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Introduction:
Science in Government

Philip Enros

This special issue of *Scientia Canadensis* focuses on the scientific enterprise in a government setting. Government science has a long history in Canada. It has not gone unexamined. Studies have been done on many government scientific organizations, on their scientists, engineers, technicians and technologists, and on the interaction of their work with the many responsibilities of governance. However, that history is far from fully told. It is a rich history, full of varied themes and often challenged by an abundance of difficultly accessed source material. Much is unexamined. Many questions remain unanswered and many others to be posed.

Science fundamentally plays a supportive role in government. Its story is much broader than just the advancement of knowledge by government scientists or instances of the fate of truth speaking to power. It includes the use and management of science. Government scientific and technical personnel use their specialist knowledge to monitor the environment, develop policies and regulations, protect human health, provide national security, promote the sustainable use of energy, and develop the economy—to name only the general goals of their activities. Managing that effort entails ensuring sufficient capacity, developing strategies, planning and reporting, managing personnel, collaborating with others, and keeping scientific and technical activities aligned with government missions and priorities.

The six articles in this issue represent current historical scholarship on government science. Four are by doctoral students. Five look at events in the last 60 years, and deal with the federal government. One examines science at the municipal level, at the beginning of the 20th century. The articles explore diverse subjects—weather modification, the organization of defence research, the establishment of national parks, technical regulations, the fate of an external advisory body, and policy work on the role of science in government. All offer insights into the functioning of science in a government context.

Matthew Wallace's paper deals with weather modification research by the Meteorological Service of Canada, conducted in Quebec and in Alberta in the 1950s and 60s. Done primarily to provide advice on the

effectiveness of cloud seeding, that work was an important step in the establishment of atmospheric research in the Service and in Canada. Matthew's article illustrates how government scientific activity, especially in the case of large-scale field research, can influence and be shaped by many interests—those of local communities, the private sector, university programs, other levels of government, and politicians.

Covering the same time period as Matthew, but looking at a very different area of federal government science, **Jonathan Turner** presents an overview history of the Defence Research Board (1947-1977). His article focuses on the Board's organization, chairmen and main research agendas. It highlights the impact of politicians and government policy on the Board. Jonathan's article also reveals a key feature of science in government—administrative control. The creation of the Board was based on one model of organizing research to meet government operational needs, one which emphasized the need for special management arrangements for research. It led to tensions with the Board's military clients. As notions about efficient and effective administrative machinery of government changed, the model was challenged. This would lead to the Board's demise, with its functions being integrated into the Department of Defence.

The next article explores yet another dimension of the varied uses to which government science is applied. **Olivier Craig-Dupont** focuses on the creation of La Mauricie National Park in 1970 and the role that Parks Canada's scientific activities played in defining that landscape. More than simply classifying the land or providing maps, that science was used to redefine the land in terms of wilderness, the traditional mandate of Parks Canada, and to conceive of it as part of a system of Canadian natural regions. Olivier's article highlights the use of government science in advancing the fundamental interests of government and of its departments and agencies.

James Hull examines science at a different level of governance, that of municipalities. His focus is on controversies surrounding the City of Toronto's Architect's Office, especially regarding the City's building code and the use of reinforced concrete. James deals with an earlier period of time than Matthew, Jonathan and Olivier, the years leading up to the First World War. It was a time when many government organizations were becoming increasingly professional and scientific. James's article reveals some of the forces at play in this development—the need for scientific expertise, the interplay of business, scientific and public interests, and the role of politicians.

The last two articles return to the federal government and a more recent time period. They both deal with science policy, another characteristic

element of science in government. **Brent Clowater** reviews the history of the Science Council of Canada, focusing on its industrial policy work and on its last years. The Council was a federal crown corporation whose purpose was to give voice to the views of the Canadian scientific community on national science policy issues. Such advisory bodies, even more than other government scientific organizations, face the ongoing challenge of maintaining relevance. Brent argues that the Council's approach to industrial innovation in Canada fell out of step with changing notions about the role of government in the economy, a position that contributed to its demise in 1992. Like Jonathan's Defence Research Board, the Science Council was unable to adjust to changing attitudes and needs.

The article by **Jeff Kinder** and **Frank Welsh** is a hybrid of history and public policy. It examines the major documents in federal science policy literature over the past 40 years, tracing the theme of transferring federal science and technology to the industrial and academic sectors. This recurring proposal was put forward as a way of boosting the scientific capabilities of those sectors. Jeff and Frank note that although policy thinking has shifted to emphasize collaboration over transfer, investment in science in the federal government has continued to decline relative to other sectors. They then lay out a view of the key roles and responsibilities of science in the federal government, and recommend that more attention be paid to this science. Their article highlights the importance of political priorities in understanding the evolution of government science. It also shows that, to be effective, science policy work needs to engage those priorities.

Government science has played a significant role in Canadian science and in Canada. Yet we have a very incomplete picture of that role. The articles in this special issue showcase some of the current historical research which is helping to fill in that picture. Their different subjects and themes also demonstrate the potential of such scholarship. Hopefully, this edition of *Scientia Candensis* will inspire further historical studies into this important dimension of science in Canada, work that will shed further light on the distinctive experience of science in government.