.
- June 15 Members' Night; **Refractors** by Joe O'Neil and Gary Hinks
- July 20 **The 1990 General Assembly** by Eric Clinton
- September 21 **The Solar System Slide Show** by Eric Clinton
- October 19 **A Black Hole's Event Horizon** by Michael Johnson
- November 16 **London Space Camp Proposal** by Murray Kucherawy (Board of Education)
- December 21 Discussion on a new London Centre constitution .

Grant Carscallen, Secretary

1990 for the Windsor Centre went well and was the second year under the direction of Steve Pellarin, our President. In April, the Centre held a display at the **Windsor Area Science Fair**. In May, another display was sponsored at the **Canada Wide Science Fair**. Both events were held at the University of Windsor. Study continued on the serious possibility of the Centre hosting a **General Assembly** in 1995. Also, attention was given to revising the Centre's constitution.

Some members attended **Starfest** in August. A special lecture was given by John Dobson at the University of Windsor in late August. Tom Sharron and Al Des Rosiers reported that the Spracklin and Patterson-Hallam refractors had been completely restored. A speaker exchange was held with the Kitchener-Waterloo Centre; Bernd Mueller, their President coming to speak in November with Professor Ray Koenig of Sir Wilfred Laurier University; and C. Joady Ulrich speaking at the October membership meeting of that Centre. Dan Taylor and Joady also spoke at a meeting of the Warren Astronomical Society last fall.

Special thanks go to John Dobson for his visit. Also to Dan and Tom Sharron for their work at the displays. The former has broken the large aperture barrier in the Centre with the completion of his 0.5 metre Dobsonian reflector. Also, great appreciation is expressed to Steve Pellarin for his many contributions to the Centre's progress in the last two years. Thanks are also expressed to the various speakers who gave presentations at the membership meetings. The best of success to Dan Taylor who is our new President for 1991.

The Windsor Centre held nine membership meetings, one special lecture, one social and three Council meetings in 1990. The meeting agenda for the year was as follows:

- January **The Discoveries of Voyager 2 at Neptune** by Steve Pellarin
- February **Multiple Stars and Binary Systems** by Jack Brisbin (President of the Detroit Astronomical Society)
- March **The First 100 Years of the R.A.S.C.** by C. Joady Ulrich
- April **The Galilean Satellites of Jupiter** by Marty Kunz (President of the Warren Astronomical Society)
- May **An Award Winning Split-Ring Mount** by Fred Schebor (Lowbrow Astronomers)
- June **Astronomy and Computers** by Paul Preney and Peter Tkacz
- August **Dobsonian Telescope Design and Cosmology** by John Dobson
- September **A Trip Through the Intergalactic Zoo** by Steve Pellarin and Dan Taylor
- October Film Night: *Canada's Stargazers*
- November **Basics of Astrophotography** by Bernd Mueller; **Thing We Can See Because the Sun is There** by Ray Koenig

C. Joady Ulrich, Secretary

Windsor

Centre Reports

The past year was a very exciting one for the members of the Kingston Centre. In addition to the twelve regular and twelve executive meetings, we had a very special meeting to welcome our Honourary President, David Levy, literally days after discovering his seventh comet.

The year started off with local astronomer Terence Dickinson talking about the Voyager 2 flyby of Neptune. At that same meeting, Ruth Hicks, Past President, received the A. Vibert Douglas Award for service to the Kingston Centre. In February, Gerald Moriarty-Schieven spoke about star formation and protoplanets, then left to take up employment at J.P.L. in California. Ian Levstein spoke to us in March about the role of astronomy in science fiction films. April's guest speaker was Dr. Philip Baille, who spoke about the great men of astronomy from ancient times to 1700. April also brought about a very successful **Astronomy Day** exhibition at two local malls, with displays, pamphlets and telescopes galore (including the 13" green pig).

May was a **Members' Night** and we listened to five short talks from Bill Broderick (tektites), Chris Collin (time), Leo Enright (sidereal time), Gisele Broderick (astrology) and Denise Sabatini (the New Grange alignment of the Boyne Valley Cairn). Also in May, we were pleased to learn of David Levy's sixth comet discovery, Comet Levy 1990c. In June, Walter MacDonald talked about his experiences with his 12" Questar. In July, Terry Hicks answered the question: "Where will the sun set?". Bill Broderick spoke again in August about our cosmic connections, but not before Stan Hanna received his long sought Messier certificate and we learned that David Levy had discovered asteroid Levy 1990BN.

With Terence Dickinson, our Centre also held a very successful observing session at Charleston Lake Provincial Park where Comet Levy and Saturn were the main attractions. **Members' Night** came once again in September and Ian Levstein showed slides of summer auroræ and Comet Levy, Arthur Covington spoke about radio astronomy and brought in a tape recording of pulsars, and David Stokes read a poem by his friend Patrick White concerning the discovery of Comet Levy.

October brought back John Griese III to speak about the July 1989 total solar eclipse, and we welcomed the addition of a new 32 mm eyepiece for our Centre's 10" Dobsonian reflector. In November, Leo Enright told us about the Holleford Crater, which is located just a few miles north of Kingston. A special meeting was called two weeks later to hear David Levy talk about his comet discoveries and we were all pleased to hear that our Honourary President had just discovered, photographically, his seventh comet - Comet Shoemaker-Levy 1990o. David was also honoured to present to our President, Denise Sabatini, the A. Vibert Douglas Award in recognition of her service to the Kingston Centre.

In December we held our annual dinner and election night, resulting in many new faces on the executive. Also that evening, Terry Hicks talked on the problems faced by navigators in finding longitude prior to the invention of the Harrison Chronometer, and Ruth Hicks gave us an overview of Stonehenge.

We have had a terrific year. We have been treated to fine presentation and more than a dozen new members have been accounted for. Our current membership list shows eight life members, two senior members and forty-three regular members. Best wishes to the new executive.

Ian Levstein, Secretary

Twelve council meetings and twelve members' meetings were held, eight with speakers provided by our speaker coordinator Barry Shanko. Three were planetarium shows (thanks to the planetarium staff!) and one was at an optical workshop. We took part in the **Fraser River Festival** in June and had two very successful observing weekends at Manning Park in July and September.

The **Mount Kobau Star Party** was marred by bad weather, as was **Astronomy Day** for the same reason. Our annual dinner was held in March. We regret to announce the deaths of two life members, Dr. Arthur Crooker (a former President) and Mrs. James Greer. At our December annual meeting we were happy to present the Society's Membership Certificate to Dale McNabb for outstanding service to our Centre.

Sally Baker, Secretary

Durant l'année écoulée, le Centre Francophone de Montréal comprenait 35 membres en règles et 2 membres à vie.

Les conférences importantes présentées de l'année furent celles de:

- janvier **Toute la lumière sur la matière non-lumineuse** par Dr Claude Carignan
- février **Nos voisins les nuages de Magellan** par Dr Serge Demers
- mars **Les deux planètes visitées dernièrement par Voyager II** par Dr Robert Lamontagne
- avril **La nucléosynthèse** par Dr Jean-Pierre Arcoragi
- mai **Rencontre entre galaxies** par Dr Hugo Martel
- octobre **Observer avec le télescope Hubble** par Dr Anthony Moffat
- novembre **Observation avec le plus gros télescope au monde** par Dr Gilles Fontaine

Notre groupe a participé aux événements suivant: **Exposition sur le Soleil** au Planétarium Dow; **journée mondiale de l'Astronomie**; **festival du Mont Mégantic**; **congrès de l'A.G.A.A.** Nous avons été présent au **Congrès de la S.R.A.C.** à Ottawa, mais sans participer à l'exposition. M. Jean-Pierre Urbain a assisté à la réunion de l'hiver du conseil de la S.R.A.C. ainsi qu'à celles tenues à Ottawa durant le congrès.

Nous avons publié trois numéros du bulletin de liaison Astro-notes et une fiche technique sur l'observation avec un petit télescope. Un effort considérable a été fourni pour la publication de l'Annuaire Astronomique 1991. Enfin la rédaction en français du *Newsletter/Bulletin* national était assuré par un de nos membres, Marc A. Gélinas, durant l'année.

Lors des élections en novembre 1991 un nouveau président a été nommé: M. Patrice Gérin-Roze, ainsi qu'un nouveau secrétaire également: M. Alain Roussel. Le vice-président, M. Gilbert Ouellette conserve son poste, de même que le trésorier: Pierre-André Guibord, et l'administrateur délégué: Marcel Legris. Les conseillers sont Ms Roger Lebrun, Rolland Guilbault, Jacques Lamy, George Pichette Jacques Ouimet et Jean-François Juteau.

Marc A. Gélinas, Secrétaire sortant

Notes to the 1990 season of the Edmonton Centre of the Royal Astronomical Society of Canada.

- January 8 **Binocular Observing** by Mike Noble
- February 12 **Planetary Observing** by Dave Clyburn, Randy Pakan, Murray Paulson
- March 12 **The Early Days of the Space Program** by Dr. Tartar
- April 9 **Chaos** by Franklin Loehde
- May 14 **The Prince George 24" Observatory** by Bob Nelson
- June 11 Member's Night
- September 10 Member's Night & Summer Review
- October 15 **Telescope Accessories** by Dave Clyburn
- November 12 **Workshop '90 Highlights** by Bob Drew
- December 10 **Coral Pink Sand Dunes Observing Holiday** by John Mirtle

The Edmonton Centre enjoyed an exceptional year which witnessed a high degree of activity and participation by many members in many different capacities.

The Observers' Group showed particular keenness in developing observing skills as the Centre saw four Messier Certificates awarded. Recipients were Paul Campbell, Bob Drew, Larry Wood and Murray Paulson. As well, many others in the Centre actively participated in Centre observing sessions at the Waskehegan Staging Area. This site is a short drive to the east of the city and many times there were over thirty attendees. Other clear nights (but not "official" club observing nights) saw a dedicated core group of observers journey out to the Blackfoot Staging Area, just east of Elk Island National Park, where these handful of people could be found until the wee hours. The remaining members lived vicariously through this group, as the Centre was treated to numerous presentations of astronomical drawings and reports of sky conditions and events.

One member of the Observer's Group, Paul Campbell, distinguished himself at the **Mount Kobau Star Party** by taking home top honours for telescope making in the Dobsonian category, adding another chapter to the legacy of Edmonton telescope makers.

The fourth annual **Alberta Star Party**, hosted by the Calgary Centre at Kirbrook Island Provincial Park, was another event well attended by Edmonton Centre observers. Despite the somewhat lengthy drive, numerous people made the trip, including Russ Sampson who was a guest speaker on the subject of aurora. Russ's aurora photographs have appeared widely in astronomical publications, including on the cover of *Sky & Telescope*.

The Edmonton Centre had the extreme pleasure of enjoying a special presentation by California scientist Dr. Peter Weichman, who highlighted his talk on Jupiter's Great Red Spot with overhead slides and a N.A.S.A. video on the Spot.

The Edmonton Centre was not without stars of its own this past year. Among these was Sylvia Smith, without whose efforts **Star Night '90**, the Centre's celebration of 100 years of astronomy in Canada, would not have succeeded. The first weekend in April was designated to be Star Night, and Sylvia organized approximately thirty volunteers to put on a public display of astronomy and observing at the Edmonton Space and Sciences Centre. Though the weather was reluctant to co-operate, an enthusiastic public did manage to look through members' telescopes between a few clouds, see displays on computers and astronomy, a slide show, telescope displays and even a children's astronomical craft table! The event was even covered by a local newspaper and radio station.

Other stars included George Moores and Russ Sampson, who spent an inordinate amount of energy co-ordinating the most successful **Astronomy Workshop** to date. This second workshop, will firmly entrench this as an annual event due to the quality of the speakers and the setting. The speakers were headlined by well known telescope maker John Dobson, flanked by, and certainly no less in stature, long time R.A.S.C. member and local astronomer Dr. Doug Hube and Saskatchewan amateur Father Lucien Kemble. Though the workshop is certainly becoming well known for its astronomical prowess, it is, perhaps, rapidly becoming most famous for the food served! George and his crew have demonstrated something of a knack for home cooking, even if it is for eighty people. When the workshop was announced at a regular meeting of the Edmonton Centre, the first question asked by a prospective participant was "What is on the menu?".

Overall, enthusiasm and participation has made 1990 an enjoyable and memorable year for all Edmonton Centre members,

Howard Spragins, Secretary

Comme l'avait prédit, une certaine personne, l'année 1990 fut mémorable pour le centre de Québec, un vent de changement a soufflé sur celui-ci...

En effet, pour tous ceux qui ne le savent déjà, le Centre de Québec a aménagé dans de nouveaux locaux au Domaine Maizerets 1000 de la Vérendrye à Québec. Nous y retrouvons désormais une grande salle pour nos conférences ainsi qu'un espace suffisant pour la bibliothèque du centre avec sa vaste collection de volumes, de revues et d'ouvrages de tout acabit sur l'astronomie en général.

Ainsi en 1990, le programme de conférences fut le suivant:

- | | |
|-----------|---|
| Janvier | Le commencement de l'Univers par Jonny Gauvin |
| Février | Les dimensions de l'Univers par Pierre Bouliane |
| Mars | Photographie Astronomique en trois dimensions par Martin Rochette |
| Avril | Les étoiles compactes par Jean-Rémy Duquet |
| Mai | A la découverte de vos instruments par Mario Lapointe |
| Juin | Construction d'Observatoire et monture de télescope par Marc Martineau |
| Septembre | Prise de photos à partir d'une caméra C.C.D. par Groupe d'observateurs |
| Novembre | Construction d'un télescope par Patric Dufour |
| Décembre | Eclipse de soleil de juillet 1991 par Jean-Marie Fréchette |

De plus de nouvelles activités se sont ajoutées au programme pendant l'année. Les membres et la grand public en général ont pu bénéficier de soirées d'observation et de causeries vers le premier quartier de Lune de chaque mois au Domaine Maizerets. Je précise ici, qu'une commission d'observation a été formée à cet effet en début d'année par M. Dominique Beauchamp et M. Jonny Gauvin. La formation de cette commission avait comme but premier de favoriser le développement et la réalisation de différents projets et d'offrir aux membres amateurs, qui font de l'astronomie pratique (sur le terrain) certains services.

Voici en quelques mots ce que la commission a pu offrir aux membres:

- L'achat de matériel (films pour caméra, recherches étoiles, etc.) au prix du gros afin d'obtenir des rabais substantiels;
- Mettre en commun lors des réunions du groupe les idées, les travaux pratiques tel que: la construction de télescopes, la photographie astronomique via une caméra CCD, etc...;
- Possibilité éventuelle de faciliter la publication des résultats des travaux dans la revue *Le Québec Astronomique* ;
- Organiser des soirées d'observations thématiques orientées sur un sujet particulier avec causeries le tout alimenté par des conseils pratique sur les techniques d'observation;
- Diffusion d'éphémérides électronique, etc.

Cette année encore des cours d'astronomie ont été offerts aux personnes intéressées. Ces cours étaient donnés en autre par M. Dan Côté et avaient lieu au Domaine Maizerets. M. Yvan Bourassa quant à lui a continué à donner ces cours à l'Aquarena de Charny.

Comme par les années passées le Centre a pu bénéficier de l'observatoire du Collège de Lévis situé à St-Nérée de Bellechasse. Nous y avons eu accès tous les samedis et dimanches de beau temps sous la direction d'un des responsable du Centre. De plus, ayant reçu leur fameux miroir de 16" après presque 3 années d'attente, M. Denis Martel et Clermont Vallières ont pu finaliser la mécanique et l'électronique de leur télescope situé à l'observatoire de St-Luc dans le comté de Bellechasse.

Dans le cadre du **Festival d'Astronomie du Mont Mégantic** les 13, 14 et 15 Juillet dernier, quelques membres du club s'y sont rendus. On a pu observer à partir d'un des nombreux télescopes sur place, les planètes Saturne et Uranus toutes deux visibles en direction Sud dans le même secteur du ciel à ce moment là, l'amas globulaire (M13) dans la constellation de Hercule, la galaxie d'Andromède (M31) dans le voisinage de Pégase, etc. Pour ceux qui s'y trouvaient ce fut très excitant jusqu'à l'arrivée des nuages dans la nuit du samedi au dimanche vers les 00:30 environ.

Fait à souligné, à la fin de Juillet, une délégation de six membres du centre s'est rendu à **Stéllafane** près de Springfield dans l'état du Vermont. **Stéllafane** a été le théâtre, un lieu de rencontre de certaines d'astronomes amateurs venus de tous les coins des Etats-Unis et du Canada. On y a retrouvé un concours de fabricants de télescopes, un impressionnant marché aux puces, le tout animé par des causeries et des conférences. Pour ceux qui désiraient acheter du matériel astronomique, le marché aux puces offrait des aubaines remarquables. En bref, c'est une activité qui ne faut pas manquer et qui a lieu à chaque année.

A l'occasion des Perséides les 10, 11 et 12 Août dernier plusieurs membres du club ont accueilli le public dans la vallée du parc de la Jacques Cartier. Malgré les caprices de dame nature à certains moments, plusieurs centaines de personnes ont été émerveillés de voir les taches solaires pendant les éclaircies ainsi que la planète Vénus à la tombée du jour. De plus M. Martin Rochette a donné une conférence sur les comètes et les "pluies" d'étoiles filantes.

Dans le domaine de l'informatique, après l'informatisation de l'almanach graphique en '89, le Centre a enterpris à la fin de l'année une restructuration en

ce qui a trait à la gestion de ses membres. En effet une base de données a été élaboré dans le but de permettre une meilleure intégrité des données qui y sont enregistrées. Les information une fois inscrites permettent la production de documents de travail tel que: l'émission d'etiquettes pour envois postaux, l'émission de bons de commande, de factures et de reçus, liste de nos membres, chaines téléphoniques, etc.

Avant de terminer, je m'en voudrais de ne pas avoir souligné, ici, le départ de M. Jean-Marie Fréchette au mois de Juin dernier à titre de secrétaire pour le Centre de Québec. Jean-Marie a oeuvré au sein du conseil pendant plus de seize ans. Il a occupé à tour de rôle les postes de président, de conseiller, de représentant pour la S.R.A.C. et de secrétaire pour ne citer que ceux là.

Alors, Jean-Marie, aux noms de tous nos membres et en mon nom personnel, nous te remercions de l'excellent travail accompli et de ta loyauté envers l'organisation dont on fait tous parti. Merci, Jean-Marie... et Bravo!

Alain Daigle, Secrétaire

January - Centre member Bill Krosney described his "quest for the perfect planetary telescope"- a 4" f/20 tri-schiefspiegler unobstructed reflector.

February - Dr. Richard Bochonko of the University of Manitoba demonstrated a computer simulation and tutorial of the Glenlea Astronomical Observatory. Using a Macintosh computer, students can learn to use the observatory equipment without risk of making a "fatal error" (i.e. something for which somebody would kill you).

March - With all the hype about the now-infamous Comet Austin, Scott Young gave a talk on the local observing conditions for the "monster comet", and described methods of sketching and photographing the comet.

April - This meeting featured Dr. Martin Clutton-Brock of the University of Manitoba. Due to his distinctive style of presentation, Dr. Clutton-Brock's discussion of cosmology will be remembered for a long time!

May - Jeff Harland, of Brandon, Manitoba presented a talk on the history of the universe, and finished with news of the latest products from Celestron, Meade, and Omcon.

June - The 1st Annual **Winnipeg Centre Banquet** replaced the barbecue normally held in June. A good turnout indicated that this new tradition will be a permanent part of our yearly schedule.

July/August - While there were no regular meetings, many members remained active throughout the summer. Several star parties and public observing sessions were well-attended, and the discovery of Comet Levy kept the observatory in almost constant use.

September - Centre President Chris Rutkowski chaired the annual **Summer Roundup**, with slides from both the Centre's library and from members' personal collections. This was followed by Chris' quick overview of "those darn crop circles" that he and fellow member Guy Wescott have been investigating over the past several months.

October - This month featured visiting astronomer Dr. Orla Aaquist, who replaces Dr. Bochonko at the University of Manitoba while he is on sabbatical leave. Orla discussed the connections between astronomy and music, and then, guitar in hand, performed three astronomy-related songs entitled "An Abrupt History of Astronomy", "My Flying Machine", and "The Active Sun". This was one of the year's best received talks.

November - The Lockhart Planetarium was the site of this month's regular meeting, where director Ian Cameron used the Zeiss projector to guide members on "A Stroll through the (Solar) Neighborhood".

December - Stan Runge gave the final presentation of 1990, an update on the use of the CCD cameras at the Glenlea Observatory. Stan's talk focussed on the ease of use, versatility, and extreme sensitivity of the camera. An informal discussion on electronic imaging versus visual observing followed, and this topic continues to spark debate after many meetings.

Scott Young, Secretary

Under the presidency of John Gauvreau the Centre is pleased to report on many innovations and achievements during the year. There were ten well attended General Meetings during 1990, with both members and professionals giving informative and entertaining talks on many different astronomical topics.

In January the library archives were enriched by a complete collection of twenty-two years of the centre's publication, *Orbit*, thanks to the hard work and perseverance of Eric Golding. This year, *Orbit* reached new levels of aesthetic and technical excellence under the editorship of Derek Baker. Special thanks to Peter Hasek for the beautiful five colour printing of M42, which, together with John Gauvreau's design, makes an outstanding front cover for the publication.

Major repairs were undertaken to the roof of the Marsh Building during the summer, necessitated by water leakage and some very busy carpenter ants. Due to the superb planning of Eric Golding and a trusty crew of members, the new roof was erected during a long, hot, summer weekend and this building is now leak free. Immediately following the outside repairs, a major reworking of the library was put into action by our librarian, Garry Woodcock. Having spruced up the inside walls with a coat of paint, the library was then completed with a set of new book shelves and will have a computer station added after Garry has finished the laborious job of cataloguing the immense number of books. On November 18th, the library was officially dedicated as the Ian W. M. Stuart Memorial Library. The ceremony was hosted by Neil Rogers. Many members of the Stuart family attended this event, and appreciated the ceremony, the tour of the observatory and chatting to many of the members who were present.

Timed to coincide with **Astronomy Week**, and stimulate public awareness, the Centre held a mall display on April 27th and 28th. It featured a stunning new display unit which was built by Eric Golding, and made use of the new centre logo which was designed by John Gauvreau. Many members helped at this display and all were proud to wear their new T-shirts, emblazoned with the logo, which had been designed by Pauline Wright. Our long awaited brochures were also ready just in time for this occasion, thanks to the efforts of John Gauvreau and Derek Baker.

This year the centre was again involved with the **Hamilton District Science and Engineering Fair**. Thanks go to Jim Winger for donating the prize for the best astronomically related exhibit, which our judges decided should be awarded to Heather Ferguson for her presentation on supernovæ.

Summer activities included a large contingent (twenty-five) of Hamilton members attending **Starfest**, where Mike DeVillaer presented a lively talk on astrophotography. Another highlight was a "solar encounter" open house, held at the observatory, which was very successful even though the advertised "solar-cooked hotdogs" were rained out!

Towards the end of the year the centre was given a 1932 16mm film of an eclipse expedition to Québec which was attended by many past members of the Hamilton Centre. This film was painstakingly restored by Garry Woodcock, who then put it on videotape, giving all members the wonderful opportunity of seeing how things were done without the aid of present day electronic wizardry.

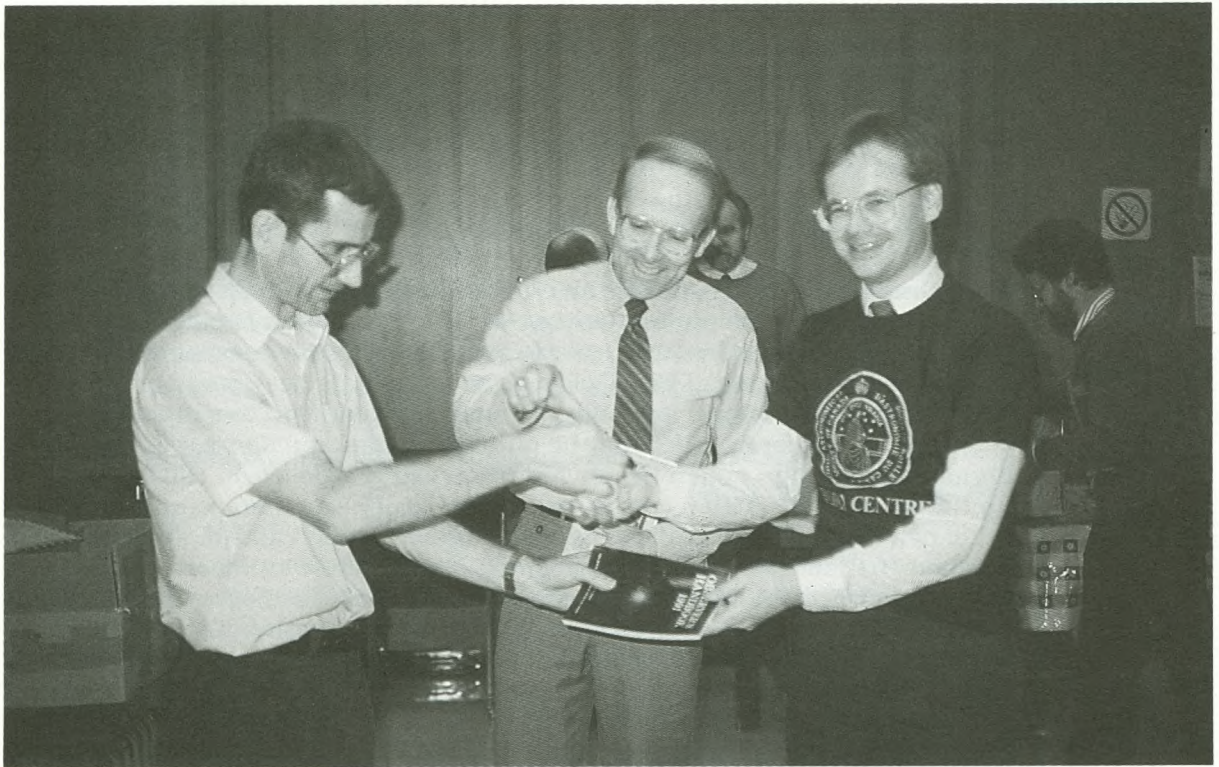
It was a successful year for the centre's public education program which falls under the auspices of John Gauvreau. All members involved in this activity are excited at the prospect of hosting the numerous special groups at the McMaster Planetarium in the new year. Thanks are extended to Doug Welch for making this possible. Amongst all this activity the members also managed to get out to the observatory to look at the heavens. There were twelve members' night workshops organized by our Observing Director, Ev Butterworth, plus much general use of all the equipment.

Curator Barry Sherman puts in many hours at the observatory keeping the Centre's telescopes in excellent working order. The Centre currently has two 5" f/16's, 17" f/4.5 and 10" f/5 equatorially mounted Newtonians, a C8, 10" f/6 and 6" f/8 Dobsonian portables and two 60 mm refractors. With the full set of eyepieces, solar filters and, last but not least the photometer, under his care, the Centre extends its gratitude to Barry for all his efforts.

The Centre was greatly saddened by the passing of a long time member and dear friend to many, Eric Orr, who died on May 22nd. He will be greatly missed by all who knew him.

Pauline Wright, Secretary

Centre Activities



The Halifax Centre celebrated another year of good handbook sales in 1990. Joe "Dick" Yurchesyn, the Centre's First Vice-President, kicks off sales of the 1991 Handbook. Buying the first copy is Society President, Damien Lemay, who was in Halifax in November. Looking on is Roy Bishop, the Handbook's editor.

Deceased

A.M. Crooker (Vancouver)
Mrs. J. Greer (Vancouver)
F. Kreikmann (Thunder Bay)
P. Millman (Ottawa)
E.L. Orr (Hamilton)
W. Peschke (Ottawa)
A.W. Scott (Toronto)
J. Stokley (U.S.A.)

Awards

The following awards were presented to Society members in 1990:

Ken Chilton Prize

Doug George (Ottawa)

The Plaskett Medal

Pierre Bergeron (Montréal)

Service Award Medal

Mary Grey (Ottawa)

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	Calgary	Edmonton	Halifax	Hamilton	Kingston	Kitchener Waterloo	London	Montréal	C.F. de Montréal	Niagara	Ottawa
REVENUE											
Membership Fees		\$4,112	\$4,550	\$2,920	\$1,593		\$1,100	\$3,404		\$2,352	\$5,610
Life Member Grants		\$90	\$280	\$40	\$80		\$50	\$190		\$30	\$350
Donations		\$0	\$370	\$1,732	\$43		\$8	\$118		\$200	\$1,426
Educational Activities		\$191	\$560	\$485	\$11		\$281	\$4,122		\$330	\$196
Interest & Dividends		\$514	\$493	\$157	\$10		\$150	\$77		\$49	\$1,103
Sales Of Handbooks (Net)			\$255		\$142					\$41	\$16
Advertising			\$172	\$132						\$100	\$150
G. A. (inc. Travel Grants)			\$500		\$20						
Other Grants		\$1,142		\$1,123	\$20		\$98	\$750		\$1,121	\$507
Miscellaneous											
Total Revenue		\$6,049	\$7,181	\$6,589	\$1,899	No Report Received	\$1,686	\$8,661	No Report Received	\$4,222	\$9,357
EXPENDITURES											
Fees to National Office		\$2,234	\$2,874	\$1,203	\$704		\$598	\$1,742		\$930	\$3,366
Library			\$133	\$33				\$227			
Meetings & Newsletters		\$1,239	\$883	\$1,519	\$231		\$783	\$1,365		\$938	\$1,846
Annual Dinner (Net)			(\$92)				(\$73)			\$240	(\$55)
G. A. (inc. Travel Grants)			\$238	\$274				\$50			\$60
Equipment & Supplies		\$378	\$150	\$349	\$46			\$167			
Office Administration		\$86	\$709	\$531	\$223		\$536	\$667		\$423	\$266
General Expense & Audit		\$50		\$28				\$366			\$379
Educational Activities		\$18									
Insurance		\$100		\$379				\$835			\$755
Awards & Donations		\$84			\$231						
Observatory Expenses			\$125	\$690	\$105		\$1,000	\$1,730		\$517	\$620
Miscellaneous			\$846	\$2,402	\$97		\$55	\$181		\$6	\$655
Total Expenditures		\$4,189	\$5,996	\$7,407	\$1,637	No Report Received	\$2,899	\$7,329	No Report Received	\$3,054	\$7,891
Surplus (Deficit)		\$1,860	\$1,185	(\$818)	\$262	No Report Received	(\$1,213)	\$1,332	No Report Received	\$1,168	\$1,446
Balance from 1989		\$5,879	\$3,625	\$1,842	\$584		(\$171)	\$11,916		\$1,013	\$14,973
Balance to 1990		\$7,739	\$4,810	\$1,024	\$846		(\$1,384)	\$13,248		\$2,181	\$16,443
Other Assets		\$6,306								\$8,350	

	Québec	Regina	St. John's	Sarnia	Saskatoon	Thunder Bay	Toronto	Vancouver	Victoria	Windsor	Winnipeg
REVENUE											
Membership Fees	\$2,855	\$2,167	\$1,125	\$156	\$1,005		\$23,625	\$5,445	\$3,225	\$1,175	\$3,020
Life Member Grants	\$20		\$40	\$10	\$40		\$850	\$180		\$30	
Donations	\$84	\$2,139			\$257		\$690	\$100	\$396	\$62	\$238
Educational Activities	\$400									\$53	
Interest & Dividends	\$348	\$122	\$7	\$56	\$385		\$3,693	\$691	\$90	\$25	\$174
Sales Of Handbooks (Net)	\$1,830	\$33	\$88		\$11		(\$49)	\$302	\$53	\$22	\$20
Advertising							\$775	\$307	\$2,348		
G. A. (inc. Travel Grants)	\$142	\$53	\$242		\$254		\$714	\$307			
Other Grants			\$200								
Miscellaneous	\$350	\$980			\$421		\$609	\$739		\$9	
Total Revenue	\$6,028	\$5,493	\$1,702	\$221	\$2,373	No Report Received	\$30,907	\$7,764	\$6,112	\$1,377	\$3,452
EXPENDITURES											
Fees remitted to National Office	\$647	\$670	\$875	\$141	\$634		\$13,980	\$1,656	\$1,558	\$777	\$1,050
Library	\$168	\$156	\$85					\$38	\$640		
Meetings & Newsletters	\$311	\$558		\$40	\$393		\$7,491	\$2,084	\$1,386	\$381	
Annual Dinner (Net)		\$694					\$111	(\$4)	\$110		
G. A. (inc. Travel Grants)	\$142	\$53	\$622		\$254		\$714	\$644	\$571		
Equipment & Supplies	\$1,469	\$400		\$11				\$875		\$92	\$698
Office Administration	\$800				\$54		\$4,281	\$185			
General Expense & Audit	\$79		\$106				\$470		\$216	\$50	
Educational Activities	\$213			\$30	\$29		\$1,163			\$30	
Insurance	\$300	\$250			\$338		\$400			\$140	
Awards & Donations							\$876		\$683	\$9	\$150
Observatory Expenses	\$920	\$3,076	\$89	\$18	\$624		\$89	\$38	\$155		\$914
Miscellaneous	\$2,250									\$57	
Total Expenditures	\$7,298	\$5,857	\$1,777	\$240	\$2,326		\$29,575	\$5,516	\$5,319	\$1,535	\$2,812
Surplus (Deficit)	(\$1,270)	(\$363)	(\$75)	(\$19)	\$48		\$1,332	\$2,248	\$793	(\$157)	\$640
Balance from 1989	\$4,982	\$4,652	\$96	\$658	\$13,731	\$158	\$39,806	\$8,737	\$2,207	\$554	\$892
Balance to 1990	\$3,712	\$4,289	\$21	\$639	\$13,779		\$41,138	\$10,985	\$3,000	\$397	\$1,532
Other Assets			\$2,070					\$13,064	\$46,352		\$622

National Finances

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

FINANCIAL STATEMENTS

DECEMBER 31, 1990

C. J. Timkham & Associates

Chartered Accountants

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

We have audited the balance sheet of The Royal Astronomical Society of Canada as at December 31, 1990 and the statements of income and retained earnings and changes in financial position for the year then ended. These financial statements are the responsibility of the company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

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

In our opinion, these financial statements present fairly, in all material respects, the financial position of the company as at December 31, 1990 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles.

C. J. Timkham & Associates

TORONTO, Ontario
January 31, 1991

CHARTERED ACCOUNTANTS

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
 LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
 BALANCE SHEET
 AS AT DECEMBER 31, 1990

A S S E T S

	1990	1989
CURRENT		
Cash and short term investments	\$ 80,906	\$ 109,018
Accounts receivable	21,597	21,331
Prepaid expenses	1,430	269
Accrued interest receivable	11,637	11,143
	<u>115,570</u>	<u>141,761</u>
INVESTMENTS		
Marketable securities - at cost	3,019	3,019
SPECIAL PURPOSE FUNDS (Schedule C)		
Cash and short term deposits (including accrued interest)	69,658	60,606
Marketable securities - at cost	4,000	4,000
Guaranteed investment certificate	101,600	101,600
	<u>175,258</u>	<u>166,206</u>
FIXED		
Office building, furniture, equipment, library (nominal value)	<u>1</u>	<u>1</u>
	<u>\$ 293,848</u>	<u>\$ 310,987</u>

Significant accounting principles - Note 1

Approved on behalf of the Council
 of the Society
D. Loney President
Thad Miller Treasurer

L I A B I L I T I E S

	1990	1989
CURRENT		
Accounts payable and accrued charges	\$ 17,713	\$ 56,702
Deferred revenue	26,958	19,887
- Membership fees for ensuing year	21,225	15,217
- Journal and handbook subscriptions	37,028	37,977
- Unappropriated life membership fees (Schedule A)	<u>102,924</u>	<u>129,783</u>
SPECIAL PURPOSE FUNDS (Schedule C)	<u>175,258</u>	<u>166,206</u>
EQUITY	<u>15,666</u>	<u>14,998</u>
	<u>\$ 293,848</u>	<u>\$ 310,987</u>

National Finances

National Finances

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
STATEMENT OF EQUITY
FOR THE YEAR ENDED DECEMBER 31, 1990

	1990	1989
BALANCE, January 1	\$ 14,998	\$ 31,916
Add: Excess of revenue over expenditure	668	(16,918)
BALANCE, December 31	\$ 15,666	\$ 14,998

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
STATEMENT OF REVENUE AND EXPENDITURE
FOR THE YEAR ENDED DECEMBER 31, 1990

	1990	1989
REVENUE		
Membership fees		
- R.A.S.C. Centres	\$ 40,668	\$ 36,116
- Individual members	12,303	19,002
- Life membership: annual appropriation	1,949	1,999
Grants and Donations	54,920	57,117
- Government of Canada-annual grant	2,400	2,000
- Miscellaneous donations	(308)	72
Publications	2,092	2,072
- R.A.S.C. Journal: subscriptions, reprints, publishing revenue	20,777	21,360
	1,985	770
- Observer's Handbook	14,558	11,457
	91,769	74,676
Miscellaneous income	129,089	108,263
- interest on investment	22,939	18,044
- insignia sales	885	292
- rent	11,648	11,133
	35,472	29,469
	221,573	196,921
EXPENDITURE		
Publications (Schedule B)	134,497	133,895
Office salaries and employee benefits	36,298	38,686
Postage and shipping expense	10,691	6,084
General and office expense	10,257	7,147
Stationery, printing and supplies	1,018	1,919
Life membership allotment to Centres	2,710	2,710
General assembly and travel expense	12,565	10,545
Legal and accounting	1,959	1,800
Insignia, medals and awards	646	896
Telephone	858	709
Insurance	1,665	1,039
Library expense	494	595
Office equipment purchases	550	164
Bad debts	(185)	341
Building expenses	6,882	7,309
	220,905	213,839
EXCESS OF REVENUE OVER EXPENDITURES (EXPENDITURES OVER REVENUE)	\$ 668	\$ (16,918)

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
 LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
 NOTES TO THE FINANCIAL STATEMENTS
 DECEMBER 31, 1990

NOTE 1

ACCOUNTING POLICIES

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

- (a) Membership fees:
 Members' fees are credited to income for the related membership year. Accordingly, fees received at the end of the year for the ensuing year are included in deferred revenue. Life membership fees are credited to deferred revenue when received. Five percent of the life membership fund is transferred annually to the general account.
- (b) Publications:
 Subscriptions to the R.A.S.C. Journal are credited to income for the subscription period.
- (c) Investments:
 Investments are stated at cost. Investment income is recorded on the accrual basis.
- (d) Special purpose funds:
 The special funds of the Society are classified in accordance with the objectives specified by the donors or in accordance with directives issued by Council. The income of the various funds is recorded on the accrual basis.
- (e) Fixed assets:
 The office furniture, equipment and the library of the Society are carried in the accounts at a nominal value of \$1. Any new acquisitions are included in expenditures for the year.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
 LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
 SCHEDULE A
 UNAPPROPRIATED LIFE MEMBERSHIP FEES
 FOR THE YEAR ENDED DECEMBER 31, 1990

	1990	1989
BALANCE, January 1	\$ 37,977	\$ 36,938
Add: life membership fees received in the year	<u>1,000</u>	<u>3,038</u>
Deduct: Appropriation to general account	<u>38,977</u>	<u>39,976</u>
BALANCE, December 31	<u>\$ 37,028</u>	<u>\$ 37,977</u>

SCHEDULE B
 PUBLICATION COSTS

R.A.S.C. Journal	\$ 60,875	\$ 60,504
Printing of Journal	13,904	10,247
Printing of National Newsletter	1,750	1,815
Editorial assistance	17,415	16,283
Distribution costs	<u>2,049</u>	<u>5,031</u>
Reprints	<u>95,993</u>	<u>93,880</u>
Observer's Handbook	32,129	36,833
Printing	5,262	1,731
Distribution costs	608	1,451
Advertising	<u>505</u>	<u>-</u>
Grants	<u>38,504</u>	<u>40,015</u>
	<u>\$ 134,497</u>	<u>\$ 133,895</u>

National Finances

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
 LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
 SCHEDULE C
 COMPOSITION OF SPECIAL PURPOSE FUNDS
 AS AT DECEMBER 31, 1990

	RUTH NORTHCOTT FUND	ENDOWMENT FUND	CEN- TENNIAL FUND	SOLAR ECLIPSE FUND	TOTAL
Cash	\$ 8,247	\$ 3,346	\$ 5,464	\$ 7,419	\$ 24,476
Term deposits	24,000	14,000	5,000 ^a	-	43,000
Securities	4,000	-	-	-	4,000
G.I.C.	-	101,600	-	-	101,600
Accrued interest	2,182	-	-	-	2,182
	<u>\$ 38,429</u>	<u>\$ 118,946</u>	<u>\$ 10,464</u>	<u>\$ 7,419</u>	<u>\$ 175,258</u>

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Credits

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