

Communicating Canadian Astronomy on the Eve of the International Year of Astronomy 2009

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Summary

We describe the achievements of astronomy education, outreach and communication in Canada, past and present, and our hopes and dreams for the International Year of Astronomy 2009 (IYA2009): *To offer an engaging astronomy experience to every person in Canada and to cultivate partnerships that sustain public interest in astronomy.* Despite challenges such as the lack of major funding sources, much has been accomplished through volunteer efforts, especially in the last decade. These have been intensified by IYA2009 and have been facilitated by the “partnership approach” that includes professional astronomers in government and academia, amateur astronomers in both anglophone and francophone Canada, planetariums and science centres, astronomy communicators and other members of “the astronomical education community”.

Canadian astronomy has a long and illustrious history for a country so young. It begins with the indigenous knowledge and practice of Canada’s aboriginal populations. It continues with the practical astronomy needed for surveying the settlements and railways as they spread westward across the country. Within the last century it has included forefront research by university and government astronomers in fields ranging from meteorite impact craters to dark matter and dark energy. In international surveys of the past decade Canadian astronomy consistently ranks highly in productivity per astronomer or per dollar spent.

Canadians should be proud! But many — perhaps most — are under the misconception that most astronomy is done in the large country to the south of us. The problem is not one of interest: surveys show that most Canadians are interested in science, as much so as in sport or politics. Astronomers simply have to get the word out.

There are challenges. Canada has a small population spread over a large area. We have two official languages, English and French, and millions of people whose first language is neither of these two. We lack the “science culture” that is prevalent in Europe or in some Asian countries. Compared with the US, there is very little government funding available in Canada to support science outreach and communication. Nor have our funding agencies yet instituted policies requiring applicants to explain how they will share the results of their publicly funded research with the public other than through professional refereed astronomy research journals.

Nevertheless, much has been accomplished, largely on a voluntary basis.

Many Canadian astronomers are active — and indeed have distinguished themselves — in outreach and communication, and graduate students play a prominent role in organising non-technical lectures and tours of observatories. We are blessed with large

numbers of active amateur astronomers and clubs, most of them associated with the Royal Astronomical Society of Canada (RASC) and the Fédération des Astronomes Amateurs du Québec (FAAQ). Both have very strong outreach programmes for schools and the public. The RASC was a 2003 winner of the Michael Smith Award, a prestigious national award for excellence in science promotion.

Canada has five large planetariums, as well as some major science centres. The planetariums have successfully cooperated in developing major shows on Canadian astronomy such as *The Quest for Origins* (2004) and *Is Anybody Out There?* (2006) and are proposing a new one, *Galileo Live!*, for the International Year of Astronomy 2009.

Canada has had some outstanding science communicators. When the Dominion Astrophysical Observatory (DAO) opened in May 1918, Director John Stanley Plaskett instituted regular open houses for the public, a tradition that continues 90 years later.

Through publications in professional and lay journals he and his small staff ensured the public was aware of scientific developments not only of their new observatory, but of astronomy more generally. Clarence A. Chant, the founder of the astronomy department at the University of Toronto, was a prolific writer and lecturer. His efforts led directly to the establishment of the David Dunlap Observatory which, when it opened in 1935, had the second largest telescope in the world (with the 1-cm smaller DAO telescope — now named the Plaskett Telescope — the third largest). Helen Sawyer Hogg, of the University of Toronto, wrote a weekly astronomy column in Canada's largest circulation newspaper for 30 years. Terence Dickinson's books have sold more than a million copies around the world. Comparable public outreach is a strong feature of astronomy in Québec too where professionals, amateurs (FAAQ), science centres and the media have achieved remarkable success as partners in communicating the latest astronomy news. In addition, the Canadian Astronomical Society (CASCA), which includes Canada's professional astronomers and graduate students, created the CASCA-Westar public lectures (patterned after the successful Shapley Lectures of the American Astronomical Society) to bring astronomy to smaller communities¹.

It would have been tempting to simply continue the impressive status quo. But in 2001, CASCA embarked on an "education initiative", funded in part by programmes of the federal and Ontario provincial governments. A broad-based advisory board recommended, as first priority, supporting astronomy in schools.

Astronomy is part of the elementary and secondary school science curriculum in most parts of Canada. The quality of science teaching is generally high, though teachers often shy away from astronomy because few of them have any background in astronomy or astronomy teaching.

Accordingly, a bilingual website was created², aimed at teachers and their students, but containing useful information for amateur astronomers and the general public. Since its inception, Heather Theijsmeyer, a high school science teacher with a background in astronomy, has maintained the site on a part-time basis, constantly adding useful new material and ensuring that all links are current. At about the same time RASC Vice-President Mary Lou Whitehorne wrote *Sky-Ways — Astronomy Handbook for Teachers*.

The next step was to create a website that would serve the mass media, taking into account the fact that most people (including teachers and students) get their astronomy information from that source. In response

to a recommendation in Canada's Long Range Plan for Astronomy,³ the CASCA Education and Outreach Committee developed a concept in 2005 for a website⁴ that would provide high quality images, graphics and information in a form useful to the media. Fortunately, the chair of the committee, Jayanne English, has a background in art, design and media, as well as in astronomy. Unfortunately the project is stalled for lack of funding, but is still being slowly developed on a volunteer basis and efforts to secure funding continue.

Then the International Year of Astronomy 2009 came along. This is providing a catalyst for progress on three fronts: expansion and promotion of cascaeducation.ca, development of AstronomyCanada.ca, and organisation of countrywide IYA2009 activities, both local and national. Under the initial leadership of Dennis Crabtree and in collaboration with the authors, the IYA2009 Canada Committee was formed, representing all parts of the astronomical community — CASCA, university and government astronomy, the RASC and FAAQ, planetariums and science centres, science communicators, as well as Canada's aboriginal communities.

Our vision is "to offer an engaging astronomy experience to every person in Canada, and to cultivate partnerships that sustain public interest in astronomy". A subsidiary vision is that every amateur and professional astronomer in Canada will find (or develop) an IYA2009 activity that fits with their personal interests and expertise. We encourage "bottom-up" activities, not just "top-down" ones. Our evolving plans and their implementation may be tracked online.⁵

One of the arguments against simply maintaining existing activities through IYA2009 is that much of astronomy outreach and communication presently reaches a limited audience; we are "preaching to the converted", as the saying goes. Most astronomical hobbyists are middle-aged white males. What about women, young people, minority ethnic groups, including our aboriginal population? What about people whose primary interests are in the arts and literature? We need to reach out to new audiences.

We are therefore delighted that our partners from the aboriginal community, led by Cheryl Bartlett and Lindsay Marshall of Cape Breton University, are making steady progress towards achieving IYA2009 goals in two areas: bringing astronomy and other sciences to their people, especially young people and also collecting and disseminating information about indigenous astronomical knowledge and practice. In addition they are striving to increase the number of dark sky preserves in Canada.

And we are looking forward to imaginative partnerships with orchestras and other arts organisations; two major Canadian orchestras are already committed to imaginative astronomy-themed programmes in 2009.

Our committee has identified about two dozen possible IYA2009 projects and activities, many of them parallel to the international IYA2009 Committee's Cornerstone projects. Potentially they engage every part of our diverse population.

But challenges remain. We have few agencies and foundations which provide the type or amount of support that we need. In the 2000 Long Range Plan for Canadian Astronomy, it was recommended that 1.5 percent of the budget for any astronomical facility should go to related outreach. Only in one specific instance has that goal been indirectly achieved; in general, neither the funds nor an accepted mechanism have yet appeared. As for approaching corporate and private funding sources, Canadian astronomers are unfortunately amateurs at such fundraising. But with seed money from CASCA and other sources, we are making progress — and look forward to updating you soon.

An outline of astronomy education, outreach and communication in Canada, our plans for IYA2009⁶ and our fundraising brochure⁷ are all available online.

Notes

1. http://www.cascaeducation.ca/files/casca_westar.html
2. <http://www.cascaeducation.ca>
3. <http://www.casca.ca/lrp/front-back/en-index.html>
4. <http://www.AstronomyCanada.ca>
5. <http://www.astronomy2009.ca> or <http://www.astronomie2009.ca/>
6. <http://www.astronomy2009.ca> or <http://www.astronomie2009.ca/>
7. <http://www.astro.utoronto.ca/~percy/finalastrodoc.pdf>

Biographies

John Percy is a very active Professor Emeritus of Astronomy and Astrophysics, and of Science Education, at the University of Toronto. He is a past president of IAU Commissions 46 (Education and Development) and 27 (Variable Stars) and a member of the IYA2009 Canada Committee.

Jim Hesser is Director of the Dominion Astrophysical Observatory (National Research Council of Canada) in Victoria. Past President of the Canadian Astronomical Society, Chair of the IYA2009 Canada Committee, and a recipient of Canada's Michael Smith Award for outstanding contributions to science outreach.