

NATIONAL NEWSLETTER

August, 1983

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY
OF CANADA

Vol. 77, No. 4



Participants in the 1983 General Assembly included from left to right, Michel Rébétéz (President of the A.G.A.A.), Jean Vallières (Display Competition Judge), Jean-Paul Boudreault (Display Competition Judge) and Damien LeMay (Quebec Centre, RASC and organiser of the General Assembly). *Photo by Paul Darisse.* Results of the Display Competition this issue.

NATIONAL NEWSLETTER

August, 1983

Editor: RALPH CHOU

Associate Editors: IAN MCGREGOR, B. FRANKLYN SHINN

Assistant Editors: HARLAN CREIGHTON, P. JEDICKE

Press Liaison: AL WEIR

Redacteur pour les Centre français

DAMIEN LEMAY

477 ouest 15ième rue,

Rimouski, P.Q., G5L 5G1

Please submit all materials and communications to:

Dr. B. Ralph Chou
School of Optometry
University of Waterloo
Waterloo, Ontario
N2L 3G1.

Deadline is six weeks prior to month of issue

Two Surprising Spring Comets

**by Ian McGregor
Associate Editor**

Spring skies seemed filled with celestial iceballs as first one new comet followed shortly afterwards by a second, were reported to be making close approaches to the Earth while hurtling across our evening skies.

In mid-May the fourth reported comet of the year, Comet IRAS-Araki-Alcock (1983d) suddenly made newspaper headlines as it raced high across northern skies before plunging at 40 degrees per day into the southern hemisphere. Its motion relative to the distant background stars was noticeable in only a few minutes of observation through a telescope and produced feverish excitement among observers used to a more leisurely pace for astronomical events. A brief newspaper report on May 6 hinted that the next few days would see a celestial event that would long be remembered. On May 9 the comet was near the Little Dipper, the next night near the Bowl of the Big Dipper, and on May 11, it was visible near the Beehive star cluster in the constellation Cancer.

Across Canada the sudden appearance of this bright naked-eye or binocular comet travelling so rapidly through a very well-known region of the sky drew immediate attention from skywatchers. The Kitchener-Waterloo Centre postponed a regular indoor meeting on May 10 so that its members could see "the Comet". In Calgary, London, and Toronto and other locations, observers headed for dark skies to catch a glimpse of this comet which would only be in northern skies for a few days.

No sooner had Comet IRAS-Araki-Alcock appeared on the scene than another three-name comet was discovered on May 8. Named after its three Japanese amateur co-discoverers, Comet Sugano-Saigusa-Fujikawa (1983e) was not as bright or as easily placed for observation as its predecessor. Again it was an Earth approaching comet and as it also raced through the starfields of Andromeda and Pegasus during May and June it further heightened the already great interest produced by the earlier comet. It also provided additional verbal tongue-twisting for planetarium and observatory staff attempting to explain to the public and media just what was happening in the skies.

The speed of events overtook the ability of astronomical news sources to provide accurate comet information to hungry professional, amateur, and “man in the street” inquiries. In *Circular No. 3807* of the Central Bureau for Astronomical Telegrams Smithsonian Astrophysical Observatory dated May 11, an editorial by Brian Marsden stated that “the dramatic appearance of comet 1983d (and now of comet 1983e) has brought up dramatically the fact that the slowness of the mail ‘service’ sometimes makes material appearing on these Circulars useless”. Indeed Daniel W.E. Green, in the spring issue Vol. 5 No. 2) of *International Comet Quarterly*, reporting on the week following May 5, reported that “the next week became, by far, the busiest such period in the history of the Central Bureau.”

Both of these comets are now heading out of the solar system after their encounter with the Earth and will not be seen again. The excitement they generated will be remembered by many observers for a long time. But if I could make one humble request to the Great Powers On High, could it be arranged that a person named “Smith” discovers the next bright comet?

The B.A.A. Encourages Canadian Aurora Observers

The following letter was received by our National Secretary, Mr. Peter Broughton, and resulted from the favourable response to an announcement which appeared in the February 1983 *National Newsletter*.

Dear Sir:

For some time now the British Astronomical Association has been receiving observations of the polar auroral activity in Canada and the United States from some of your members on a regular basis and from other more casual sources. The article relating to the aurora in your newsletter has brought in a number of inquiries from your members. A list of names and addresses follows:

M. Boschat, 6363 Liverpool Street, Halifax, Nova Scotia
 A.J. Boyko, 19320 Hoover, Detroit, Michigan USA 48205
 J. Bortle, Brooks Observatory, Stormville, New York USA
 R. Robotham, Box 40, Springfield, Ontario N0L 2J0
 T. Lohvinenko, 1836 Legion Avenue, Winnipeg, Manitoba R2R 0A8
 P. Vanier, 417 50th Avenue, R.R. 2, St. Gabriel de Brandon, Quebec J0K 2N0
 K. V. Pilon, Box 1277, Gimli, Manitoba R0C 1B0
 Father L.J. Kemble, P.O. Box 430, Cochrane, Alberta T0L 0W0
 Dr. A.P. Abbott, R.R. 2, Leduc, Alberta T9E 2X2

The polar aurora extends further down south geographically and geomagnetically in Canada than it does in western Europe, where there are many amateurs observing this activity both visually and now in the radio and magnetic forms. It would seem therefore that the aurora should form a subject worthy of observation in Canada in itself, let alone for comparison with the western European observations.

I have written to each of the members and have suggested that they should consider the formation of an auroral observing section in Canada and the United States to coordinate their efforts.

The BAA. Aurora Section collects data from the United Kingdom, Canada, the United States, Norway, Finland, the Netherlands, Australia, and New Zealand together with data provided by British merchant ships through the Meteorological Office, and from British and Dutch weatherships. In 1982 for instance, we had observations from 85 land and 31 ship visual observers, 6 radio, and 6 magnetic observers. Reports are published quarterly in the *Marine Observer*, annually in the *B.A.A. Journal*, and monthly in *The Astronomer*.

We have set up a magnetic group which is experimenting with the construction of a variety of magnetometers, from a single suspended magnet in a jamjar using a mirror and light beam to electronically operated automatic recording fluxgate instruments. Your members may wish to form a similar group in Canada. All auroral observing is linked to the Sun and our members may also be engaged in observing sunspots or detecting solar radio noise for our Solar Section. There is plenty of enthusiasm in the Section.

I would be very happy to co-operate with any group of auroral observers that develops in Canada but in the meantime would be pleased to receive observations from individual observers and to keep in contact with them. Should you require any further information on any matter I shall be only too pleased to assist.

R.J. Livesey,
Director, Aurora Section B.A.A.
46 Paidmyre Crescent,
Newton Mearns,
Glasgow Scotland G77 5AQ

Report of The May 1983 National Council Meeting

by Leo Enright
National Recorder

The National Council of the R.A.S.C. met on Friday, May 20, 1983 in Room 1271 of Pavillon DeKoninck on the campus of Université Laval in Quebec City. Our National President, Mr. Franklin Loehde, presided and fourteen centres of the Society were represented.

The agenda included reports from the officers and standing committees as well as a number of important announcements and decisions. Mr. Loehde announced that the Financial Strategies Committee, which was formed at the January Council Meeting, had held a meeting to consider the complex financial structure of the Society and would continue to report to Council at the forthcoming September and January meetings. The Treasurer's and Auditor's Reports for 1982 were received as printed in the Annual Report, but Council members expressed considerable concern about the delay in its publication, caused by the lateness of the Auditor's Report, and about the fact that it could not, therefore, be mailed to members at least twenty-one days before the Annual Meeting. A grant of \$300.00 was approved from the Ruth Northcott Fund to assist the Quebec Centre in the expenses of having a special guest lecturer for the 1983 General Assembly.

Dr. Batten, the editor of the *Journal*, presented a proposed redesign of the Journal's cover which was approved by Council. Our *Handbook* editor, Dr. Bishop offered proposals for a number of changes to that publication including more detailed information about eclipses. Mr. Damien Lemay of the Quebec Centre presented a suggestion for a French-language supplement to the *Observer's Handbook* and the matter will receive further consideration at subsequent Council Meetings.

Mr. Broughton, the chairman of the Property Committee, submitted his group's report, one that contained news of considerable importance for the Society. After several years of searching, the Committee has acquired a property at 136 Dupont Street in Toronto as the new home of the Society. Photographs of the house were seen by Council members and the full report was read by Mr. Broughton who received a vote of thanks for the enormous effort made by him and his committee.

At 1740 hours the business of the meeting was suspended and it was completed on Sunday, May 22, following the Annual Meeting of the Society.

At that time Council appointed its standing Committees for the year 1983-84. These were the Executive, Editing, Finance, Property, Library, Historical Budget, National Newsletter, and Awards Committees.

Proposals to host the General Assembly in 1985 were received from the Edmonton and Toronto Centres. By a vote Council decided to accept the Edmonton proposal.

A committee was formed to plan "house warming" ceremonies for the opening of the new Society headquarters at 136 Dupont Street, where Council members look forward to attending their next meeting on September 24.

Details of all of the items discussed at the meeting may be found in the minutes of the meeting, which were mailed to all Centre Presidents and National Council representatives. The full reports of all of the committees referred to above may also be found as appendices to these minutes. Minutes of the Annual Meeting will be published later this year in the *Journal of the R.A.S.C.*

Members of Council appreciate the interest shown in the business they transact on behalf of the Society – as shown by the number of members who attended as observers.

Results of the Display Competition at the 1983 General Assembly in Quebec City

The following are the winners of the display competition at the 1983 joint meeting of the R.A.S.C., the A.A.V.S.O. and the A.G.A.A. The prizes and their donors are given in parentheses.

- 1 *Sun*
 First Prize: John and Lorraine Hicks (with Don Trombino), Toronto Centre (\$50 gift certificate from Meade)
 Honorable Mention: Roger Gagnon, Société d'Astronomie de Montréal (\$10 gift certificate from Lumicon)
- 2 *Moon*
 First Prize: Leo Enright, Kingston Centre (*Sky Atlas 2000.0* from Sky Publishing)
 Honorable Mention: Didier Saumon, Drummondville (\$10 gift certificate from Lumicon). Jillian Buriak, Toronto Centre (\$10 gift certificate from Lumicon)
- 3 *Comets and Asteroids*
 First Prize: Jack Newton, Victoria Centre (\$50 gift certificate from Lumicon)
- 4 *Planets*
 First Prize: Didier Saumon, Drummondville (book *Les Planètes* from Les Presses de l'Université Laval)
- 5 *Deep Sky Objects*
 First prize: Jack Newton, Victoria Centre (book *Galaxies* from Perceptor)
 Honorable Mention: André Paul, Drummondville (subscription to *Deep Sky* magazine from AstroMedia and a poster from Editions Marcel Broquet). Denis Bergeron, Drummondville, (same as above).
- 6 *Atmospheric Phenomena*
 First Prize: Real Manseau, Drummondville (book *Magie de la Photo* from Editions Marcel Broquet)
 Honorable Mention: Walter MacDonald and Steven Chomniak, Toronto Centre (set of AstroCards from AstroCards)
- 7 *Variable Stars*
 No entries
- 8 *Radio Astronomy*
 First Prize: Jim Hayes and Frank Roy, Ottawa Centre (subscription to *Astronomy* from AstroMedia and star-finder from Editions Marcel Broquet)
- 9 *Equipment*
 First Prize: Real Manseau, Drummondville (\$76 gift certificate from P. Moffat, Spectrum Computer, Winnipeg)
 Honorable Mention: Walter MacDonald, Steven Chomniak and Scott Ramsay, Toronto Centre (\$10 gift certificate from Lumicon). Martin Rochette, Drummondville (same as above).
- 10 *Centre or Club Exhibit*
 First Prize: Drummondville (\$100 gift certificate from ACFAS).
 Honorable Mention: College de Lévis (6-8" custom-made mirror from R. Fagin, Summit Instruments, and free aluminizing and overcoating from Telescopes Stellaires Inc.)
- 11 *History*
 No entries
- 12 *Open*
 First Prize: Lise Lemay, Centre de Québec (book *L'Aviron qui nous mène* and a star-finder from Editions Marcel Broquet)

In addition, special plaques were presented to the AAVSO, to Dr. Helen S. Hogg and to the Organizing Committee of the General Assembly, and the following clubs (in addition to Drummondville and College de Lévis) were acknowledged for their displays: Montreal Centre, Société d'Astronomie de Montréal, Sherbrooke, Sarel Inc., CARAC, Club Sirius and Centre de Québec, and



Group picture of the delegates who attended the 1983 joint conference of the Royal Astronomical Society of Canada, the American Association of Variable Star Observers, and the Association des Groupes d'Astronomes Amateurs held in Quebec City last May.

were given book prizes from Les Presses de l'Université du Québec. Totalling twelve (12), these volumes consisted of four (4) copies each of the following: *Patience dans l'azur* by Dr. Hubert Reeves, *L'astronomie et son histoire* by Dr. J.R. Roy and finally *Devez-vous être Astronome Amateur* by Jean Vallières. Finally, the Grand Prize for the best entry in the competition was awarded to Drummondville for its entry in category 10.

Résultat du concours de travaux astronomiques lors de l'assemblée générale 1983 à Québec

Voici la liste des gagnants de la compétition de travaux astronomiques du congrès conjoint S.R.A.C., A.A.V.S.O. et A.G.A.A. qui a eu lieu du 20-23 mai 1983. Les prix ainsi que le nom des donateurs sont indiqués entre parenthèses.

- 1 *Soleil*
Premier prix: John et Lorraine Hicks (avec Don Trombino), Centre de Toronto (bon d'achat de 50\$ par Meade).
Mention honorable: Roger Gagnon, Société d'Astronomie de Montréal (bon d'achat de 10\$ par Lumicon).
- 2 *Lune*
Premier prix: Leo Enright, Centre de Kingson (*Sky Atlas 2000* par Sky Publishing).
Mention honorable: Didier Saumon, Drummondville (bon d'achat de 10\$ par Lumicon). Jillian Buriak, Centre de Toronto (bon d'achat de 10\$ par Lumicon).
- 3 *Comètes et astéroïdes*
Premier prix: Jack Newton, Centre de Victoria (bon d'achat de 50\$ par Lumicon).
- 4 *Planètes*
Premier prix: Didier Saumon, Drummondville (livre Les Planètes par Les Presses de l'Université Laval).
- 5 *Objets lointains*
Premier prix: Jack Newton, Centre de Victoria (livre Galaxies par Perceptor).
Mention honorable: André Paul, Drummondville (souscription au magazine *Deep Sky* Par AstroMedia et un poster par les Editions Marcel Broquet). Denis Bergeron, Drummondville (comme ci-haut).
- 6 *Phénomène atmosphérique*
Premier prix: Réal Manseau, Drummondville (livre *Magie de la Photo* par les Editions Marcel Broquet).
Mention honorable: Walter MacDonald et Steven Chomniak, Centre de Toronto (un ensemble de AstroCards par AstroCards).
- 7 *Étoiles variables*
Aucune entrée.
- 8 *Radio astronomie*
Premier prix: Jim Hayes et Frank Roy, Centre de Ottawa (souscription a Astronomy par AstroMedia et un cherche-etoile par les Editions Marcel Broquet).
- 9 *Équipement*
Premier prix: Réal Manseau, Drummondville (certificat cadeau de 76\$ par P. Moffat, Spectrum Computer, Winnipeg).
Mention honorable: Walter MacDonald, Steven Chomniak et Scott Ramsay, Centre de Toronto (bon d'achat de 10\$ par Lumicon). Martin Rochette, Drummondville (même que ci-haut).
- 10 *Exposition par un centre ou club*
Premier prix: Drummondville (certificat cadeau de 100\$ par l'ACFAS).
Mention honorable: Collège de Lévis (un miroir de 6 à 8 po. de diamètre fait sur mesure, par R. Fagin, Summit Instruments; aussi aluminure et couche protectrice par Télescopes Stellaires Inc.).

- 11 *Histoire*
Aucune entrée
- 12 *Libre*

Premier prix: Lise Lemay, Centre de Québec (*livre L'Aviron qui nous mène* et un cherche-étoile par les Éditions Marcel Broquet).

En plus, des plaques souvenirs étaient présentées à l'A.A.V.S.O., au Dr Helen S. Hogg et au Comité Organisateur de l'Assemblée Générale.

Les Clubs suivants (en plus de Drummondville et le Collège de Lévis) étaient mentionnés pour leurs exhibits: Centre de Montréal, SAM, Sherbrooke, Sarel Inc., CARAC, Club Sirius et le Centre de Québec, et il leur fut remis des livres fournis par Les Presses de l'Université du Québec. Ces volumes, au nombre de douze (12), consistaient en quatre (4) copies de: *Patience dans l'azur* par le Dr Hubert Reeves, *L'Astronomie et son histoire* par le Dr JR. Roy et enfin *Devenez Astronome Amateur* par Jean Vallières. Finalement, le Grand Prix pour la meilleure entrée dans la compétition revint à Drummondville pour sa participation à la catégorie 10.

Niagara Frontier Amateurs Meet

by Derek Baker
Hamilton Centre

Three times a year, representatives of various astronomical organisations from across northern New York State and southern Ontario meet for a relaxing afternoon and evening of astronomical talks and a fine buffet. Such was the case for the spring meeting of the Niagara Frontier Council of Amateur Astronomical Associations (N.F.C.A.A.A.) held on Saturday, May 7th in Rochester, New York.

The Hamilton Centre's ambassadors, Grant Dixon and I, arrived at the Strassenburgh Planetarium well in advance of the conference opening and this gave us a chance to stroll through the Rochester Museum which is beside the Planetarium.

The conference opened at 1330 with about thirty of our Canadian and American friends in attendance. As is customary the business section of the meeting consisted of a roll call of the societies present with the representatives giving a brief summary of his club's activities for the past year. Most of the organisations were active in public education. For example the Rochester Club carries on weekly public observing from the Planetarium and recently participated in a science teacher-student conference. The Syracuse club organised an astronomy course at the local Nature Centre and an exhibition in a shopping mall. Their second major instrument – a 14-inch reflector with a 6-inch Cassegrain guide scope is now nearly complete. Efforts are underway to use a radio telescope at their Darling Hill Observatory which was also the site for the summer meeting of the N.F.C.A.A.A. held in early July. Our fellow R.A.S.C. Centres in London and Niagara Falls also reported a prosperous year featuring observing activities, library displays, and banquets.

The business meeting was followed by the traditional coffee and donuts break and then a short paper session. Peter Jedicke of the London Centre announced the discovery of Comet IRAS-Araki-Alcock and provided information on its position and brightness. Ken Brown of Rochester gave a very good presentation on Halley's Comet and Tom Dey described the "powers" of a telescope.

Next on the agenda was a show at the Planetarium which gave a general overview of the universe. A behind-the-scenes tour of the Planetarium, a look at southern hemisphere skies, and a demonstration of future planetary positions completed this part of the programme.

In the evening we were treated to a fine lecture by Dr. Judy Pipher of the University of Rochester's Mees Observatory. She spoke of her work with the Observatory's 24-inch reflector at the infra-red end of the spectrum to take "pictures" of cool dust clouds in both galaxies such as Messier 82 and our own Milky Way. Photos of the well-known Orion Nebula revealed young forming stars while the shape of the Lagoon Nebula in the infra-red does not resemble the optical or radio pictures of it.

Many thanks go to the Rochester Astronomical Group for being excellent hosts and for putting on an entertaining day's events. Thanks are also due to Dr. Pipher for a stimulating and enlightening talk and to Grant Dixon who so kindly provided transportation for the Hamilton delegation. The autumn meeting of the N.F.C.A.A.A. will be hosted by the Niagara Centre in conjunction with their autumn banquet on Saturday November 5th.

Reprinted from *Orbit*

Planetariums Commemorate Pioneer 10

by Ian McGregor
Associate Editor

On June 13, the well-travelled spacecraft Pioneer 10 crossed the orbit of the outermost known planet and became the first object from planet Earth to leave the solar system. Launched in March 1972, the spacecraft was the first one to pass through the Asteroid Belt and rendezvous with the giant planet Jupiter. Now 4.5 billion kilometres from the Sun, Pioneer 10 is currently sampling the Sun's extensive outer atmosphere, or heliosphere, in which all the planets are immersed. It was to commemorate this historic event that an organised effort was made by the Canadian planetarium community to publicize the event and set up public star nights, assisted where possible by local amateur groups.

As intermediaries between the body of professional research astronomers and the general public, planetariums fill a major role in increasing public awareness of science in general, and astronomy in particular. Whether through audiovisual presentations in planetarium theatres, courses, outdoor skywatching programmes, support of local activities, or serving as interpreters of astronomical discoveries and events for radio, television, and newspapers, planetariums are an important community resource. An event like Pioneer's trail blazing voyage is fair game for planetarium promotion.

At Toronto's McLaughlin Planetarium, the idea of a "Farewell to Pioneer" evening for June 13 developed into a plan for a nationwide joint effort between the members of the Planetarium Association of Canada and the Royal Astronomical Society of Canada. John Kenny, a planetarium producer, set about enlisting the cooperation of the Canadian planetarium community and sending a press release to major television and radio networks and newspaper chains. In addition, the participating planetariums set out their own press releases to gain local media support and invited local R.A.S.C. Centres to assist.

The results of these efforts were mixed. Cloudy weather covered much of the country not only on June 13 but also the evenings around this date. As well media support was disappointing. At the H.R. MacMillan Planetarium (Vancouver), clear skies were present for a successful star party although public attendance was less than expected. In Toronto a thick haze obscured the stars and left only the bright planets and Moon to be observed through telescopes set up by planetarium staff and members of the Toronto Centre. Montreal's Dow Planetarium got the best public attendance but again cloudy skies hindered the efforts of the planetarium, the Montreal Centre, and the Société d'Astronomie de Montreal to promote a sky-watching night. The new Edmonton Space Sciences Centre held four nights of sky observing but experienced no noticeable increase in public attendance over their regular outdoor programmes response. With the exception of the London Children's Science Museum the response from smaller planetariums was disappointing.

Overall the experimental project to encourage a nationwide network event was a limited success. Frustrating sky conditions were a contributing factor but in particular media coverage was poor (with much of their efforts focused on the political leadership convention in Ottawa). As well despite a wealth of information from Canadian sources, the media choose to get their story from foreign sources leaving Canadian activities unrecognized and unpublicised. As an experimental project "Farewell to Pioneer" contained many lessons which we hope will be understood by its participants across Canada and remembered when the next nationwide astronomical event occurs.

Science Fair Winners

The annual Canada-Wide Science Fair sponsored by the Youth Science Foundation was held in Saskatoon, Saskatchewan on May 14. Our Society provided awards for students exhibiting outstanding projects of an astronomical nature. Ron Waldron of the Saskatoon Centre represented the Society at the Fair.

The 1983 winners were: First Place, Donald Netolitsky, age 17, of Medicine Hat, Alberta for his project "Solar Rotation". Second Place, Klaus Oberparlieter, age 18, of Oak Ridges, Ontario for his project "Black Holes". There was a tie for Third Place between Stephane Côté of St. Fulgence, Quebec and Sylvain Lebeuf of Chicoutimi, Quebec, both age 16.

These students competed in the Science Fair after successful competitions in local and regional Science Fairs in their own areas of our country. Congratulations and much success to them. The 1984 Canada-Wide Science Fair will be held in Halifax, Nova Scotia.

Useful Data for Polar Alignment

by Fr. Lucian Kemble OFM
Calgary Centre

A handy reference star for rapid polar alignment of an equatorially mounted telescope during the summer months is the star Arcturus in the constellation Bootes. This star lies on a line which can be drawn through Polaris (located less than a degree from the North Celestial Pole) and separated from Polaris by twelve hours of Right Ascension. This year at 0600 UT, June 6, the line was exact.

Polaris	RA 02 hr 54 m 15 s	Dec. +89° 11' 22"
Arcturus	14 hr 54 m 15 s	+19° 16' 06"

Precession effects can cause considerable shift in Right Ascension for Polaris over the years with the result that a line through Arcturus and Polaris also shifts. For example in 1976, the two stars were at the following positions:

Polaris	RA 02 hr 08 m 17s
Arcturus	14 hr 14 m 33 s

For quick alignment using setting circles, simply set up the telescope in a fairly accurate northern alignment. Locate Arcturus in the eyepiece, then set the RA setting circle to the star's 1983 Right Ascension. Next using only coordinates, set the telescope for the 1983 coordinates of Polaris. Move the telescope mounting in azimuth and altitude until Polaris is set in the telescope eyepiece. Relocate Arcturus, re-set setting circle more accurately, reset telescope for Polaris and make necessary azimuth and altitude adjustments. Your instrument should now be fairly accurately aligned. Other handy reference stars for this type of alignment are:

Beta Cancri	RA 08 hr 15 m 37 s	Dec. +09° 14' 14"
Iota Virginis	14 hr 15 m 08 s	-05° 55' 19"
Theta Aquilae	20 hr 10 m 27 s	-00° 52' 17"

Reprinted from *Starseeker*

Deep Sky Observing

by Chris Malicki
Toronto Centre

Michael Starzynski and myself, both Toronto Centre members have been observing deep sky objects with an 8" f/5 Newtonian and an 8" f/10 Schmidt-Cassegrain respectively since 1979. We rapidly became hooked on globular clusters, planetary and diffuse nebulae and galaxies. After observing all of the Messier objects (and many other objects) in 10 months, we tackled the NGC catalogue.

My own goal is to see and describe every NGC and IC object (plus a variety of Barnard dark nebulae) attainable through my scope under dark skies north of -30 degrees. We both strive for accuracy of identification with considerable meticulousness. Since our observing site in the Caledon hills near the town of Erin lacks electric power (but has considerably darker skies than the Toronto Centre's Schomberg Observatory), we do manual tracking and no astrophotography. I find that a good atlas such as *Tirion Sky Atlas 2000.0* is sufficient for most objects: they are tracked down by the star hopping method. Of course, a good knowledge of the stars is a great help. For some very difficult objects, detailed maps, such as the one of the Horsehead Nebula area in *Burnham's*, are necessary. In fact *Burnham's Celestial Handbook* is the best reference to deep sky objects that I've found.

At my Caledon site all the Messier objects are readily visible and dozens of very faint galaxies have been observed (eg NGC 750, 2832, 3187, 3683, 4413 all of which are magnitude 13.0 or fainter); in addition I've traced a segment of B33 (Horsehead Nebula), seen diffuse nebulae NGC 2023, 2024, in Orion (plus others). At least twice a year I try to go to a really dark site on Georgian Bay (I time my holidays to new moon) from where I've seen such exotic sights as Barnard's Galaxy (NGC 6822), the

Veil Nebula (both components traced more than a degree), NGC 6814 (faint galaxy in Aquila) a variety of dark nebulae (B92, B133, B86 etc.) and many others. The thrill of seeing these beautiful objects has been surpassed only by the beauty of the solar eclipse of 1979 for me.

But if dark skies aren't possible for you, don't despair. From my suburban backyard in Mississauga I've seen 12 NGC galaxies in Canes Venatici and Coma Berenices.

So, where has all this gotten me in 40 months? I've logged and briefly described 137 open clusters, 70 globulars, 27 diffuse nebulae (including supernova remnants), 317 galaxies (my favourite), 10 dark nebulae and 18 planetary nebulae for a total of 579 objects.

Each object is described, the time and site of observation recorded and occasionally drawings made. I hope to some day publish my results. To my knowledge, no comprehensive catalogue of visual observations plus drawings exists for the 5000 or so objects that my telescope can capture. (*Burnham's* has some errors – see *Sky & Telescope* Mar 1983 page 284; and the Webb Society handbooks have many deficiencies – see *J.R.A.S.C.* Vol 76 no. 6 page 404).

Finally, I urge telescope owners to get out of the "Messier rut" and see some of the NGC (and IC) objects that are within your reach even under moderately light-polluted skies.

Reprinted from *'Scope*

Amateur Astronomy in Hong Kong

by Josephine Chan
Montreal Centre

The history of amateur astronomy in Hong Kong is very short. However, it is becoming more and more popular, especially among the younger generation.

At present there are 3 astronomical societies with open membership:

- (1) Hong Kong Amateur Astronomical Society
(established in 1970)
- (2) Sky Observers' Association
(established in 1972)
- (3) The Space Observers, Hong Kong
(established in 1979)

There are also more than eighty astronomy clubs in schools, universities, and colleges.

Difficulties

With 5 million people crowded into 500 square miles of land, Hong Kong is much too congested. Pollution, including light pollution is becoming quite serious. Observation is favorable only in the suburban areas. However, land is scarce and expensive, so owning an observatory or observing site is a luxury for the average amateur. The absence of suitable observing sites is the reason why astronomical research is so uncommon in Hong Kong. Because deep sky observation is only feasible in the suburbs or outlying islands around Hong Kong, which may take many hours to reach, amateurs can only carry out their observations at weekends. Because of transportation problems, they have to carry small portable instruments. As a result telescopes of more than 8-inch aperture are uncommon in Hong Kong.

In spite of all these difficulties, a few amateurs have made a start. To overcome these obstacles they resort to "guerilla" warfare – carrying the burden of their telescopes and cameras around and looking for a dark site from which to observe. To these die-hards, anything may happen: they may be drenched in a sudden summer thunderstorm or stiffened by the bitter cold of an advancing cold-front. While some may have their interest quenched, frozen and then faded away, others persevere and have it reassured and reinforced.

Interests

Notwithstanding all the limitations, the local amateurs are as enthusiastic and dedicated as ever. They strive to observe and record every important celestial phenomenon, such as lunar and solar eclipses, comets, occultations, etc. Beginning in the seventies, amateurs have been carrying out short term astronomical research. Their work ranges from the daily observation of sunspots, to the

construction of radio telescopes. Amateur telescope making is becoming quite popular. Telescope making classes are attended by hundreds of amateurs. Most amateurs try to make 6-inch Newtonian reflectors. Some even design and made Cassegrain and refracting telescopes.

Many amateurs are interested in astrophotography, probably because all sorts of photographic equipment is easily available and at a low cost.

Amateurs are so interested in observing that they sent an expedition to Yunnan Province in China to observe the 97 seconds of totality visible there during the eclipse of 16 Feb., 1980. Another expedition went to Java, Indonesia and to Papua New Guinea to observe several more minutes of totality on 11 June, 1983.

Promotion of astronomical interests

To arouse popular astronomical interest, the astronomical societies and the Hong Kong Space Museum organize regular lectures on various topics in astronomy. To let the average man-in-the-street know what star-gazing and astronomy is all about, the Hong Kong Amateur Astronomical Society and the Space Museum have organized several exhibitions. In a recent one held in the City Hall, over 42,000 people visited the exhibition in 4 days.

There is no formal astronomy education available in Hong Kong. Astronomy is not found in any school curriculum nor in the universities. However, the local amateur societies frequently organize astronomy courses and camps for schools, community centres or youth groups. In recent years the Space Museum joined in this effort. All these activities are warmly received by local star-gazers.

Many of the amateur astronomical societies publish some sort of journal, or bulletin, and various booklets on observing techniques. Many of these are available to the general public on a subscription basis. The Hong Kong Amateur Astronomical Society has even started an Astronomy Page in a leading Chinese newspaper since 1977 and this has become a major breakthrough in the dissemination of astronomical knowledge in Hong Kong.

To encourage more people to carry out observation or research programs, the Hong Kong Amateur Astronomical Society organized in 1975, 1977 and 1979 several astronomy competitions – including essay writing, astrophotography and telescope making. The Sky Observers' Association has also launched a public Astronomy Award Scheme with bronze, silver and gold medals.

Since astronomy is not taught in schools, students have to organize their activities. At present astronomical interests have become so popular that more than eighty schools and colleges have established astronomy clubs. Sometimes they join together to run joint-school activities such as lectures, competitions, camps and exhibitions.

Since the opening of the Hong Kong Space Museum in 1980, astronomical interest is more and more popular. The Space Museum is a distinctive feature in the skyline of our Victoria Harbour. Inside the half-egg-shaped structure is a large sky theatre (with 75 foot dome and 320 seats) equipped with a Zeiss Mark 6 planetarium projector, an Omnimax projector, a 10000 square ft. exhibition hall and a Hall of Solar Science. The Space Museum runs its many extension activities in association with local societies.

Looking Into the Future

Amateur astronomy is still budding in Hong Kong. Amateurs have made a good start and we are looking forward to carrying out more serious research programs.

We are anxious to make contact and learn from leading astronomical societies in Canada, the United States and elsewhere.

We may be contacted at the following addresses:

- (1) Hong Kong Amateur Astronomical Society
G.P.O. Box 2872, Hong Kong
- (2) Sky Observers' Association
155 Fuk Wing St., 4th fl., room 6, Shamshuipo, Hong Kong
- (3) The Space Observers, Hong Kong
Room 1827, Lee Fu House, Shun Lee Estate, Kowloon, Hong Kong.

The Sudbury Astronomy Club

by David Turner

This November marks the second anniversary of the Sudbury Astronomy Club, a group formed in response to the deep-seated interest in astronomy shown by a number of residents of Sudbury and the surrounding region. Since its formation, the Club has met formally or informally at least once a month to discuss various topics in astronomy, star-gazing, and telescope-making. At the time of writing, paid membership totalled about 30 to 35, with meetings typically drawing about 35 to 40 people (with not all paid members present). Plans to increase local public awareness of the organization are being prepared. Last May 6 to 7, Club members celebrated a local Astronomy Day with a manned exhibit at the New Sudbury Shopping Centre.

The first Sudbury Astronomy Club was formed more than 10 years ago, but for various reasons did not survive for more than a few years. The present rebirth is on somewhat more solid footing, and there is hope that the Club will eventually be more closely tied to the RASC. Many Club members are also RASC members, and the executive is interested in spreading word of the organization to other RASC members within commuting distance of Sudbury.

A "campaign" to increase public awareness of astronomy was initiated in the summer of 1981, when I was able to write occasional articles for the local daily newspaper, *The Sudbury Star*. In late July the Department of Physics and Astronomy at Laurentian University inaugurated a "SKYLINE" service, which presents 3-minute taped messages on current events in the night sky to telephone callers. Although not heavily advertised, the service received over 100 calls per day in its first weekend of operation.

Spurred by the response, the Department sponsored a star night at the small campus observatory, and followed this with the inaugural meeting of the Sudbury Astronomy Club in November. All meetings are held in the Doran Planetarium on the Laurentian University campus, and it has become a ritual to illustrate the constellations visible from Sudbury at every second or third meeting. Although originally held on the first Friday of each month, meetings were switched to the second Friday of each month in early 1982 in order to avoid conflicts with the inevitable holiday weekends.

During the first year of the club's existence, meetings were organized through the Department of Physics and Astronomy, with the chore of chairing the meetings usually devolving to me. However, this situation changed in the fall of 1982 when the current ruling "junta" took over. Following formal election proceedings (of sorts), Fred Boyer became the first Club President, assisted by his brother-in-law Greg Beach as Vice-President, Denis Desmeules as Treasurer, and a small host of coordinators and other assistants, including myself, Darcy Ortiz, Norm Price, Carl Hoeg, Jamie Scott, and Steve Dodson of the Sudbury Science Centre (with his portable 22-inch telescope). There is also a junior group under Michael Lemega, a youngster with an avid interest in everything related to astronomy.

February 1983 witnessed the appearance of *ASTRONORTH*, the Club's newsletter, with its title page resplendent with the newly-adopted Club logo. The logo was designed by club member Chris Myrtil, and was selected from four official entries to the Club's logo contest at the January meeting (the first at which an actual vote was taken). It pictures an observatory dome under a starlit Northern Ontario sky with INCO's superstack as backdrop. If Greg Beach has his way, it will soon be adorning T-shirts and caps worn by many club members.

To most outsiders Sudbury is pictured as the desolation spot of Northern Ontario, with its population mainly engaged in extracting nickel ore from the ground (when they are not on strike or laid off) and polluting the skies with sulfur dioxide gas and particulate matter. In fact, Sudbury is not as bad as it is often pictured, and for amateur astronomers it is an excellent place to learn about the sky. Although the city does have a population of about 100,000, the night sky is quite dark, even within the city limits. In the small towns located in the regional municipality, the sky darkness is comparable to (if not better than) most of the best sites in southern Ontario. Since Sudbury also has a greater frequency of clear nights than other Ontario cities, it is fairly easy to become familiar with celestial events of all types. In particular, the last year has been phenomenal in terms of auroral displays, and it has been rare to have a clear night go by without a glowing band of light visible somewhere in the northern sky. The extended lay-offs at INCO and Falconbridge during the last year have been at least partially beneficial in leaving the sky unpolluted by smelter exhaust, and many residents have taken advantage of this opportunity to

increase their familiarity with the night sky. Despite the local employment problems which currently exist in Sudbury, it has been a banner year for the Sudbury Astronomy Club. The future looks even more promising, particularly since public awareness in the science area is beginning to be rekindled by the construction of Science North, otherwise known as the Sudbury Science Centre.

Reprinted from *Astronomy London*

Downsview Astronomy Club

by Neil Meirovich
Toronto Centre

Early in the 1982–83 school year I started an Astronomy Club at Downsview Secondary School in Toronto. It started off slowly, but is now finally starting to move. The first few meetings were spent on ideas and getting organized.

The first “good” meeting came when there was a slide presentation on various astronomical objects, including the July 1982 lunar eclipse, the sun, the moon, the constellations, some planets, and some aurora. The next meeting was one of our best, as we had Ian McGregor as a guest speaker. He talked on how astronomers calculate the immense distances between objects in space. He explained different methods of doing this, such as bouncing light off the moon and planets; using the time and speed of light to find the distance, the use of parallax, and various other methods.

The second term (January to March) was quiet because I was unable to arrange any meetings for certain reasons. The only thing that was done during this time was to try and get different things set up for the late spring and early summer months.

On April 15, we visited York University with plans to use the University’s 12-inch telescope for two hours, but it was clouded out. The next meeting featured slides of the constellations and the moon, as well as some of the Space Shuttle taken by Randy Attwood. We saw a show at the McLaughlin Planetarium on April 28, with a brief look at the Toronto Centre’s Optical Workshop. Then, on the last weekend of the month, a club star party was arranged. Early in May there was a club meeting at which photographs of the constellations, deep sky objects, and the planets were shown.

In late May a display was organised in the school’s main foyer by the club. It featured photographs, drawings by some of the art students, and diagrams of telescopes. We visited the David Dunlap Observatory in Richmond Hill around the same time. From the president and members of the Downsview Secondary School Astronomy Club, good viewing and warm nights.

Reprinted from *'Scope*

My “Roger Bacon Observatory”

by Fr. Lucien J. Kemble, OFM
Calgary Centre

Now that my Celestron 11 on its Byers Mount is permanently installed in a solid, well-equipped shelter with its roll-off roof, I have been searching for a suitable name for the observatory. My franciscan heritage led me to Friar Roger Bacon, OFM, one of the first generation of the followers of St. Francis of Assisi. As a confrere he evidently interests me personally but, also, as perhaps one of the earliest medieval “scientist philosopher theologians”, he occupies a special place in the history of science and of astronomy in particular. Amateur astronomers may wish to know more of the man and his work.

He was born in Somerset, England, about 1214, just a year before the Franciscan friars arrived in Oxford. Roger entered the Order in about 1255, after he had already done extensive studies at Oxford and Paris. He died June 11, 1294 and is known as “Doctor Admirabilis”, leaving a very extensive body of writings. Somewhat of an odd-ball, he was at one time silenced by his superiors for his attacks on Aristotle and the current abuses of the scholastic system.

Roger Bacon’s writings in science are of importance in that he established the basis of a “scientific method”, long before Descartes, or his own better-known namesake and compatriot of Elizabethan times, Francis Bacon. He rejected arguments of authority and appealed to rigorous scientific observation of facts and mathematical demonstration. He was noted, alone in his age, for his

determined efforts to separate physics from sorcery and magic, chemistry from alchemy, and astronomy from astrology. Research reveals some surprising facts about this too-little-known genius, some 3½ centuries before Galileo. He shows amazing knowledge of optics (reflection, refraction, use of lenses, etc.), geography (knowledge of a spherical earth, causes of atmospheric phenomena, etc.), and astronomy, of which he wrote, “No more than monuments of antiquity does sacred scripture give adequate answers, only astronomy excludes error.” Already 300 years before the Gregorian Calendar Reform he indicated the errors of the Julian computation of time and proposed solutions that were actually incorporated into the 1582 reform. Unfortunately, all of his ideas in so many fields were far ahead of his contemporaries’ and remain ignored even today. Pity, that in most books he is known only for his incidental remarks and experimentation with gunpowder!

Evidently, written in an age of superstition and ignorance, his ideas in many respects lack precision and full development, but they do contain, in germ, much that is known and accepted today. Bacon merits the praise given him by the 19th century scientist, Humboldt, who called him “the greatest genius of the Middle Ages”.

In his honor, I dedicated my observing facilities to my “Brother Roger”. And I wish to make these facilities available to members of the R.A.S.C. who wish to come out and use the equipment. Simply give me a call at (403) 932-2012.

Besides the telescope and extensive library, charts, catalogues, etc., there are available electric outlets and concrete bases for several portable telescopes. And dark skies, with not one light bulb in the area. Just a bit of a glow over the hill from Calgary.

Reprinted from *Starseeker*

Vue de Saturne au mont Mégantic

by Marc Gélinas

Société d’Astronomie de Montréal

Le fantasma du grand télescope est une maladie qui sévit chez les astronomes depuis Galilée. J’ai eu la chance d’assouvir un peu cette passion en regardant dans le télescope de 160 cm. de l’observatoire du mont Mégantic. Le Dr Daniel Nadeau, de l’Université de Montréal avait invité les étudiants du cours d’astronomie générale à venir le voir à l’observatoire. Une dizaine d’entre nous y sommes aller en avril dernier.

Ce soir là, la caméra CCD qui est le principal outil de travail refusait de donner une image, en fait c’était le programme de lecture de l’image qui était en défaut. Le Dr Nadeau, son assistant et le technicien de l’observatoire ont dus se résoudre (a ma grande joie) à installer un oculaire, un deux pouces qui donnait l’impression d’être un hublot. Malheureusement, le ciel s’est alors partiellement ennuagé. Nous avons quand même regardé la Lune, agée alors de 10 jours. Copernicus est passé rapidement dans mon champs de vision. Rapidement, car la vitesse de poursuite du télescope n’avait pas été corrigée pour la Lune et que la magnification, que j’estime à environ 500X, amplifiait beaucoup le mouvement.

Nous nous sommes ensuite tournés vers Saturne. Mais? pas de Saturne dans le chercheur? ... le télescope pointait clairement trop haut, nous avons enfin convaincu l’assistant que sa coordonnée en déclinaison était fausse (+9° au lieu de -9°) et alors, quelle vision! Au premier coup d’œil Saturne me sembla énorme et entouré de 5 lumières étincelantes.

En réalité l’image n’était pas tellement meilleure que dans mon 20 cm à cause des conditions de turbulence atmosphérique et des altocumulus semi-transparents qui passaient devant la planète. La division de Cassini se discernait sans plus et une couple de bandes apparaissaient sur le disque. Le point fort du 160cm était cependant la luminosité qu’il donnait aux satellites de Saturne. Dans un rayon d’environ 2 minutes dare cinq satellites étaient visibles, lumineux et avec un disque sensible, l’effet était spectaculaire. Plus tard, à l’aide du *Observer’s Handbook* j’ai identifié la position de Téthys, Dione, Rhéa, Titan et je soupçonne le cinquième d’être Enceladus.

De ces observations j’en conclue que dans de bonnes conditions le nombre des détails accessibles doit pouvoir rendre malade n’importe quel amateur. J’ai aussi remarqué que les professionnels, comme les amateurs, ont de multiples problèmes pour faire fonctionner leur équipement de manière appropriée. Quant à moi, j’ai hâte d’avoir une nouvelle opportunité de réobserver au mont Mégantic, et puis, il y a un autre grand télescope canadien, à Hawaï ...

The Purcell Mountains Meteorite

by Chris Aikman

I still have a chunk of it up there on my bookshelf, a piece of the Purcell Mountains meteorite. It was just over two years ago that I acquired it, and its identification proved to be an instructive experience – edifying even.

I was manning the Dominion Astrophysical Observatory display booth at the British Columbia Science Fair at Robson Square in Vancouver on that October evening when I first met Mr. W. and heard his curious story. Probably it was the sample of nicely rusted iron meteorite forming a conversation piece on the table beside me (in counterpoint to the rest of our display on stellar and extragalactic astronomy) which attracted his attention; in any case, the pitted chunk of metal fulfilled its role, and he was soon telling me of his own meteorite. He'd been with his family up at Canal Flats in the Rocky Mountain trench in the early summer of that year. Somewhere around July 2 or 3 it was, his grandson witnessed a magnificent fireball dazzling across the sky, apparently ending in impact high in the mountains of the Purcell wilderness to the west. Perhaps there were other witnesses too, but the youth thought they could locate the impact site to within a kilometre or so. So a few days later, they mounted an expedition into the high country to see what they could find. After reaching the end of the roads, they proceeded some distance on foot, and eventually came upon a rocky area, bare of trees, where the rocks were splattered with a black, tarry material, extending over some five or ten metres. They chipped some of it off; later on, they'd gone back for more.

Later that month, from his home back in Burnaby, Mr. W. had sent a sample of the material to the Sedimentary Geology Lab of the Geological Survey of Canada in Calgary. They had zapped it with X-rays to test its diffraction and fluorescent properties, and had detected 18 elements present, iron being the most abundant heavy element, with yttrium and arsenic being among the trace elements. They concluded that it might indeed be a meteorite, but suggested confirmation with someone familiar with meteorites.

Astronomers are supposed to be able to do that sort of thing, so I boldly asked him to bring me a sample. Next evening, he obligingly returned to the booth with several chunks. They were hard, dark, resinlike; the smallest beads of material appeared translucent rather than opaque; bits of pine needle and other debris appeared trapped in the material where it had fused and hardened. It also had a curious organic odour, which, however, was not particularly strong or objectionable. Finally, Mr. W. showed me colour photos of the site. The black material was seen streaming down the rock faces, as if poured by some giant frosting a rocky cake but the frosting had hardened prematurely. My reaction was that this was no meteorite. But in the end I had to plead ignorance, as I probably wouldn't recognize a true C1 carbonaceous chondrite even if it stared me in the face, and who'd want to miss identifying such a rare and exotic remnant of the primitive solar nebula? I gave Mr. W. the address of the curator of the National Meteorite Collection, Geological Survey of Canada, Ottawa, and he promised to send a sample there.

After my return to Victoria, I passed some of my fragments on to our friends at the Pacific Forest Research Lab. Their biochemist tested it in a variety of acids and solvents, and concluded that the material contained carbonate and baked resins. This report I mailed on to Mr. W. and by return mail he sent me the polite, pithy report of the Curator in Ottawa. Reading it evoked my surprise, disbelief and, finally, amused acceptance: the specimen submitted consisted essentially of pack rat guano. Enclosed with the letter came an article by a retired geologist under the title "Don't Eat That, Elmer!", reprinted from the *Canadian Mining Journal*, July 1971, which describes this remarkable material. Apparently the native bushy-tailed wood rat or pack rat of the interior mountains of B.C. lives on a diet of pine cones, rich in pine resins. They colonize rocky ledges and caves for a time, leaving large deposits of droppings and urine, which bake in the sun of the hot interior summers, becoming a dark mineral-like substance, which over the years has been variously mistaken for bitumin, pitchblende, manganese, asphalt – and as a meteorite. Even trained geologists have been fooled by the guano. Apparently in 1929, a patch of the stuff was found near Kelowna and prompted a flurry of drilling for oil – into the granite on which it was found!

The excitement of our find has died down now, too. It sits there in its carton, clearly labelled "PURCELL MOUNTAINS METEORITE". Despite the great value of meteorites, no one has yet tried to steal it. Or eat it, for that matter.

Reprinted from *Skynews Victoria*