

NATIONAL NEWSLETTER

August 1981

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY
OF CANADA

Vol. 75, No. 4



“Look Dad, there’s the moon!” A young astronomy enthusiast spots the moon through the skylight of a shopping mall roof as ASTRONOMY DAY May 9, 1981 was observed by R.A.S.C. centres across Canada. Bruce Waters (right) demonstrates a telescope to visitors at a mall display organized by the Toronto Centre.

Photo by Ian McGregor

NATIONAL NEWSLETTER

August, 1981

Editor: RALPH CHOU

Associate Editors: IAN MCGREGOR, B. FRANKLYN SHINN

Assistant Editors: HARLAN CREIGHTON, L. H. HIGGS, P. MARMET

Art Director: BILL IRELAND *Photographic Editor:* RICHARD McDONALD

Press Liason: AL WEIR

Regional News Editors

Centres français: DAMIEN LEMAY, 477, Ouest 15ième rue, Rimouski, P.Q., G5L 5G1

Winnipeg and west:

B. FRANKLYN SHINN, 6202 Shoreline Dr., Nanaimo, B.C. V9S 5N7

Centre and local items, including Centre newsletter should be sent to the Regional News Editor. With the above exception, please submit all material 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.

The First Launch of the Space Shuttle

Jaymie Matthews
London Centre

Since NASA first announced its commitment to building a reusable space vehicle, enthusiasts from across the United States and Canada began making plans to attend the first launch of the vehicle which has become known as the Space Shuttle. Many of these space "buffs" were to be found among the ranks of the R.A.S.C., and the membership of the London Centre was no exception.

As the tentative launch week approached, it was hoped that a large contingent of R.A.S.C. members would be on hand to witness the liftoff of Columbia. However, because of the uncertainty surrounding the actual launch date, many group excursions (such as that planned by members of the Niagara and London Centres) were reluctantly cancelled. In fact, only a few individuals from this area could make the trip to the Kennedy Space Centre during launch week. Among these were R.A.S.C. members Walter Campney, Charles Fassel, Tom Glinos, Peter Jedicke, Stephen Sharpe, Dave Williams, and myself.

Fortunately for me, Jim Graham (an aircraft engineer from Toronto) and I had already obtained press accreditation to cover the first mission of the Space Shuttle as members of the news media.

We arrived in Florida almost four days before the scheduled launch of Columbia on Friday morning, April 10. As part of the press corps, we were given access to much of the Space Centre. Our itinerary that week included visits to the Operations & Checkout Building (where Spacelab modules will be prepared for flight), the 4600-metre runway at the Centre which will

be the primary landing site for the Shuttle orbiter (once regular missions are underway), and the hangar-like Orbiter Processing Facility.

We were on hand to greet the crew of Columbia, John Young and Bob Crippen, as they arrived at Patrick Air Force Base. Throughout the week, there were press briefings on topics ranging from mission abort procedures to the Large Space Telescope (due to be carried aloft by the Shuttle in 1985).

The highlights of the days (and nights) leading up to launch were the excursions to Pad 39-A itself, where the Space Shuttle was poised for liftoff. NASA's press liaisons dubbed these visits "photo opportunities", but we didn't need such a subtle reminder to bring along our cameras and plenty of film. Although the Shuttle was impressive enough from close range when photographed by day, or against a colourful sunset, it was never more spectacular – except during launch itself – than at night, when it was bathed in the glare of spotlights.

By the morning of April 10, well before sunrise, the Press Viewing Site was packed with spectators, as was the adjoining VIP site. (Both locations are about 5½ km from the launch pad, which is as close as anyone is allowed during launch, except for an emergency crew and the astronauts themselves.) Everyone was anxiously awaiting a launch at 6:50 am.

The countdown was proceeding smoothly until at T – 14 minutes and 20 seconds, Hugh Harris (the voice of Shuttle Launch Control) announced that "the ground people are working a problem with the backup computer repair test". At the time, this was considered only a minor inconvenience which would not delay the countdown. In fact, about five minutes later, technicians discovered a problem they considered much more serious. One of the fuel cells which supplies electrical power to the Columbia during flight was producing more water than normal. (Drinkable water for the Shuttle crew is one of the byproducts of the chemical reaction which generates electricity in the fuel cell.) Even though the excess water production by fuel cell #3 was not dangerous in itself, it was unexpected – perhaps an indication of a more critical malfunction in the cell which had not yet been detected. So the hold in the countdown at T – 9 minutes was extended to deal with the problem.

Ironically, the fuel cell problem proved to be the minor one, and the "slight" computer difficulty was recognized at last as serious enough to scrub that morning's launch attempt. The next earliest opportunity for launch would be the following Sunday morning.

Meanwhile, about 10 km south of the Shuttle pad on NASA Causeway East, several members of the London, Niagara and Victoria Centres were bitterly disappointed at the launch postponement. They had made the trip to Florida by car and plane, and joined 80,000 others on the Space Centre grounds (courtesy of NASA vehicle passes which were made available to their staff and the public) in anticipation of a Friday morning launch. Unfortunately, commitments forced all of them to return home before the next attempt. They were not alone. Even among the press corps, there were many who could not remain in Florida for the extra two days.

Jim and I were among the lucky ones. Sunday morning found us once again in our grandstand seats, as the NASA launch team was giving it another try. A team of around 100 computer experts had determined that the backup flight computer (responsible for decision making during launch and landing if the four primary computers are in electronic deadlock) was about 40 milliseconds "out of sync" with its four counterparts. Thus, it refused to communicate or, in the words of Hugh Harris, "it hung up the phone". The experts subsequently found that if the computers were synchronized when first turned on, they would remain so unless they were turned off in the meantime. As soon as they obtained the proper timing, they left the computers running and would keep them running throughout the mission.

When the countdown passed the T – 9 minute point, where things had bogged down on Friday morning, the tension was almost unbearable. Seconds before liftoff, the three main engines on the Shuttle orbiter were started, causing the entire spacecraft to rock back and forth while being held to the pad. Then, just after 7:00 a.m., the solid rocket boosters were ignited, the holddown posts released, and the Space Shuttle Columbia rose majestically atop an ever-growing pillar of orange flame. The staccato roar of the rockets was all the more impressive when one realized that it was being suppressed by over 300,000 gallons of water,

dumped on the pad to cut down the noise of liftoff for the benefit of the astronauts and orbiter equipment sensitive to vibration.

As the shuttle disappeared behind its own steam plume, we were already making plans to see the next launch. For those who missed the April 12 launch of Columbia, there will be another opportunity in late September, when the Space Shuttle is scheduled to once again blast into orbit. It is definitely an experience not to be missed!

Nouvelles des Centres Français

de Damion Lemay

On se rappellera que le Centre de Québec avait obtenu une somme de \$500.00 du Ruth Northcott Fund, en 1980, pour un projet d'achat de livres, et cette aide est grandement appréciée. Originellement, le Centre devait fournir un \$300.00 additionnels. Récemment, cette dernière contribution fut doublée, c'est-à-dire qu'elle fut portée à \$600.00. C'est donc dire qu'il y a beaucoup de matières nouvelles à digérer sur les tablettes de la bibliothèque du Centre de Québec.

A Montréal, monsieur Rolland Noël de Tilly a démissionné de l'exécutif de la S.A.M., pour raison de santé. Il fut représentant national à la S.R.A.C. pendant plusieurs années, et on se rappellera qu'il avait été décoré du Service Award Medal en 1979. Nous lui souhaitons une heureuse retraite.

Searching for Historical Telescopes

Mr. Bob Lang, a past president of the Hamilton Centre, is looking for historical telescopes. In particular he is hunting for telescopes that were made by the late Rev. Dr. Daniel Brand Marsh, who was the founder the the Hamilton Centre and a noted solar eclipse chaser. If any Centre knows if they were recipients in the years 1900 to 1920 and 1925 to 1933, of 3- to 5-inch refractors, Bob would like to receive information on the size and focal length, and whether the instrument is still being used or is available for sale. The Hamilton Centre has recently been given several of the various instruments that Dr. Marsh made, for custodial care, and we would like to collect all of them if possible. If not, we would like to get a record of such instruments. All information should be sent to:

Bob Lang
832 Roxborough Avenue
Hamilton, Ontario

Polish Solar Observers

The National Headquarters has recently received a request for contact with Canadian solar observers from the Central Section of Solar Observers of Poland. This group publishes monthly bulletins giving Polish Wolf Numbers which are independent of the Zurich ones. The announcements are published in Polish only at this time. Interested solar observers should write to:

Wactaw Szymanski
3-go Maja 4/15
41-300 Dabrowa Górnicza
Poland

AAVSO Meeting

**by Clifford Cunningham
Kitchener-Waterloo Centre**

The American Association of Variable Star Observers held its 70th annual general meeting in Tucson, Arizona from April 21–25.

About 100 attended the meeting, whose paper sessions were held in the Steward Observatory auditorium on the campus of the University of Arizona.

The first few days were largely taken up by tours of the astronomical facilities in the Tucson area. In addition to tours of the Optical Sciences building and Kitt Peak, there was a trip to Mt. Hopkins.

There we were shown the 60-inch telescope and the 10-metre gamma ray telescope. The highlight of the trip was a view of the Multiple Mirror Telescope (MMT), third largest in the world. Other activities included a planetarium show by David Levy and a visit to his telescope farm. David, vice-president of the Kingston Centre, has nearly 70 telescopes. Visitors were able to scan the skies with several of them, including a 12-inch Tinsley reflector. One of the members brought his 5½-inch folded refractor, and everyone agreed it afforded the best views of Jupiter they had ever seen.

I had the good fortune to sit through an observing session with the MMT, during which infrared measurements of Triton, Neptune's moon, were made.

As a result I missed talks by two guest speakers, but I did manage to see most of the papers presented, with the solar division of AAVSO being strongly represented.

Papers included two by Lee Anne Willson – “The 1978 Eclipse of R Aquarii”, and “An Interacting Binary Model for Eruptive Symbiotic Systems”.

Richard Stanton, who does photon counting with the 60-inch on Mt. Wilson, gave a review of his system, as did Jeffrey Hopkins, who does differential photometry with a Celestron 8.

Gregory Henry of Dyer Observatory told of RS CVn stars and the evidence that their variability is caused by gigantic sunspots.

Dr. Martin McCarthy of the Vatican Observatory detailed his statistical analysis of late-type stars in the Magellanic Clouds.

David Levy concluded the paper session with an entertaining talk, “The Orion Variables: A Symphony of Delicacy and Brilliance”.

The banquet on the evening of April 25 was dubbed the Coude Feed and featured such galactic delicacies as supernova salad, variable vegetables, red giant rolls, and prime focus rib of beef.

The post-banquet talk by Dr. Roger Angel of the University of Arizona dealt with two topics – black holes and the future of large telescopes.

He envisions a multiple mirror telescope consisting of six 6-metre mirrors, and is currently engaged in this project at the university.

An Incredible Auroral Double-Feature

**by Leo Enright
Kingston Centre**

On the nights of Saturday April 11 and Sunday April 12, the sky was filled with an auroral display the likes of which most people who saw it had never seen before. The two-night double-feature presented by the Aurora Borealis was the kind of sensational event that could leave a skygazer almost gasping with wonder and searching for superlatives with which to describe it.

Well before the end of twilight on April 11, and in spite of the fact that there were clouds, haze and a bright first-quarter moon in the sky, it was obvious that an auroral event was taking

place. Sheets of red and white “flame” were flashing across large parts of the sky. Rays and flares streaked to the zenith from many directions. As the evening sky darkened, red sheets and rays along with their white counterparts became more distinct. At one point three very distinct rays became three solid scarlet bands, each about ten degrees wide and arching from horizon to zenith – one in the northwest, one in the east-southeast, and one in the north-northeast. It was an incredible display in spite of the poor seeing conditions.

On Sunday evening the display was even more spectacular. Shimmering sheets of red covered large areas of the sky. Crazy patterns of green and yellow with flashing white rays appeared like swirling clouds. At times the aurora swung far down into the southern sky; on occasion there was more aurora far south of the moon, Jupiter, and Saturn than in the northern sky. It is little wonder that fire halls were inundated with calls: the pulsating sheets of red made the sky itself appear on fire.

Though I have seen a number of great auroral shows including the very intense red one of April 3–4, 1979. I cannot recall seeing such intense red bands as were visible on April 11, nor such widespread activity as on the 12th. Reports of this aurora have come from as far south as Louisiana where such events are extremely rare.

A solar flare was reportedly observed at about mid-day on Friday, April 10. Even without an unusual flare, it is now the time in the solar cycle when auroral activity should be at its peak. The sunspot cycle reached a maximum in November 1979; it is thought that auroral activity will peak about one to two years after a sunspot maximum. The Aurora Borealis should therefore be quite active this year. Certainly the second weekend of April 1981 is sure to be remembered well by aurora observers.

Reprinted from *Regulus*

Astronomy Toronto

by **Randy Attwood**
Toronto Centre

The enlightenment of the public in the elementary aspects of the science of astronomy has always been an important aim of all Centres of our Society. Few people fail to jump at the opportunity of viewing a colourful slide show about the Universe or taking a look through a large telescope.

In the Toronto Centre the Public Education Programme has always been strong ever since its inception at the turn of the century. Public Star Nights have offered lectures, films, slide shows, demonstrations and, weather permitting, observing of the heavens through various sizes and types of amateur telescopes. In a typical summer the Public Education Programme consists of several of these evenings held at Public Libraries both in and around Metro Toronto. Also, on Saturday nights Toronto Centre members set up their equipment on the grounds of the David Dunlap Observatory in Richmond Hill. After the public tour of the Observatory and the 74” telescope is complete, the visitors are invited to look at several objects through the R.A.S.C. members’ telescopes.

This year, our Public Education Programme has added a new approach. Instead of the public having to come to us, we are now taking our knowledge and interests to the public via television. *Astronomy Toronto* is a 30 minute astronomical newsmagazine seen on Rogers Cable Television in the Toronto area every month. We have used an interview format thus far and some of the topics for discussion have included Astronomy in Canada, Voyager 1 at Saturn, The Space Shuttle and The History of Astronomy in Toronto. It is an excellent medium with which to publicize both astronomy and the R.A.S.C.

All of the cable television companies in Toronto were sent a letter in September 1980 describing the R.A.S.C. and requesting air time for a show on Astronomy. After Rogers Cable accepted, several Toronto Centre members went through a television production training

course (10 hours spread over 5 weeks) where we learned stage lighting, audio and video camera techniques, built the set and gained some hands-on experience with the equipment. Our first series taped in January consisted of three experimental half-hour shows where we were able to put our training into practice. This was followed by a special production meeting where we critically reviewed the shows in preparation for the production of a second series of shows at the rate of one show per month. The shows of the first series were aired in random time slots which complicated advertizing, but with the improved new shows we now have our own time slot on the last Thursday of every month at 8:00 p.m. At this point, we have ideas which will take us into the next year. These include an on-site tour of the David Dunlap Observatory, a review of the activities of amateur astronomers of the Toronto Centre, interviews with professional astronomers and discussions on current events in the sky. We are also planning to have *Astronomy Toronto* broadcast by all the cable TV companies in the Toronto area in the near future.

The production of television shows to popularize astronomy requires a great deal of work and coordination among the members of a production team but it is very satisfying when the finished product is “on-air”. Members of other Centres may be interested in producing their own cable TV programme similar to *Astronomy Toronto*. We are very interested in sharing our experiences in this education medium with other Centres which either have their own programme or are considering starting their own. Please address any inquiries to: R.A.S.C. – Toronto Centre, Astronomy Toronto c/o McLaughlin Planetarium, 100 Queen’s Park, Toronto, Ontario M5S 2C6.

“SKYBALL?????????”

by M. J. W. Smith
Calgary Centre

I have a regular jibe going with a fellow at work who is a Radio Amateur. He states that people who stand in dark fields at -30°C to look at the stars are a little bit strange, whereas I take the view that people who spend thousands of hours and dollars merely to own equipment that allows them to gossip are somewhat odd. It is all in good fun, but as this other Mike asks: “How come Radio Amateurs around the world have pooled their efforts to get nine satellites into orbit, while the astronomers don’t have even one?”

Though our jibes are all in good fun, I see that particular one as having the potential to be taken seriously. I am busy editing this fine publication, (*The Star Seeker*), chairing the observers’ group, etc., so I merely toss a small pebble into the waters of amateur astronomy around the world hoping that others will take up the wave (as this thought propagates around the world via *Starseeker* extractions etc.). However as the idea hit Calgary first I put forward the idea that some Calgary Centre member might like to chair a special committee to compile initial worldwide response from amateur astronomy societies and groups. Perhaps we should spark the idea of pooling funds and effort in order to have an orbiting telescope coupled to a slow-scan image intensifier/T.V. system of low bandwidth requirements to beam data back down to installations like the radio telescope under way by Eric Banberry. Another possible idea is that cheap “piggy back ride” which I believe will be part of the Space Shuttle program. It might be available for this type of project.

I have contributed the name for this project, but there’s a lot to do yet, so –

Let’s Go, World!!!!

from *Starseeker*

Voyages to Giant Worlds

The Extension Services Department of the Royal Ontario Museum recently announced that a new travelling exhibit on astronomy would be available from May 1981. Prepared by the staff of the McLaughlin Planetarium, "Voyages to Giant Worlds" consists of over 40 Voyager photographs of Jupiter and Saturn, supplemented by detailed drawings and text. At press time, the exhibit is on display at the Windsor Public Library, Windsor, Ontario.

Future stops for the exhibit are as follows:

Aug. 31 to Sept. 21	1981	University of Western Ontario
Oct. 3 to Oct. 25	1981	Parry Sound Public Library
Nov. 9 to Dec. 29	1981	University of Waterloo
Jan. 11 to Feb. 15	1982	Atikokan Centennial Museum
Mar. 1 to Apr. 15	1982	Thunder Bay Historical Museum
May 1 to June 23	1982	Laurentian University Museum
Nov. 9 to Dec. 5	1982	Oakville Galleries

For further information on this exhibit contact the Extension Services Department of the Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6.

Eclipse Fever Strikes Again

The total solar eclipse of 13 June 1983 is starting to attract a great deal of attention. Already one major expedition has been organized (and filled) in the U.S. At a meeting on 30 April, the Toronto Centre announced its intention to mount an expedition to Java to observe this event. The organizing committee invites members of the Society to join this expedition, as it will be easier to arrange for the already sparse accommodation and transportation for a single group. Under consideration are plans for possible side trips to the CFH telescope in Hawaii, Australia, China and the South Pacific Islands. Interested members should contact the Toronto Centre Eclipse Expedition for details by writing as soon as possible to:

Solar Eclipse Expedition
R.A.S.C. Toronto Centre
McLaughlin Planetarium
100 Queen's Park
Toronto, Ontario
M5S 2C6

Due\$ Due

Members are reminded that the 1982 membership fees are due on 1 October 1981. Members of Centres should remit fees to their Centre's treasurer; unattached members should send their fees to the National Office, 124 Merton Street, Toronto, Ontario M4S 2Z2. If your address has changed or is incorrectly listed, please be sure to include apartment number and postal code.

Membership fees are \$20.00 for regular members, and \$12.50 for youth members (under age 18 years on 1 October 1981). Proof of age is required for the youth rate. Some Centres levy special fees in addition to the membership fee. Please consult your local treasurer.

Treasurers are reminded that they should send membership fees received by 31 December 1981 to the National Office by 15 January 1982 so that an updated mailing list is on hand for posting of the February 1982 *Journal* and *National Newsletter*. In no case will membership in good standing, or inclusion in the publications mailing list be retained for memberships not renewed by 15 January 1982.