

D. Allan Bromley and Canada-US Science Relations: Contributions of a Science Advisor

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A Canadian Setting

Allan Bromley was a strong champion of Canada-US science relations. It helped that the former Assistant to the President and Director of the Office of Science and Technology Policy (OSTP) to US President George H Bush was Canadian-born and educated in Canadian schools. In moving from the humanities to physics at Queen's University, Bromley recalled this transition:

I managed to spend a year focusing on English but by the end of the year had recognized that were I to continue with this major, I could conceivably starve. Given that Clayton Leach [his roommate and lifelong best friend] was an Electrical Engineer, I had been looking into my options and had discovered that Queen's University had a major in Engineering Physics which effectively combined the electrical engineering training with that in undergraduate physics. As might be imagined, the transfer from an English major to this one was a somewhat brutal one with substantial catchup required but it turned out to be a life-determining decision.¹

With his subsequent work at Atomic Energy of Canada's Chalk River physics facility, Bromley's credentials would serve him in good stead with a future career path in physics at Yale and distinguished service in science advice, diplomacy and policy.²

An Early Influence on Canada-US Science Links

Bromley was elected President to the AAAS in 1982 (only the second Canadian-born President since its origins in 1848),³ and had spent some considerable energy in the previous years on the AAAS Executive trying to help launch a Canadian chapter of the AAAS. Indeed, in April 1980, he made a pitch to the AAAS Executive Director that an existing--and floundering-- outreach organization called SCITECH (Canada's Association of the Scientific, Engineering and Technological Community) founded in 1970 might serve as a platform for a Canadian Division of AAAS.

As Bromley put it:

By doing so, and forming it into a Canadian Division of the AAAS, we would I think maintain the distinctive features of the Canadian community while providing a much closer linkage between Canada and the US in the scientific and technological arenas that now exists.⁴

¹ <https://issp.uottawa.ca/sites/issp.uottawa.ca/files/bromley-d-allan-1.pdf>

² See D. Allan Bromley's The President's Scientists: Reminiscences of a White House Science Advisor, 1994.

³ See his address to the AAAS annual meeting in January 1982, "The Other Frontiers of Science," Science, 26 February 1982, pp 1035-1044

⁴ Cited in Dufour, Paul, Advancing Knowledge at the Frontier: The AAAS and the Saga of Science Societies in Canada. ISSP, UOttawa, February 2012

The idea of a Canadian division or branch of the AAAS was picked up by J Tuzo Wilson, the renowned geophysicist and Director of the Toronto-based Ontario Science Centre, who tested the waters for a potential Canadian chapter with a survey of over 2500 people, including all Canadian members of the AAAS. The results were debated at a special session of the AAAS meeting in Toronto in January 1981 and put to a vote. Unfortunately, that effort failed, though as it happened, SCITECH evolved into a short-lived new entity in late 1982-- the Association for the Advancement of Science in Canada.⁵

Allan Bromley took continued interest in Canada's science and technology policy and its evolution, as well as promoting ongoing partnerships between the US and its northern neighbour. Critical at times of the US approach to its own technological policy approaches,⁶ Bromley was also quite candid about Canada's prospects for improving its national knowledge ecosystem. As he noted in a 1992 paper on the NAFTA agreement and implications for science and technology; *The fact that Canada has tended to import its industrial research and development, of course, has resulted in a major shortage of attractive careers in industrial research and development within Canada, and despite the fact that Canadian education in science and engineering has traditionally been second to none, only a limited number of opportunities are available for Canadian graduates in their own country.*⁷

A More Formal Partnership Emerges

While Assistant to the President and OSTP Director Bromley worked with Canada's science minister, William Winegard, in establishing a joint consultative mechanism to advance collaboration in science matters between the two countries. The arrangement, initiated in March 1992, included exchanging views on multilateral developments and initiatives of interest to the two countries and improving the management of issues that could arise on matters involving Canadian and US interests in the fields of science and technology.⁸

As one input to this mechanism, in September 1992, two departments overseeing the bilateral arrangement (Industry, Science and Technology Canada and the U.S. Department of Commerce), met and issued a report to the respective heads. While recognizing the differences in respective policy structures and responsibility centres for S&T, that report identified key areas where opportunities lay for enhanced collaboration.

⁵ The AASC produced its own small journal (ACCESS), but eventually it too folded after several years.

⁶ As OSTP Director, Bromley was to produce the U.S.'s first formal technology policy in 1990. For its creation, see, D.Allan Bromley, 'Science and Technology in the Bush Administration', in Golden, William, (ed.), Science and Technology Advice to the President, Congress and Judiciary, Routledge, 1994, pp.21-63, and D. Allan Bromley, "Technology Policy", Technology in Society, 26 (2004) 455-468

⁷ D. Allan Bromley, 'The Future of Science and Technology Policy Under NAFTA', in de la Mothe, J. and Paquet, G., The First PRIME Lectures, Program of Research in International Management and Economy University of Ottawa, 1994-95, p 65

⁸ Canada's Minister for Science, William Winegard, had presaged the growing partnership with the US in a 1991 paper on : "The Canada United States S&T Relationship in a Globalized Economy" noting that : *It is time to review the common ground we share in a comprehensive effort to bring science and technology to our industrial products and processes.*

These included learning more about the respective national technology policy and commercialization initiatives, enhanced dialogue between the NSERC and NSF in research and centres of excellence support, joint meetings of the two national science and technology councils (PCAST and NABST, respectively) and the potential for exchange of personnel between the two departments. The latter experiment was followed up eventually by Canada with placement of a senior policy officer in the US DOC for a two-year period, as well as a meeting between NABST-PCAST in October 1992 ⁹.

Bromley also took up the challenge of engaging with his Canadian counterpart in a wider forum that became known as the Carnegie Group of Science Advisors to Presidents and Prime Ministers driven in part by the leadership of William Golden, former advisor to President Truman on science matters. Bromley and Wingard along with the other G8 science advisors would meet informally in different settings twice annually to discuss emerging issues of international importance while also using the meetings to discuss opportunities for further collaboration bilaterally and globally. Among the discussion items were global oceanic research, space research, human genome mapping, big science collaboration, development issues and problems of the environment.¹⁰

The Changing but Growing Science Partnership

With the change in both administrations in 1993-1994, the special experiments that Bromley had initiated with his Canadian counterpart came to a formal end-- but Bromley's engagements with Canada did not conclude. He continued to advise--both formally and informally-- on how to improve the partnership along with advancing science, technology and research at the global level. He provided important input to the creation of the Canadian Foundation for Innovation in the late 1990s and in 2000 was a member of the Expert Panel on Canada's Role in International S&T launched by the Advisory Council on S&T. That report signalled the perceived lack of leadership and clear identification of roles regarding international S&T activities in Canada, and in particular, the continuous erosion of S&T capabilities within Canada's foreign affairs department. Several measures were suggested to correct those weaknesses and Bromley (as the only American panel member) was able to provide his considerable experience to that issue.¹¹

Bromley went on to his research and teaching work at Yale following his science advisor role and continued as Dean of Engineering in the School of Engineering & Applied Science until his death in 2005.

⁹ A subsequent meeting between PCAST and the Advisory Council on Science and Technology took place under new administrations in September 1997 (announced jointly by President Clinton and PM Chretien during their Washington meeting of April 8 1997)

¹⁰ D. Allan Bromley, Science Advisors to Presidents and Prime Ministers: A Brief History of the Carnegie Group's First three Years, 1990-1992. For more on the Carnegie Group's impact, see Dufour, Paul, Carnegie Group at Twenty-Five; Diplomacy and Science at a High Level, Science and Diplomacy, March 2016

¹¹ Advisory Council on Science and Technology, Reaching Out: Canada, International Science and Technology, and the Knowledge-based Economy, Ottawa, October 2000

Postscript

In 1997, a Canadian colleague of Allan Bromley, Dr John de la Mothe at the University of Ottawa, was invited by Bromley to join the School as a visiting associate professor for a few years. De la Mothe persuaded Dean Bromley to give a talk at the University of Ottawa and subsequently arranged to have Canada's Minister of Industry, John Manley, to give the Dean's Distinguished lecture as well as meet with the Canadian students at Yale in March 1998.¹²

The lecture built on the results of an April 1997 meeting between President Clinton and Prime Minister Chretien announcing further cooperation in science education, space, next generation internet linkages, manufacturing technologies and earth sciences. Manley spoke to emerging issues to expand the partnership including promoting capacity for industrial innovation and skills development and training in the Americas, and tackling serious global problems such as global warming and halting the spread of infectious disease. He concluded with a challenge: *how can we encourage the exchange of ideas between the science community and the public policy makers--and help this advice cross national borders?*¹³

Bromley's legacy with Canada's science policy system is an important one and it is critical to underscore that the bilateral relationship between the two countries is arguably the world's most developed. As students of policy will know, strong and constructive interactions of key personalities and leaders can make or break such relationships. In the case of Allan Bromley, it was a pivotal one that set the growing partnership on a sound course. The seamless interaction between researchers, students, scholars and officials continues to this day and will no doubt strengthen the knowledge ecosystems of both nations.

¹² John de la Mothe was Associate Professor of Science and Government at University of Ottawa (later a Canada Research Chair until his sudden death in 2007). He was instrumental, along with Nick Vonortas at GWU, Paul Dufour, Jeff Kinder and others, in helping launch in 2005 the Bromley Memorial lecture co-organized by the two universities. While Visiting Associate Professor of Science, Engineering and Public Policy at the Yale Faculty of Engineering and Applied Science he gave seminars and wrote several papers, including, "Not Bred in the Bone: A Note on Ideas and the Transformation of Canadian Science Policy", October 1997

¹³ John Manley, 'Canada's Science and Technology Strategy: Constructing a Smart Comparative Advantage', Yale University, Dean's Distinguished Lecture, March 26 1998). Released as well during the visit was a special brochure highlighting the US-Canada relationship called Partners for Progress: The Canada-U.S. Science, Technology and Innovation Relationship

