

Public Libraries as Partners in Astronomy Outreach

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Public libraries have proven to be effective partners in bringing astronomy to audiences across the large and diverse city of Toronto, Canada, and enabling astronomers — both young and old — to interact with members of our community. This article reflects on the author's experience working with public libraries, especially the Toronto Public Library (TPL), the busiest public library system in the world, to deliver over forty public presentations.

Introduction

As astronomers at the University of Toronto we come from the Department of Astronomy and Astrophysics, the Dunlap Institute for Astronomy and Astrophysics, the Canadian Institute for Theoretical Astrophysics, and the Centre for Planetary Sciences. Collectively, we organise a large variety of outreach events¹. These include: monthly public presentations and tours reaching audiences of 150–200; an annual keynote lecture by an eminent visiting astronomer; regular public shows in our small but powerful planetarium; and “Astronomy on Tap” — an informal, interactive programme in local pubs, reaching audiences of 400 or more.

Our graduate students play a major role in planning and delivering our outreach events but even with this support organising public lectures requires time, effort, and money. Rooms and audio-visual equipment need to be arranged and publicity needs to be done. Our lectures usually take place on our campus in the middle of the city, amid academic, hospital, and government buildings. This part of the city is perfectly safe, but can be distant and intimidating for some residents and as a result many of our events attract as their dominant audience middle-aged, middle-class, educated, and predominantly white males. Often, it's the same people who come to every event. We would like to reach out to new audiences, in every corner of the city, especially as engagement with the dynamic, diverse city is one of the three top priorities of our university's current President Meric Gertler, an urban geographer. We are delighted that our astronomers' long-standing commitment

to community outreach and interaction is congruent with our university's priorities, which were arrived at after long consultation and discussion.

Partnerships

A successful partnership is a cooperative relationship between two or more individuals or groups which enables the partners to achieve their respective missions or goals more efficiently and effectively. Such partnerships are respectful, productive, mutually beneficial and an excellent tool for astronomy outreach.

Working in partnership was at the core of Toronto's celebration of the International Year of Astronomy 2009 (IYA2009: Hesser et al., 2010) and has played a key role throughout the author's and his team's work in astronomy outreach over the past half century (Percy, 2012). These partnerships enable us to connect with new audiences (Percy, 2009) and enable astronomers to engage the public in new activities without reinventing the wheel. To do something novel, we need only find like-minded partners who have the relevant skills, experience, and contacts to help make it happen. We supply the enthusiastic astronomer; our partners supply the infrastructure.

There is still a place in astronomy outreach for the live public lectures that these partnerships can help us achieve, even in this increasingly online world. People can meet scientists face-to-face, and see science as people, not just textbooks or the media. They can experience the enthusiasm that a real human brings to science, ask questions, and build connections. The

astronomers too gain from this; for example the David Dunlap Observatory near Toronto — which at its time of opening in 1935 housed the second-largest telescope in the world — came about as a direct result of a public lecture by astronomy Professor Clarence Chant. Though, of course, that is not why we do public talks.

Toronto and its public library system

Toronto is one of the most ethnically-diverse cities in the world, with over half of its 2.79 million residents born outside Canada. The residents of Toronto speak 140 different languages and dialects. It is a city of dozens of vibrant neighbourhoods, whose boundaries are based on history, geography, and ethnicity. The Toronto Public Library (TPL) has a hundred branches spread across every neighbourhood and community in the city, with a collective 18.5 million visits per year².

TPL, like other modern libraries, is more than a repository and lender of books. As well as electronic resources, its branches offer a wide variety of programmes catering to their local neighbourhoods. The programmes include: sessions for readers and writers; workshops on practical topics such as computers, personal finance, small business, health, and career and job-search help; after-school programmes; projects designed for teenagers; reading sessions for children; and sessions tailored to newcomers to the city. Programmes and resources cover general-interest topics in science, culture, history, and hobbies, are provided in 40 languages, are no-cost, and provide free facilities such as computers



Figure 1. The interior of a Toronto library. Credit: Jackman Chiu via Flickr

and the Internet which are especially valuable to recent immigrants (of whom Toronto has many) and other disadvantaged groups. Bernardi (2016) discussed the merit of communicating astronomy in “unconventional” locations, such as book and toy shops and although to astronomers libraries may seem to be an unconventional location, they already offer programmes on a wide range of topics besides astronomy. Indeed, if astronomers want to reach new and diverse audiences, they should offer programmes in as many locations — unconventional and otherwise — as possible.

Many of our library presentations attract an audience of retired people and seniors, not necessarily with a science background. These later-life learners provide a growing, receptive, and important audience for astronomy outreach (Percy and Krstovic, 2001). Although we give many courses and lectures for this audience outside the library system, libraries provide an accessi-

ble local neighbourhood hub for such people. The presentations provide intellectual and social stimulation, which, along with good diet and exercise, has been shown to delay dementia perhaps better than any medication — so the impact of such sessions is far from superficial (Baumgart et al., 2015, Shurkin, 2015).

Toronto Public Library partnership in the International Year of Astronomy

A primary goal of the International Year of Astronomy 2009 (IYA2009) in Canada (Hesser et al. 2010) was to reach new and diverse audiences, at minimal cost. It therefore made sense to partner with TPL. The libraries provide the venue, the staff, the audio-visual facilities, and the publicity through their website and quarterly *What’s On* magazine³ (Figure 2). Other astronomy groups have reported success in partnering with public libraries, especially if

they are well-enough funded to produce engaging displays and resources (Sharma et al., 2013, Summers et al., 2009). In our case, funds and costs were minimal and our presenters, though enthusiastic, were volunteers.

The key initial step for us was to identify the person who coordinates programming across the TPL system, and to develop an effective partnership with them. For most of the time since the IYA2009, that has been Miriam Scribner and it is to her we owe a great debt of gratitude. Initially we provided her with lists of available speakers and topics every few months which she circulated to her colleagues. Later, we set up an online speakers list⁴ — as we suggest every astronomy group does — and this was circulated to the programme coordinators at each of the one hundred branches. The list provides pictures, brief biographies, and presentation topics for each speaker. The partnership coordinator, in our case Public Outreach Coordinator for

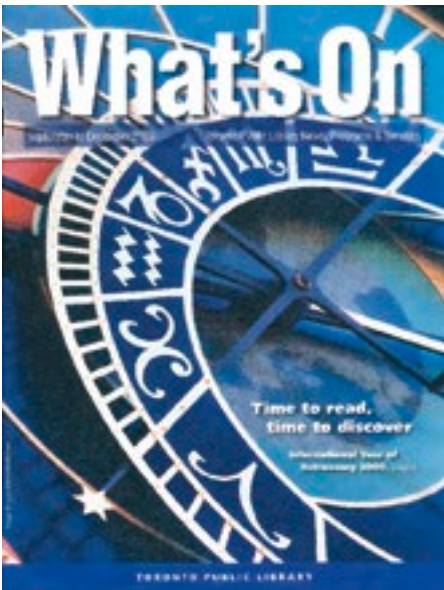


Figure 2. During the International Year of Astronomy 2009, the September 2009 edition of the Toronto Public Library's *What's On* magazine featured astronomy (the Prague astronomical clock) on the cover, and highlighted a variety of astronomy programmes for people of all ages. Credit: Toronto Public Library

the Dunlap Institute Michael Reid, keeps the speakers list full, and up-to-date, and manages requests from the librarians.

Once a speaker is chosen, either approached directly by librarians they know or requested through the website, they communicate with the local librarian, and provide a brief biography and the title and summary of their presentation, as well as learning about the library's individual needs and expectations. The presentations are advertised in *What's On*, on the TPL website, in posters in the local branch, and on various astronomy websites. The publicity itself is valuable as thousands of people see it and find out who astronomers are and what they do, even if they cannot attend the presentation. On the day of the presentation, the speaker arrives at the library branch well ahead of time, and meets with the librarian. The venue may be a corner of a one-room library, or a 250-seat auditorium in one of the larger branches. Often audience members arrive early, and some speakers invite them to ask informal questions while they wait or engage in discussion about any aspect of astronomy — not just the one that is going to be talked about.

In the summer, TPL organises programmes for children across the city. Astronomy,



Figure 3. A front-page photograph of solar observing after an astronomy presentation by the author, at the Midland Public Library. Credit: Midland Mirror

along with dinosaurs, is said to be children's favourite science topic, but some presenters, the author of this article included, are more comfortable giving presentations to adults. So, in IYA2009, funded by a grant from the PromoScience programme of the Natural Sciences and Engineering Research Council of Canada, we enlisted the help of Robby Costa, a recent science graduate who had also completed an undergraduate course in Science Education, and who aspired to be an elementary school teacher. Together, we developed and delivered a dozen programmes for children which were a mixture of engaging content, hands-on activities, take-home materials, and opportunities to "ask an astronomer".

Usually, no formal evaluation of these presentations is done, other than the presenters' own reflections. It is difficult to administer a survey when the astronomer is talking after the presentation with keen audience members and the librarian is managing a busy library. However, at my most recent presentation on 18 January 2017 "Misconceptions in Astronomy: From Everyday Life to the Big Bang" a simple evaluation form was distributed. Of the 110 attendees, only 27 completed the evaluation but all 27 agreed that "they would like to see more programmes on this topic". The average rating of the presentation was 9.2/10. Aside from this there is also word-of-mouth exchange between the librarians, and the fact that we continue to be invited back every year is a positive sign. Miriam Scribner tells me that she has never received a negative review of an astronomy talk and has noted that our young female astronomers are particularly very well-

received. We try to ensure that our speakers list reflects the diversity of our astronomy group, and of our city.

Based on requests, and on my experience, the most popular topics appear to be: stellar evolution and death; black holes; exoplanets; extra-terrestrial life; and cosmology, though my "Toronto's Astronomical Heritage" presentation (Percy, 2014) is also very popular.

When promoting talks it is important for the title and summary of the presentation to reflect the excitement of the content.



Figure 4. Toronto Public Library atrium. Credit: Roberto Baca via Flickr

Some of our most experienced presenters become well known to the librarians, and to the audiences, and consistently draw a good-sized crowd — typically fifty to a hundred or more. Many of the presenters are postdoctoral students or senior graduate students with a special interest and ability in communicating astronomy and giving a talk provides them with excellent experience in giving a non-technical presentation and interacting with the community. These young astronomers make use of various forms of preparation, including training and experience as teaching assistants, and workshops from experts such as astronomer and award-winning science reporter Ivan Semeniuk. Public Outreach Coordinator for the Dunlap Institute Michael Reid is also an award-winning instructor and serves effectively as a coach, mentor, and role model for our younger colleagues.

The partnership continues

Drawing on the success of IYA2009 in Canada (Hesser et al., 2010), the organisers decided to continue and expand their outreach activities and partnerships beyond 2009 with a special emphasis on reaching underserved and non-traditional audiences, especially youth⁵. These audiences include inner-city, rural, black and minority ethnic groups and people of low socioeconomic status. The grant from the PromoScience programme facilitated this. Library presentations in Toronto continued from 2009 but, with the help of the Ontario Library Association, we were also able to secure invitations from libraries in smaller towns and cities, without local astronomical organisations or facilities.

Mattawa, for instance, is a town of 2000 people, a four-hour drive north of Toronto. We have given presentations on “The Amazing Universe” to a total of 150 people in the local public library, and two local high schools. In the town of Sutton, north of Toronto, we reached 180 people, including a small group of schoolchildren with autism spectrum disorder, making the presentation very visual and hands-on to suit their limited communication and social skills. Other presentations were given in Brantford, Midland (Figure 3), Oshawa, Penetang, Port Hope, and Uxbridge, with audiences of up to one hundred.

There is still much to do, in Toronto and beyond. We encourage every professional and amateur astronomy group in Canada (and elsewhere) to contact and partner with their local library. The costs are minimal, and the rewards are high. In particular, there is untapped potential for programmes for children and teens. In multicultural cities like Toronto, it would also be worthwhile to offer programs in languages other than English. This should be possible in the future for our astronomy group at the University of Toronto, which is culturally and linguistically very diverse.

Conclusion

Astronomers have an obligation to bring astronomy to the public, especially if their salary and research are publicly funded, and it is easy; astronomy is appealing to people of all ages, from children to seniors. Members of our group are professional astronomers, but library programmes can be given by anyone experienced in astronomy outreach and communication, including knowledgeable amateur astronomers. Most public libraries offer programmes for the people of their community. They provide a venue, facilities, publicity, and audience; all that is needed is an enthusiastic astronomer. So make the connection! It's a win-win-win situation.

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Notes

- ¹ The University of Toronto outreach page: <http://www.universe.utoronto.ca>
- ² Toronto Public Library website: <http://www.torontopubliclibrary.ca>
- ³ Toronto Public Library *What's On*: <http://www.torontopubliclibrary.ca/print-pubs/>

- ⁴ The University of Toronto astronomy speakers list: <http://www.universe.utoronto.ca/connect-with-an-astronomer/speakers>
- ⁵ Information on beyond the International Year of Astronomy: http://www.casca.ca/ecass/issues/2010-ae/features/hesser/biya_eng.htm

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Biography

John Percy is Professor Emeritus, Astronomy and Astrophysics, and Science Education, at the University of Toronto. His many awards include the inaugural (2012) Qilak Award of the Canadian Astronomical Society, for excellence in communicating astronomy in Canada.