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# Four perspectives on the History of Science and the Environment in Canada

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# Editorial

## FOUR PERSPECTIVES ON THE HISTORY OF SCIENCE AND THE ENVIRONMENT IN CANADA

This issue of *Scientia Canadensis* is devoted to the history of scientific study of Canada's environment. Our authors address diverse topics: entomology, agriculture, water pollution, wildlife; but they share a common focus on the relation between scientific knowledge and evolving attitudes and environmental practices.

In the nineteenth-century Canadian federal and provincial governments began to support scientific activity in several disciplines, including geology, botany, and meteorology. Usually this support was provided in expectation of economic results. This was also the case with entomology, as George Cook explains in the first article. Beginning in the 1870s, "insect emergencies" — outbreaks of insect pests — as well as the availability of insecticides such as Paris green, encouraged governments to find ways to advise farmers on the use of insecticides. This was one factor that led to the formation of new institutions, including the Experimental Farms system and the Ontario Agricultural College, within which economic entomologists, beginning with James Fletcher, the Dominion entomologist, could develop a new professional role, based on the administration of a widening array of pest control regulations. Drawing on American experiences, entomologists argued that their expertise was necessary to deal with new pests, such as the San José scale, that were troubling farmers. In this way, they gained professional and public respect, and eventually, a stronger institutional foundation for their discipline. Ultimately, as Cook explains, entomology helped define the government scientist as an agent of agricultural change, with agriculture itself being viewed as a highly efficient activity reliant on science and technology.

In the second article, Stéphane Castonguay extends this account of entomology and agriculture. While, as Cook explained, economic entomology in Canada began through the enthusiastic promotion of insecticides, throughout much of the twentieth century scientists at the Belleville Institute of the federal agriculture department attacked insects from another direction: through biological controls (that is, species that are parasites or predators of pests). This institute had a long and varied history. Created in 1929, it experienced major expansion in 1955 (even as synthetic chemical pesticides were becoming dominant), but was then closed less than

twenty years later, in 1972. Recounting this history, Castonguay illuminates the complexity of the relationship between institute scientists and their clients. This relationship was not simply a matter of scientists conducting autonomous basic research, or, conversely, of being closely tied to immediate practical problems. Rather, their professional interests, the concerns of the forest industry, the influence of entomologists in other countries, and changes in government organization, together shaped the research choices made by the entomologists, and, ultimately, the viability of the institution.

Belleville lies on the shore of Lake Ontario. Even as research agendas and client expectations were evolving at the Belleville Institute, other issues of environmental expertise were being considered on that lake, and elsewhere on the Great Lakes. As Jennifer Read explains, early in this century polluted water, and resulting deaths due to typhoid, presented Canadian cities with a dilemma. Public health professionals urged more effective pollution control, but municipal officials resisted, preferring the less costly alternative of treating drinking water with chlorine. But after 1910 the debate shifted, as public health practitioners (with an assist from the Commission of Conservation), advocated provincial and federal action, and as Ontario, seeking to combat typhoid fever, began to assert its authority in public health. Part-time physicians who had acted as local medical officers of health were replaced by provincially appointed doctors with public health training, and public health became recognized as a profession defined in terms of scientific expertise. But provincial initiatives were not accompanied by federal or international initiatives. Instead, with the province imposing tighter requirements on water treatment, and with chlorine reducing typhoid deaths, there was less pressure to act at the national or international level. In 1918 the International Joint Commission documented extensive Great Lakes pollution, but effective action — recognition, in effect, that pollution can cross political boundaries — would have to wait until the 1960s.

The relation between science and environmental management and protection is also encountered in George Warecki and Gerald Killan's account of science and resource policy in Ontario's Algonquin Park. In the 1930s the park became an important centre for fisheries, wildlife, and forestry research. It also became the terrain on which a new multiple use policy was established, intended to allow forest harvesting, recreation, and the preservation of natural areas to co-exist. These initiatives, Warecki and Killan argue, were

the work of a small group of scientists and resource managers, led by Frank A. MacDougall of the Ontario Department of Lands and Forests, and John R. Dymond of the University of Toronto. Their partnership epitomized the close relationship between science and environmental management that would shape provincial resource policy in Ontario between the 1930s and 1960s.

Together, these articles provide a variety of perspectives on the history of scientific study of the environment, and its application to environmental management, on both land and water. Several themes are evident: the significance of the ambitions of scientists, expressed through efforts to build their disciplines and to assert a role for professional expertise; the changing institutional contexts of science, and of environmental management, at the municipal, provincial, and federal levels; and the evolution of more general perspectives on nature: as a terrain dominated by insect pests, demanding subjugation through chemicals; as a disease-ridden site for waste disposal; or as a place worth preserving for recreational purposes, or for its intrinsic value. We hope these accounts will encourage other historians to address these and other themes in the history of Canadian science.

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