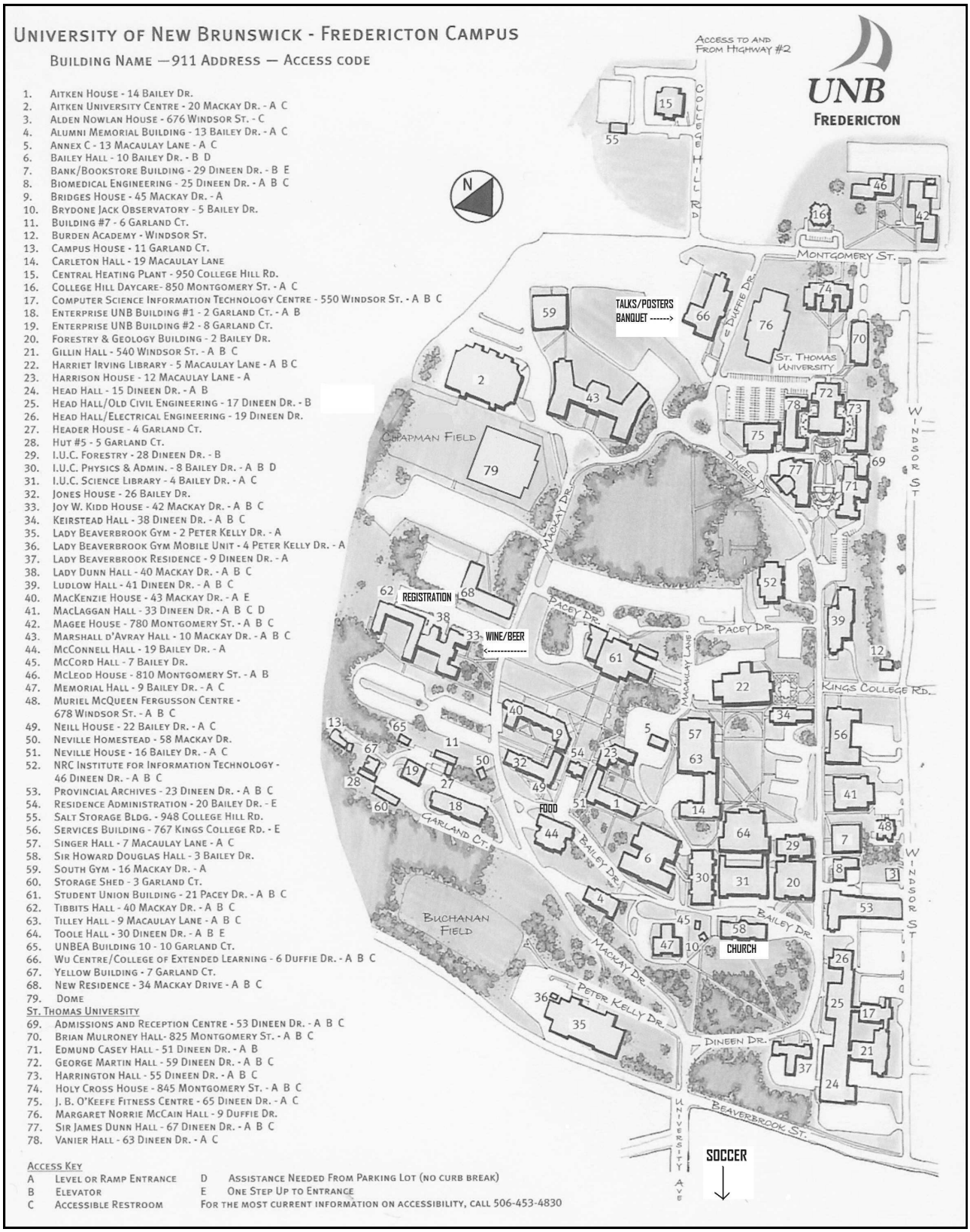
RASC 2010
General Assembly

Assemblée Générale
2010 SRAC

July 01 - 04

University of
New Brunswick

Fredericton


UNIVERSITY OF NEW BRUNSWICK - FREDERICTON CAMPUS
BUILDING NAME —911 ADDRESS — ACCESS CODE
1. AITKEN HOUSE - 14 BAILEY DR.
2. AITKEN UNIVERSITY CENTRE - 20 MACKAY DR. - A C
3. ALDEN NOWLAN HOUSE - 676 WINDSOR ST. - C
4. ALUMNI MEMORIAL BUILDING - 13 BAILEY DR. - A C
5. ANNEX C - 13 MACAULAY LANE - A C
6. BAILEY HALL - 10 BAILEY DR. - B D
7. BANK/BOOKSTORE BUILDING - 29 DINEEN DR. - B E
8. BIOMEDICAL ENGINEERING - 25 DINEEN DR. - A B C
9. BRIDGES HOUSE - 45 MACKAY DR. - A
10. BRYDONE JACK OBSERVATORY - 5 BAILEY DR.
11. BUILDING #7 - 6 GARLAND CT.
12. BURDEN ACADEMY - WINDSOR ST.
13. CAMPUS HOUSE - 11 GARLAND CT.
14. CARLETON HALL - 19 MACAULAY LANE
15. CENTRAL HEATING PLANT - 950 COLLEGE HILL RD.
16. COLLEGE HILL DAYCARE- 850 MONTGOMERY ST. - A C
17. COMPUTER SCIENCE INFORMATION TECHNOLOGY CENTRE - 550 WINDSOR ST. - A B C
18. ENTERPRISE UNB BUILDING #1 - 2 GARLAND CT. - A B
19. ENTERPRISE UNB BUILDING #2 - 8 GARLAND CT.
20. FORESTRY & GEOLOGY BUILDING - 2 BAILEY DR.
21. GILLIN HALL - 540 WINDSOR ST. - A B C
22. HARRIET IRVING LIBRARY - 5 MACAULAY LANE - A B C
23. HARRISON HOUSE - 12 MACAULAY LANE - A
24. HEAD HALL - 15 DINEEN DR. - A B
25. HEAD HALL/OLD CIVIL ENGINEERING - 17 DINEEN DR. - B
26. HEAD HALL/ELECTRICAL ENGINEERING - 19 DINEEN DR.
27. HEADER HOUSE - 4 GARLAND CT.
28. HUT #5 - 5 GARLAND CT.
29. I.U.C. FORESTRY - 28 DINEEN DR. - B
30. I.U.C. PHYSICS & ADMIN. - 8 BAILEY DR. - A B D
31. I.U.C. SCIENCE LIBRARY - 4 BAILEY DR. - A C
32. JONES HOUSE - 26 BAILEY DR.
33. JOY W. KIDD HOUSE - 42 MACKAY DR. - A B C
34. KEIRSTEAD HALL - 38 DINEEN DR. - A B C
35. LADY BEAVERBROOK GYM - 2 PETER KELLY DR. - A
36. LADY BEAVERBROOK GYM MOBILE UNIT - 4 PETER KELLY DR. - A
37. LADY BEAVERBROOK RESIDENCE - 9 DINEEN DR. - A
38. LADY DUNN HALL - 40 MACKAY DR. - A B C
39. LUDLOW HALL - 41 DINEEN DR. - A B C
40. MACKENZIE HOUSE - 43 MACKAY DR. - A E
41. MACLAGGAN HALL - 33 DINEEN DR. - A B C D
42. MAGEE HOUSE - 780 MONTGOMERY ST. - A B C
43. MARSHALL D'AVRAY HALL - 10 MACKAY DR. - A B C
44. MCCONNELL HALL - 19 BAILEY DR. - A
45. MCCORD HALL - 7 BAILEY DR.
46. MCLEOD HOUSE - 810 MONTGOMERY ST. - A B
47. MEMORIAL HALL - 9 BAILEY DR. - A C
48. MURIEL MCQUEEN FERGUSSON CENTRE - 678 WINDSOR ST. - A B C
49. NEILL HOUSE - 22 BAILEY DR. - A C
50. NEVILLE HOMESTEAD - 58 MACKAY DR.
51. NEVILLE HOUSE - 16 BAILEY DR. - A C
52. NRC INSTITUTE FOR INFORMATION TECHNOLOGY - 46 DINEEN DR. - A B C
53. PROVINCIAL ARCHIVES - 23 DINEEN DR. - A B C
54. RESIDENCE ADMINISTRATION - 20 BAILEY DR. - E
55. SALT STORAGE BLDG. - 948 COLLEGE HILL RD.
56. SERVICES BUILDING - 767 KINGS COLLEGE RD. - E
57. SINGER HALL - 7 MACAULAY LANE - A C
58. SIR HOWARD DOUGLAS HALL - 3 BAILEY DR.
59. SOUTH GYM - 16 MACKAY DR. - A
60. STORAGE SHED - 3 GARLAND CT.
61. STUDENT UNION BUILDING - 21 PACEY DR. - A B C
62. TIBBITS HALL - 40 MACKAY DR. - A B C
63. TILLEY HALL - 9 MACAULAY LANE - A B C
64. TOOLE HALL - 30 DINEEN DR. - A B E
65. UNBEA BUILDING 10 - 10 GARLAND CT.
66. WU CENTRE/COLLEGE OF EXTENDED LEARNING - 6 DUFFIE DR. - A B C
67. YELLOW BUILDING - 7 GARLAND CT.
68. NEW RESIDENCE - 34 MACKAY DRIVE - A B C
79. DOME
ST. THOMAS UNIVERSITY
69. ADMISSIONS AND RECEPTION CENTRE - 53 DINEEN DR. - A B C
70. BRIAN MULRONEY HALL- 825 MONTGOMERY ST. - A B C
71. EDMUND CASEY HALL - 51 DINEEN DR. - A B
72. GEORGE MARTIN HALL - 59 DINEEN DR. - A B C
73. HARRINGTON HALL - 55 DINEEN DR. - A B C
74. HOLY CROSS HOUSE - 845 MONTGOMERY ST. - A B C
75. J. B. O'KEEFE FITNESS CENTRE - 65 DINEEN DR. - A C
76. MARGARET NORRIE MCCAIN HALL - 9 DUFFIE DR.
77. SIR JAMES DUNN HALL - 67 DINEEN DR. - A B C
78. VANIER HALL - 63 DINEEN DR. - A C
ACCESS KEY
A LEVEL OR RAMP ENTRANCE
B ELEVATOR
C ACCESSIBLE RESTROOM
D ASSISTANCE NEEDED FROM PARKING LOT (NO CURB BREAK)
E ONE STEP UP TO ENTRANCE
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ACCESS TO AND FROM HIGHWAY #2
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N
COLLEGE HILL RD
MONTGOMERY ST.
DUFFIE DR.
TALKS/POSTERS
BANQUET ------>
ST. THOMAS UNIVERSITY
WINDSOR ST
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MACKAY DR.
DINEEN DR.
REGISTRATION
WINE/BEER
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PACEY DR.
MACAULAY LANE
KINGS COLLEGE RD.
FOOD
GARLAND CT.
BAILEY DR.
BUCHANAN FIELD
CHURCH
PETER KELLY DR.
UNIVERSITY AVE
BEAVERBROOK ST.
SOCCER

Welcome to Fredericton and the 2010 General Assembly!

Paul Gray
RASC 2010 General Assembly Chair

On behalf of the Organizing Committee it is my pleasure to welcome you to the University of New Brunswick for the 2010 General Assembly of the Royal Astronomical Society of Canada. This will be the 61st time the Society has held the annual meeting as part of a larger assembly, which allows us to join together to share and learn what other RASCals and members of the FAAQ across our great country are doing.

This year's GA has a nautical theme about our voyage together. We are passengers on the galleon Ourania. Building on the amazing success of IYA 2009, we are now looking at how we can better serve our members as well as how we can better accomplish our goals of public outreach and education. Ships in our flotilla that will help us on our voyage include the Friendship, Mentorship, Leadership, Craftsmanship, Stewardship and Fellowship. With these ships in mind, we hope this GA will foster ideas and opportunities at all levels of our RASC (yourself, your Centre and your National Office, Executive and Committees).

The 2010 GA Committee has been working hard to bring you an exciting General Assembly on this extra long Canada Day weekend. The schedule is packed with entertaining and interesting speakers, a variety of day tours and the chance to have great seafood everyday! Social opportunities are everywhere this weekend to see old friends and make new ones at the BBQ's, tours, meals, soccer match and hospitality suite. Welcome to our kitchen party! We are all family in this great Royal Astronomical Society of Canada so, please, make yourself at home.

I hope you take advantage the day tours: walk on the ocean floor, sail out of St. Andrews by-the-Sea in search of the North Atlantic right whale, or tour the oldest existing astronomical observatory in Canada. If you have time please venture downtown and tour the beautiful city of Fredericton; stop in at the Boyce Farmers' Market, the Beaverbrook Art Gallery, the Old Garrison District or simply walk along the Saint John River and cross it on the walking bridge for great views.

I wish you an enjoyable GA and I look forward to meeting all of you.

TIME	EVENT	LOCATION (map#)
Wednesday June 30		
12:00	Registration Opens	Lady Dunn Hall Foyer (38)
17:30	Depart for National Council BBQ	Lady Dunn Hall Foyer (38)
18:00	Informal Dinner	On your own. Explore Fredericton (page 13).
20:00	Hospitality Suite	Joy W Kidd House 3rd Floor (33)
Thursday July 01		
06:30 -08:30	Breakfast	McConnell Hall Cafeteria (44)
07:00	St. Andrews Sail Tour Departure	Lady Dunn Hall Foyer (38)
08:30	Registration Opens	Lady Dunn Hall Foyer (38)
10:00	National Council Meeting #1	McConnell Hall Senior Common Room (44)
12:00 -13:00	Lunch	McConnell Hall Cafeteria (44)
13:00 (15:00	NCM#1Continues Refreshment Break)	McConnell Hall Senior Common Room (44)
17:00 - 18:30	Dinner	McConnell Hall Cafeteria (44)
19:00	WBJ Observatory Tour #1 Departure	Lady Dunn Hall Foyer (38)
20:00	WBJ Observatory Tour #2 Departure	Lady Dunn Hall Foyer (38)
21:00	WBJ Observatory Tour #5 Departure	Lady Dunn Hall Foyer (38)
22:00	Hospitality Suite	Joy W Kidd House 3rd Floor (33)
Friday July 02		
06:30 -08:30	Breakfast	McConnell Hall Cafeteria (44)
07:00	Bay of Fundy Tides Tour Departure	Lady Dunn Hall Foyer (38)

TIME	EVENT	LOCATION (map#)
Friday July 02 (continued)		
08:30	Registration Opens	Lady Dunn Hall Foyer (38)
12:00 -13:00	Lunch	McConnell Hall Cafeteria (44)
14:00	WBJ Observatory Tour #3 Departure	Lady Dunn Hall Foyer (38)
15:00	WBJ Observatory Tour #4 Departure	Lady Dunn Hall Foyer (38)
17:00 -18:30	Dinner	McConnell Hall Cafeteria (44)
19:30	Wine and Cheese Reception	Wu Centre Foyer (66)
22:00	Hospitality Suite	Joy W Kidd House 3rd Floor (33)
Saturday July 03		
07:30 -08:30	Breakfast	McConnell Hall Cafeteria (44)
08:30	Registration Opens	Lady Dunn Hall Foyer (38)
09:00 -11:30	Paper Session #1 Paper Session #2	Wu Centre Room 203 Wu - Kent Auditorium
11:30	Group Photo and Human Pyramid	Wu Centre Kent Auditorium (66)
12:00 -13:00	Lunch	McConnell Hall Cafeteria (44)
13:00 -14:45	Paper Session #3 Invited Speakers	Wu Centre Kent Auditorium (66)
14:45	Coffee / Posters	Wu Centre Foyer (66)
15:00	Helen Sawyer Hogg Lecture (Dr. Doyon)	Wu Centre Kent Auditorium (66)
17:00	East-West Soccer Match 17:10 Kickoff	College Hill Field Church Street
18:30 -21:30	RASCNB 10 Year BBQ *Who Wants to be an Astronomer?* / Observing Certificates	Lady Dunn Hall (38)
22:00	Hospitality Suite	JW Kidd House 3rd Floor

TIME	EVENT	LOCATION (map#)
	Sunday July 04	
07:30 -08:30	Breakfast	McConnell Hall Cafeteria (44)
08:30	Church Service	Chapel, Sir Howard Douglas Hall (58)
09:30 -11:30	Annual Meeting	Wu Centre Auditorium (66)
11:30 -12:30	National Council Meeting #2	McConnell Hall Senior Common Room (44)
12:30 -13:45	Luncheon with Dr. David Levy	Wu Centre Chancellor Room (66)
14:00 -15:00	Paper Session #4	Wu Centre Auditorium
15:00	Coffee / Posters	Wu Centre Foyer (66)
15:20 -17:00	Panel Discussion *Boldly Navigating Where No One Has Gone Before*	Wu Centre Auditorium
18:00	RASC Banquet Awards / Door Prizes *Guest Speaker: Dr. Roy Bishop*	Wu Centre Chancellor Room (66)
22:00	Hospitality Suite	Joy W Kidd House 3rd Floor (33)
	Monday July 05	
07:00 -08:30	Breakfast	McConnell Hall Cafeteria (44)
	Goodbyes and Departures	

So, you know a lot about astronomy?

The Saturday evening banquet may be your ticket to stardom. Patrick Regis Kelly will hold court, after the lobsters have been ceremoniously devoured, with a round or four of *Who Wants to be an Astronomer.* This will kick off with a celebrity round and then contestants will be selected randomly. Our sponsors have provided prizes: are you knowledgeable and greedy? If you need a Lifeline, the Organizing Committee recommends you select June MacDonald.

BBQ Entertainer
Patrick Kelly-Halifax Centre

Who Wants to be an Astronomer?

Patrick Kelly has had a life-long interest in astronomy, and has taught first-year astronomy at Acadia, Dalhousie, Mount St. Vincent, and St. Mary's. He is a life member of the Royal Astronomical Society of Canada and is completing the last year of a five-year term as Editor of the Society's annual Observer's Handbook. He is also an active member of the Society's Halifax Centre, having been president, first vice-president, treasurer, national council representative and NOVA NOTES editor, fortunately not all at the same time. He is still the only Centre president to have given a main speaker a bilingual introduction, in both Terran (English) and Klingon.

L'intérêt de longue date de Patrick Kelly, pour l'astronomie, s'est manifesté en enseignement de la discipline en première année d'université aux campus d'Acadia, Dalhousie, Mont St. Vincent et St. Mary. Membre à vie de la Société royale d'astronomie du Canada, Patrick édite le Manuel annuel d'Observation de la SRAC, complétant la dernière année d'un contrat de cinq ans.

Membre actif du Centre SRAC-Halifax, il combla les postes de président, premier vice-président, trésorier, représentant du conseil national et éditeur de NOVA NOTES, heureusement non pas tous en même temps. Il demeure le seul président d'un centre ayant introduit un orateur dans un format bilingue : Terrien (Anglais) et Klingon.

Sunday Luncheon with Dr. David Levy

Sunday 12:30 Wu Centre—Chancellor Room

A Nightwatchman's Journey: My Life and Hard Times as a Comet Chaser

Even with 23 comets, life has not always gone smoothly. This presentation is a retrospective on what inspired me to go into the field of comet hunting, what the pitfalls were and continue to be, and how the search for comets has impacted my personal life; giving it so much added joy.

David H. Levy is one of the most successful comet discoverers in history. He has discovered 23 comets, nine of them using his own backyard telescopes. With Eugene and Carolyn Shoemaker at the Palomar Observatory in California he discovered Shoemaker -Levy 9, the comet that collided with Jupiter in 1994. That episode produced the most spectacular explosions ever witnessed in the solar system. Levy is currently involved with the Jarnac Comet Survey, which is based at the Jarnac Observatory in Vail, Arizona, with his wife Wendee and with Tom Glinos of the London Centre.

Levy is the author or editor of 35 books and related products. He won an Emmy in 1998 as part of the writing team for the Discovery Channel documentary, "Three Minutes to Impact." As the Science Editor for *Parade* magazine between 1998 and 2007, he was able to reach more than 78 million readers. A contributing editor for *Sky and Telescope* Magazine, he wrote its monthly "Star Trails" column, and now writes a monthly column called "Evening Stars" in *Astronomy* Magazine. His "Nightfall" feature appears in each issue of the Canadian magazine *SkyNews*.

Le découvreur de comète David H. Levy est l'un des plus productifs de l'histoire. Il en a catalogué 23, dont neuf avec son télescope personnel d'arrière-cour. En collaboration avec Eugene et Carolyn Shoemaker à l'observatoire Palomar en Californie, il découvrit Shoemaker-Levy 9, la comète entrée en collision avec Jupiter en 1994. Cet événement a créé les explosions les plus spectaculaires jamais observées à l'intérieur du système solaire. Monsieur Levy travaille couramment avec le programme de relevé de comètes Jarnac, basé à l'observatoire Jarnac situé à Vail, Arizona, avec son épouse Wendee et en collaboration avec Tom Glinos du Centre de London.

Le Dr Levy est l'auteur ou l'éditeur de 35 ouvrages et produits connexes. Il fut récipiendaire d'un Emmy en 1998, comme membre de l'équipe de scénaristes pour le documentaire télévisé sur la chaîne Discovery "Three Minutes to Impact (*Trois minutes avant la collision*)." En tant qu'éditeur de la rubrique de science du magazine *Parade* durant les années 1998 à 2007, il a rejoint un nombre de lecteurs de plus de 78 millions. Contributeur-éditeur pour le magazine *Sky and Telescope,* il a publié la rubrique mensuelle "Star Trails," et rédige maintenant une colonne mensuelle intitulée "Evening Stars " dans le magazine *Astronomy*. Sa rubrique "Nightfall" apparaît dans chaque édition du magazine canadien *SkyNews*.

David Levy has given more than a thousand lectures and major interviews, and has appeared on many television programs, including The Today Show four times, Good Morning America twice, the National Geographic special "Asteroids: Deadly Impact," and ABC's World News Tonight, where he and the Shoemakers were named Persons of the Week for July 22, 1994.

Also, Levy has done nationally broadcast testimonials for PBS (1995 to present), and for the Muscular Dystrophy Association Telethon (1998-1999). He hosts a weekly radio show, aired worldwide at ***www.letstalkstars.com***. He has been awarded five honorary doctorates (Queen's, Acadia, McGill, Tampa, and SUNY Plattsburgh), and asteroid 3673 was named *Levy* in his honour in 1988.

Levy resides in Vail, Arizona, with his wife, Wendee, and the Beagle. On February 28, 2010, Levy earned his Ph.D. from the Hebrew University in Jerusalem, where he wrote a dissertation about the relationships between the night sky and early modern literature.

David Levy a contribué à plus d'un millier de conférences et de grandes entrevues, et est apparu durant de nombreux programmes télévisés, tels …

- Le Today Show (*à quatre reprises*)
- Good Morning America (*deux fois*)
- Le documentaire National Geographics-pécial "*Asteroids: Deadly Impact*"
- Et au bulletin de nouvelles ABC Tonight, où lui-même et les Shoemakers ont été nommés "Personnalités de la semaine" en juillet 1994.

De plus, Levy a issu des déclarations au niveau national pour PBS (de 1995 jusqu'à nos jours), et pour le téléthon de la Dystrophie Musculaire (1998 et 1999.) Il fut l'hôte d'une émission radiophonique hebdomadaire diffusée à l'échelle mondiale à ***www.letstalkstars.com***. On lui a accordé cinq Doctorats Honorifiques (Queen's, Acadia, McGill, Tampa, et SUNY Plattsburgh), et l'astéroïde 3673 (Levy) a été nommé en son honneur en 1988.

Levy réside à Vail en Arizona, avec son épouse Wendee et leur Beagle. Le 28 février 2010, Levy a reçu son doctorat en philosophie décerné par l'Université hébraïque de Jérusalem, où il a écrit une dissertation sur les relations entre l'observation du ciel de nuit, et les débuts de la littérature moderne.

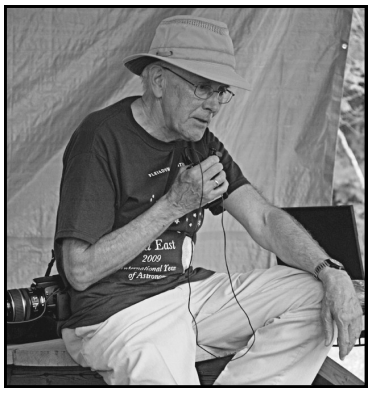
GA 2010 Miscellany

Logo: The logo was designed by our very own signpost guy, Ted Dunphy. The ten stars commemorate the tenth anniversary of the RASC NB Centre. The radial thing in the middle with the Frondsy do? That is the personification of a fiddlehead, a delicious seasonal frond that complements salmon on many a New Brunswick table and is also great in spaghetti sauce. Its resemblance to a starfish in this logo is not entirely coincidental, given our hobby and the nautical theme of GA 2010.

Hospitality Suite: This is where the serious astronomy occurs. The suite is located on the third floor of the Joy W Kidd House residence. It is open every evening after the events (see the schedule). That purple paper stuff you might see in bowls around the Hospitality Suite is dulse (*rhodymenia palmata*). Handpicked by locals on the coast, it is dried and seasoned alfresco and some people consider it a delicacy. Try it.

GA 2010 Organizing Committee: Your helpful hostesses and hosts are distinguished by the NB Tartan sashes. Not every one of them will have dulse-breath.

Banquet Speaker
Dr. Roy Bishop
Sunday 18:00 Wu Centre - Chancellor Room



Roy at NovaEast 2009
(Photo by I)

The Tides of Fundy

An understanding of Fundy tides occurred in five steps: in 1686 with Newton's *Principia*, in 1799 with Laplace's *Mécanique Céleste*, in 1845 with Airy's analysis of gulfs and bays, in 1915 with Einstein's General Theory of Relativity, and in the 1970s with numerical modeling of Fundy made possible by the electronic computer. Ocean tides originate in the free float of Earth in a space-time shaped by Moon and Sun. The length and depth of the Fundy-Gulf-of-Maine system are such that its natural period of oscillation approximates the semidiurnal period of the dominant lunar tide of the North Atlantic, resulting in an amplitude-enhancing resonance.

Roy's association with the RASC began 44 years ago when he joined the Winnipeg Centre. He was president of the Halifax Centre when that Centre hosted the first GA in Atlantic Canada, in 1975. He served twelve years in the five presidential positions of the national Society, and currently is the Honorary President of the Halifax Centre. The duration of his editorship of the Observer's Handbook (1982-2000) is second only to that of C.A. Chant. Roy is a recipient of both the Society's Service Award and the Chant Medal. Asteroid 6901 is named "Roybishop" in his honour.

Except during years of graduate study, Roy has lived within sight of the Bay of Fundy. On a tugboat in his early teens he became familiar with the topography, currents, and tides of Fundy. As a physicist, now retired from Acadia University, he deepened his understanding of the tides of Fundy - the topic of his talk at the 2010 GA Banquet.

L'affiliation de Roy avec la Société Royale d'Astronomie du Canada a commencé il y a 44 ans, lorsqu'il s'est joint au centre de Winnipeg. Il était président du Centre de Halifax lorsque ce dernier a accueilli la première Assemblée Générale au Canada Atlantique, en 1975. Il a servi douze années dans les cinq positions présidentielles de la société nationale, et occupe actuellement la présidence honoraire du Centre de Halifax. La durée de son mandat d'éditeur du Manuel d'Observation de la SRAC (1982-2000) n'est dépassée que par celle de C.A. Chant. Roy est récipiendaire de la médaille Chant et de la médaille du prix de service. L'astéroïde 6901 est nommé "Roybishop" en son honneur.

Sauf au cours de ses années d'études supérieures, Roy a vécu en vue de la baie de Fundy. Sur un remorqueur durant son adolescence, il s'est familiarisé avec la topographie, les courants, et les marées de Fundy. En tant que scientifique spécialiste en physique, retraité de l'Université Acadia, il a approfondi sa compréhension des marées de Fundy - le sujet de son discours au banquet de l'AG 2010.

Helen Sawyer Hogg Lecture

Dr.René Doyon - Université de Montréal

Saturday 15:00

Wu Centre - Kent Auditorium

The First Images of Exoplanets

Detecting exoplanets, ultimately rocky ones like Earth, is an inescapable step for detecting life outside our Solar System. One such step was finally reached in 1995 with the first "indirect" detection of a Jovian planet orbiting the nearby star 51 Pegasi. Since then, more than 400 exploanets have been identified, the vast majority through indirect techniques. Only recently has it been possible to "see" planets, that is, detecting light from the planets themselves. One such discovery was led by Canadians, a discovery that has revealed not one but a whole planetary system comprising three planets. How does one take pictures of exoplanets that are millions to billions of times fainter than their parent star? What have we learned from these recent imaging discoveries? What is the next step in exoplanet science? These are the questions Dr. Doyon will address in his presentation.

Born in Thetford Mines, Québec, René Doyon obtained his BSc in 1985 and an MSc in 1987 from the Université de Montréal. He obtained a PhD in astrophysics at the Imperial College of Science and Technology and Medicine in London, UK in 1991. He is currently an associate professor from the physics department of the Université de Montréal where he holds an industrial research chair in experimental astrophysics from the Natural Science and Engineering Research Council of Canada. He is also Director of the Mont-Mégantic Observatory and the leader of an international science team for the development of the Tunable Image Filter, one of the four science instruments, provided by the Canadian Space Agency, aboard the James Webb Space Telescope (JWST), the successor of the Hubble Space Telescope. The JWST is scheduled for launch in 2014. His main science interests include the search and study of exoplanets and the development of state-of-the-art astronomical instrumentation. He is a member of the science team that recently obtained the first images of a multiple planetary system outside our Solar System.

Natif de Thetford Mines, René Doyon a obtenu son baccalauréat en 1985 et sa maîtrise en 1987 à l'Université de Montréal. Il a obtenu son doctorat en astrophysique au Imperial College of Science and Technology and Medicine à Londres (Angleterre) en 1991. Il est présentement professeur agrégé au département de physique de l'Université de Montréal où il détient une chaire industrielle de recherche en astrophysique expérimentale du Conseil de l'Observatoire du Mont-Mégantic et dirige une équipe scientifique internationale pour le développement et la construction d'un des quatre intstruments scientifiques, fournit par l'agence spatiale canadienne, qui sera monté à bord du successeur du télescope Hubble: le télescope James Webb (JWST) dont le lancement est prévu en 2014. Les principaux champs de recherche de René Doyon sont la recherche d'exoplanètes et le développement d'instrumentation astronomique d'avant-garde. Il fait partie de l'équipe scientifique qui a récemment obtenu la première photographie d'un système planétaire multiple à l'extérieur de notre système solaire.

Invited Speaker

Dr. John Spray

Planetary and Science Centre UNB

Saturday July 03 at 13:00

Terrestrial Impact Craters: Past, Present and Future Threats

The collision of asteroids and comets with each other and with planetary surfaces has been fundamental to both the formation and the evolution of our solar system. The collision of planetesimals (small solid bodies) during the early stages of solar system evolution (4.6 to 4.5 billion years ago) resulted in their accretion and agglomeration to form planets. As the impact flux decreased over geologic time, the impact frequency became sporadic and life was then able to evolve on Earth. Evolution has been subsequently punctuated by impact events that caused mass extinctions, setting back the evolutionary path. Our last major impact was 65 million years ago (the Chicxulub event); an event that set back the reptiles and allowed mammals and, eventually, humans to flourish. This presentation will assess past, present and future risks from large extraterrestrial projectiles. What are the current threats to our society and how should we mitigate them?

John Spray is Director of the Planetary and Space Science Centre at the University of New Brunswick and manages a research team of 19 people which includes research scientists, graduate and undergraduate students and staff. The team's research activities focus on investigating planetary materials, frictional melting, impact cratering mechanics, the geology of the Moon and Mars, and processes associated with hypervelocity impact and shock effects.

John Spray received his BSc in Geology from Cardiff University (Wales) and his PhD in Earth Sciences from Cambridge University (England). He joined the faculty of the University of New Brunswick in 1986 where he now holds the Canada Research Chair in Planetary Materials and is a co-investigator on science teams for NASA's Mars Science Laboratory and the European Space Agency's ExoMars rover missions.

Directeur du Centre des Sciences spatiales et planétaires de l'Université du Nouveau-Brunswick, John Spray gère une équipe de recherche de 19 personnes, comprenant des chercheurs scientistes, des étudiants préparant la collation de grade, des étudiants de premier cycle et du personnel. L'équipe axe ses recherches sur les domaines des matériaux planétaires, la fusion par friction, la formation de cratères par impact mécanique, la géologie de la lune et de Mars, et les processus associés avec les impacts à hyper vitesse et les effets de choc.

John Spray a reçu son BSc en géologie de l'Université de Cardiff (Pays de Galles) et son doctorat en sciences de la terre à l'Université de Cambridge (Angleterre.) Il a rejoint la faculté de l'Université du Nouveau-Brunswick en 1986, où il détient maintenant la Chaire de recherche en matériaux planétaires du Canada. Il est à la fois un co-enquêteur des équipes scientifiques du Laboratoire NASA pour Mars, ainsi que pour les missions ExoMars itinérantes de l'Agence Spatiale Européenne.

Invited Speaker

Dr. Francis LeBlanc
Université de Moncton

Saturday July 03 at 13:55

Diffusion of the Elements Found in Stars

The various elements found in stars can diffuse (or migrate) relative to each other, which can lead to an accumulation or depreciation of their abundance at certain depths in the stars. Diffusion is caused mainly by the competition between gravity and radiative acceleration on the atoms. Radiative acceleration is due to the momentum transfer to atoms when they absorb photons from the stellar radiative field. Segregation of the elements can modify the structure and evolution of stars. In this talk, the basic physical processes involved in the diffusion process will be examined and recent results concerning the effect of abundance stratification in stars will be shown.

Francis LeBlanc est directeur du département de physique et d'astronomie de l'Université de Moncton. Il a obtenu son doctorat en physique de l'Université de Montréal en 1994. Ses intérêts de recherche portent sur la diffusion des éléments dans les étoiles et son effet sur l'atmosphère stellaire des étoiles ayant des anomalies d'abondances. Il est auteur d'un livre intitulé 'An Introduction to Stellar Astrophysics', Wiley (2010). Il a été chercheur ou professeur invité à plusieurs institutions (l'Observatoire de Paris, l'Université de Toulouse et l'Université de Paris VII). Il est également actif en vulgarisation scientifique. Il organise régulièrement des séances publiques d'observation astronomique à l'Observatoire de l'Université de Moncton et il a souvent offert des conférences en astronomie dans les écoles de la ré-

Francis LeBlanc is head of the physics and astronomy department of l'Université de Moncton. He obtained a Ph.D. in physics from Université de Montréal in 1994. His main research interests are related to the diffusion of the elements in stars and their effect on stellar atmospheres of stars with abundance anomalies. He has also authored a book entitled "An Introduction to Stellar Astrophysics," Wiley (2010). Professor LeBlanc has been invited to present his research results at several international conferences. He has also been invited reaserch-er or professor at several institutions (Observatoire de Paris, Université de Toulouse and Université de Paris VII). He is also active in public outreach by, for example, organizing public observing sessions at l'Observatoire de l'Université de Moncton and visiting local high schools to present astronomy talks.

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In and Around Fredericton
Organizing Committee Recommendations on Where to Get Stuff and Get Stuffed

Restaurants

The Blue Door:100 Regent Street, (506) 455-2583; diverse, contemporary menu. Reservations not necessary, but recommended. **www.thebluedoor.ca**
The Boyce Farmers' Market: 665 George Street; The Market is the place to be every Saturday from 06:00 to 13:00. It has a wide variety of locally grown food and handcrafted items. **www.theboycefarmersmarket.ca**
Brewbakers: 546 King Street, (506) 459-0067; licensed fine dining; diverse menu. Reservations not always necessary, but recommended. **www.brewbakers.ca**
El Burrito Loco: 304 King Street; (506) 459-5626; authentic Mexican food, wide variety menu. No reservations necessary. **www.elburritoloco.ca**
Pita Pit: 83 York Street, (506) 476-7482; Wrap that will fill you for the day.
Racines: 536 Queen Street, (506) 474-1915; fine dining; diverse menu. Reservations recommended. **www.racinesrestaurant.ca**
Snooty Fox: 66 Regent Street, (506) 474-1199; Irish Pub, best wings in the city and a great selection of beer on tap.
Sunshine Diner: 7 Brookmount Street, (506) 458-8470; Great for breakfast or lunch; the food is inexpensive and good.
Yoo China Curry House: 10 Trinity Court, (506) 458-9023; Indian & Chinese cuisine. No reservations necessary. **www.yoochinacurryhouse.com**

Sundry

Closest grocery store: Sobey's on Regent Street, just a 3 minute drive from UNB. Open daily except July 1, 12:00 - 17:00 on Sunday.
Closest pharmacy: Sobey's Pharmacy (see above), (506) 453-7856.
Shoppers Drug Mart: 1015 Regent Street, approximately a 6 minute drive from UNB; (506) 459-8888, open Mon-Fri. 09:00 - 22:00, Sat. 09:00 - 18:00, Sun. 12:00 - 18:00.

Medical

There is a medic centre on campus and an "After Hours Clinic" at 1015 Regent Street, open 18:00 Mon.-Fri., 13:00 on weekends and holidays. The clinic closes when there are no more clients.

For a dentist call any one of the dentists' numbers and there will be an answering service that can give you the name of the on-call dentist for that day.

Dr. Everett Chalmers Hospital on Priestman Street: (506) 452-5400 is the main number. ER: (506) 452-5058; Emergency/Ambulance number: 911

Taxi

Checker: (506) 450-8294 Loyal: (506) 455-6789 Trius: (506) 454-4444

Saturday July 03 – Session #1
Wu Centre Room 203

09:00-09:30 Debra Ceravolo

Astro Imaging and Food - Getting Back to Nature

This paper touches on how we have all become overexposed to false coloured, oversaturated, over-processed astronomical images everywhere in magazines, Internet, books and APOD. Debra's natural approach to image processing relates to her approach to food and health in a playful way. She describes her new technique of using the visible spectrum to get as close as possible to the true colour of an object and includes tips on how to avoid the pitfalls of overdoing it.

09:30-10:00 Dr. Richard Schmude Jr.

The Brightness and Colour of the Saturn System

I will review my brightness and colour measurements of Saturn made between 1995 and 2010. I will also describe how the opposition surge, solar phase angle, ring tilt angle and the positions of both the Earth and Sun affect the brightness and colour of the Saturn system. In all cases, the brightness measurements were made with filters in the Johnson B, V, R and I system. These filters transmit light in the visible and near infrared portion of the electromagnetic spectrum.

10:15-10:45 Roland Dechesne

Street Lighting and Crime Reduction: A Reassessment

Although active-monitoring studies are promoted in the literature as the better methodology, I will demonstrate that this methodology creates large biases in the data that invalidate this type of study as a test of the lighting-crime relationship.

10:45-11:15 Ray Khan

25 Years in the Telescope Industry

A brief history of telescopes and equipment utilized in amateur astronomy over the past 25 years, and how the telescope industry has responded to amateurs' needs.

NOTES

Saturday July 03 – Session #1 (continued)
Wu Centre Room 203

11:15-11:45 Dave XVII Chapman
Astronomy Outreach in Cuba: A Personal Experience
In March 2010, I joined a small group of Canadians on an educational tour to Havana, Cuba. All of the group were involved in language enrichment of Cuban students learning English, but I also created a side project involving astronomy outreach. Saint Mary's University donated 12 Galileoscopes to support my activities, which I took to Cuba as a donation. I presented 3 Galileoscope workshops with 125 instructors, teachers, students, amateur astronomers, and planetarium staff. I also arranged for a private tour of the new Planetarium for the Canadians and recorded a brief piece on UFOs for Cuban TV.

Saturday July 03 – Session #2
Wu Centre - Kent Auditorium - Translation Service

09:00-09:30 Randall Rosenfeld
Astronomical History and Heritage:
The Crisis in Amateur Astronomy
Participants in the session will learn that what they do is historically important, why the amateur contribution to astronomy is worth preserving, and what they can do to help in the efforts of preservation.

09:30-10:00 Dr. B. Ralph Chou (Paul Mortfield)
David Dunlap Observatory: Back in Business
The RASC Toronto Centre assumed management and operation of the 74-inch telescope of the David Dunlap Observatory in May 2009. In addition to supporting provincial science education and presenting astronomy public outreach programmes, the Toronto Centre has participated in consultations of the development proposals for the parcel of land surrounding the DDO. In this paper, we report on the Toronto Centre's first year of operation of the largest optical telescope in Canada. Our
management plan is a model for other Canadian observatories facing closure and how they can best be reused to serve their local and national communities.

NOTES

Saturday July 03 – Session #2 (continued)
Wu Centre - Kent Auditorium

10:15-10:45 Remi Lacasse (Français)

Photographs of All 338 Galaxies in the Arp Atlas

Within ten years of astrophotography, I went from imaging different objects to taking long exposures and then looking for a long-term challenge, which the Arp Atlas of Peculiar Galaxies provided me. Starting in the early Fifties, Halton Arp conducted a photographic investigation of galaxies that did not fit into Edwin Hubble's "tuning fork" diagram. In November 1966, his Atlas was published. However, his observations had led him to believe that the red shift of many quasar radio sources close to a certain kind of peculiar galaxy was not due to the recessional velocity but to inherent properties. This controversial hypothesis led him into a number of difficulties. In April 2007, I decided to image the 338 galaxies in colour over a period of 5 years. Although some are spectacular, many are extremely small and challenging. Three years into the project, the 327 completed images can be seen on my Web site at www.astrorl.ca.

10:45-11:15 Denis Grey

Building a Better Centre

More members means more volunteers, easier succession planning, larger capacity to do projects and ultimately more fun for everyone. This seminar reviews proven techniques and tips that everyone needs to do to help build a stronger Centre.

11:15-11:45 Mary Lou Whitehorne

Education, Public Outreach (EPO), and Science Literacy: A Match Made in Heaven

Astronomy can be an effective springboard into the broader universe of STEM (science, technology, engineering and math) subjects. It ignites interest and excites a thirst for knowledge among young and old. The stunning visuals and mind-boggling horizons of modern astronomy fascinate people and draw them irresistibly to the subject. But when it comes to EPO we can and must do far more than simply engage our audiences with mesmerizing images and enthrallingly large numbers. We should strive to raise the level of science literacy among our audience, and this turns out to be quite a different challenge from what we might be used to doing when we think about EPO.

NOTES

Sunday July 04 – Session #4
Wu Centre - Kent Auditorium

14:00-14:30 Adam Hayward and Students
Miramichi Rural School Observatory

The Miramichi Rural Star Troopers started their meetings in January of 2010. These 15 students in grades 5-8 attend night classes once every two weeks. Topics covered range from the Earth's Moon, Mars, Saturn, Life in Space and various space related topics. After the mini-lessons students spend 45-60 minutes observing various celestial bodies. These students have also been trained in the proper use and set up of telescopes and other viewing devices.

The Star Troopers have hosted two "Star Parties" at the school and have guided over 300 visitors through the observatory. Throughout the summer, into the 2010-11 school year and beyond, the Star Troopers will play host to school groups, community groups and the public at the newly constructed Galileo Observatory.

14:30-15:00 Dr. Jim Hesser
Beyond the International Year of Astronomy: Opportunities in Canada

A historic partnership between members of amateur and professional astronomy organizations (RASC, FAAQ, CASCA) helped almost two million Canadians enjoy a Galileo Moment of astronomical discovery during the International Year of Astronomy (IYA) 2009. Collaborations with the arts, library systems, parks, First Nations, etc., brought astronomy to non-traditional audiences.

In the Beyond IYA era the partnership remains strongly committed to continuing efforts to share our passion for astronomy with the public through fun, informative activities that also serve to raise science literacy. An NSERC PromoScience grant was awarded to the partnership for fiscal years 2009-12, with the particular goal of seeking mutually beneficial collaborations with groups who already have effective education and public outreach efforts targeting youth in underserved communities; e.g., inner cities, rural and remote, and Aboriginal/Métis/Inuit.

NOTES

Sunday July 04 – Session #4 15:20 - 17:00 Wu Centre - Kent Auditorium
Panel Discussion
Boldly Navigating Where No One Has Gone Before:
The Future of the RASC in the 21st Century

Moderator: **Randall Rosenfeld,** ***RASC Archivist and unattached member***
Panelists: **Roland Dechesne,** ***President, Calgary Centre***
Jim Hesser, ***Director of the DAO, Single Point of Contact for the Canada Node of Beyond IYA (BIYA), Victoria Centre***
Lauri Roche, ***1st Vice President, Victoria Centre***
Mary Lou Whitehorne, ***National RASC President, Halifax Centre***

IYA 2009 was an unparalleled success, and while RASC membership did not grow appreciably, it didn't shrink; a remarkable feat given the economic climate. We are still faced with a volunteer deficit, a membership that is too homogenous (50+, male and white), seemingly too little energy for long-range planning, an impending shortage of skilled hands to comfortably ensure the longevity of our core programmes (such as the Society's oldest and most respected serial publications), and a weak capacity for innovation.

Are we making the most of social networking and other rapidly developing modes of electronic communication? Can we successfully remake the RASC to better reflect the demographics of Canadian society without alienating segments of our current membership? The practice of science at all levels is not as well funded in Canada as many think, a condition shared with the Arts. Are there innovative funding sources and opportunities in the public and private spheres that remain underutilized? Conversely, is lack of funding a sufficient excuse to stop developing and delivering programmes? What can we learn from other Canadian and international examples? Partial solutions may lie in modelling diversity and depth into our programmes.

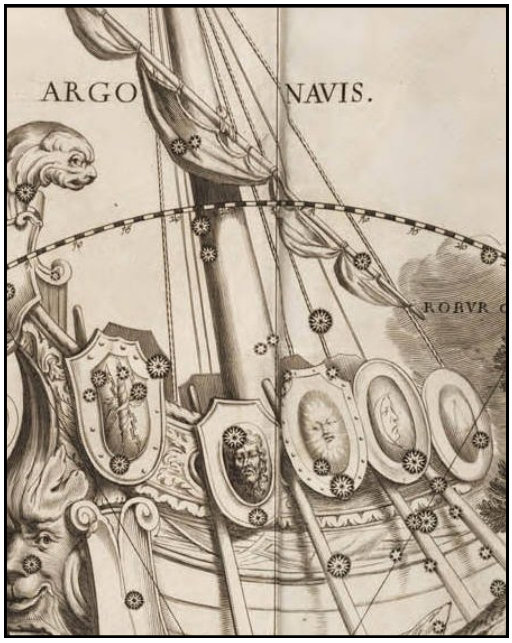
DIVERSITY: Offer a rich and richly sustainable variety of astronomical activities to attract a wide cross section of people.

DEPTH: Present flexible, multi-staged programmes, allowing beginners as well as experts to participate. Programmes with depth should enable participants to grow in astronomy over a lifetime.

The IAU's conferences on ***Communicating Astronomy with the Public*** report that providing the general public with genuine opportunities to contribute to the scientific enterprise through doing real science is a sure way to attract and retain significant numbers of people. Successful projects such as the AAVSO's ***Citizen Sky,*** NASA's ***Stardust@home, Galaxy Zoo***, ***Galaxy Zoo 2***, and ***Moon Zoo*** are examples of effective citizen science that deal with large amounts of data through crowd sourcing. These are pro-am collaborations in the best sense of the term. Integral to the success of these projects is the provision of on-line interactive training and different forms of mentoring, the acquisition and honing of research skills, and the chance to make discoveries and share in their scientific recognition. Many of these projects are ambitious and well-funded; if the RASC cannot develop such projects on its own, it could certainly partner with others in furthering them.

Science as culture has proven remarkably attractive to many people who don't think of themselves as scientifically adept. The exhibition across Canada of graphic art from the Canadian Astronomical Images

Gallery was very popular, in airports and in pubs. Many found the production of the Mi'kmaq legend of ***Muin and the Seven Bird Hunters*** compelling. One of the most impressive of such projects is ***Stonehenge Aotearoa***, with significant participation across all age groups. Could something similar work in Canada? The RASC has only begun to explore opportunities for partnerships with arts organizations.



The most exciting EPO (Education, Public Outreach) ventures worldwide are those that bring astronomy to youth at risk, and to under-served or impoverished communities at home and abroad. The ***IYA Universe Awareness*** (UNAWE) is one such international project, and Julie Bolduc-Duval, the BIYA Education and Outreach Coordinator, is developing and coordinating a Canadian programme involving professional astronomers. Related projects are those that provide astronomy clubs and basic educational institutions in the developing world with first-world expertise and quality second-hand astronomical equipment in good condition (e.g., project ***STAR*** of Astronomers Without Borders). How many of us would be willing to donate equipment for a good cause rather than trade-in to trade-up?

The RASC would have much to gain in bringing astronomy to people who are not clones of us. The risks of doing so should not be underestimated; but the advantages for astronomy, for the communities partnering with the astronomers in the education process, and for the astronomers; are hard to overestimate. The RASC could gain a lot of "street cred" and favourable press it couldn't otherwise buy, and probably much increased youth participation, but these should never be the motivation for EPO. No project could be successful without partnerships with organizations already working with the target communities. Could the RASC realistically contemplate such commitments?

PARTNERSHIPS: IYA has shown how important these can be. They are now essential for professional astronomy. What of the amateur scene? A RASC that can function harmoniously as a national organization is stronger than a RASC marred by infighting, and a RASC that can forge mutually beneficial working partnerships with other national and international organizations can reach for the stars.

POSTER SESSIONS
Wu Centre Foyer

Reducing Comet Lulin Observations, the Old Fashioned Way

Leo Enright and Raymond Auclair

- Observation data
- Spherical trigonometry equations used for reduction
- Logarithm tables used for hand calculations from right ascension and declination to ecliptic latitude and longitude
- Best fit approach for inclination and node
- Comparison of actual results with modern published data
- With pictures

Towards a Lighting Protocol for Oil and Gas Facilities in Alberta

R.G. Deschesne, R.W. King, W.S. Donaldson, S. Jahrig, B. McCurdy,B. Wispinski

While objections to new oil and gas facilities on the basis of adverse effects of outdoor night time lighting are not raised for each new project, we believe such objections occur frequently enough in Alberta; and together with overwhelming evidence for the negative biological effects of nighttime light and the relatively low costs to implement proper lighting protocols, coupled with the potential great benefits; to merit the regulation of nighttime lighting in all future development. Based on such, we propose that the Alberta Energy Resources Conservation Board consider the creation of a nighttime lighting protocol, similar to the ERCB Noise Control Directive 38, in collaboration with conservation groups, industry participants and private citizens.

Green Laser Pointers: SMART Use

Randall A. Rosenfeld

Green Laser Pointers (GLPs), upon their wide dissemination, quickly became established as essential tools for education and public outreach (EPO) in astronomy. They have proven signally effective in this application. As with many other useful devices, GLPs can be potentially harmful if used incautiously. The last five years have seen a rise in reports of the flashing of aircraft with GLPs, a matter of legitimate concern to the aviation industry, and Canadians at large. On the one hand, these reports and some criminal cases have led some in the media, regulatory, and law enforcement agencies to imply that the amateur astronomical community is at fault, and to call for restrictions and bans on GLP use. On the other hand, not all in the amateur astronomical community realize the real risks inherent in GLP technology. This poster sets out the potential physical harm of improper GLP use, and the wider consequences of such actions, including possible GLP restriction, or complete banning.

Thank you. Come again.