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The Field Naturalist: John Macoun, the Geological Survey and Natural Science by W.A. Waiser, Toronto, University of Toronto Press, 1989. Pp xxxiv + 253, ill., index. ISBN 0-8020-9. \$30.00.

W.A. Waiser's new book, *The Field Naturalist*, is the story of how one man's interest in collecting and naming plants grew, with the encouragement of the government, into a national mission to document Canada's vast riches in plants and animals and make these known to the world through museum display. It is also the story of how John Macoun's (1831-1920) scientific career and his intellectual accomplishments took shape within the institutional context of the Geological Survey during a period of expanding government interest in science.

Macoun was born in Ulster, Ireland, where he learned loyalty to the British Crown, Great Britain, the Empire, the Conservative Party and the anti-Catholic Orange Order (p. 5). In 1850, his family emigrated to Canada. His boyhood interest in plants was encouraged by a local farmer who provided him with a list of English plants and their Linnaean classification. Though tantalized by the suggestion that Canadian farmers were interested in, and actively pursued, the study of botany, the reader unfortunately does not learn how Macoun and government work in botany articulated with this important social constituency.

Macoun's personal ambitions were not to be satisfied working on the family farm and he sought and obtained a teaching certificate from the Toronto Normal School in 1859, where he became a disciple of the fashionable Pestalozzian method of teaching through objects. After graduation in 1860, Macoun moved to Belleville, an event he thought of as the major turning point in his life, deciding now to 'devote every spare moment to the study of botany' (p. 5). He began a

herbarium with the idea of assembling a collection of Canadian flora. He was appointed to the chair of Natural History at Albert College to teach botany, geology and theology. But this work did not slake his thirst for recognition and he continued to look for new species of plants. This obsession with discovery catapulted him from local to national prominence in 1872 when he met Sanford Fleming in the Owen Sound region.

This chance encounter with the Fleming expedition led to an invitation to join the transcontinental railway survey and several subsequent appointments. Out of these, Macoun composed *Manitoba and the Great North West* (1882), his important endorsement of the agricultural and settlement potential of the West. The political reward for this scientific confirmation of the government's political programme was an appointment in 1881 as Dominion botanist to the Geological Survey. Waiser argues that Macoun was an astute observer of the politics of government science and understood that advancement within the Survey depended on 'positive, practical findings' (p. 52) and that he therefore tailored the rest of his scientific career to accommodate these government interests. Waiser suggests oblique confirmation for Macoun's assessment of the necessity of towing the government line in science by the dismal consequences that beset his son's career as a result of his son's negative assessment of the Peace River Valley in 1904.

Macoun's success in creating science that was pleasing to the Ottawa mandarins led to an expansion of his responsibilities. His work grew from a botanical survey into a comprehensive biological survey of the country, a task that neither Macoun nor the Survey was adequately equipped to undertake. As a result, specimens were poorly prepared or uncatalogued and the Survey became dependant on foreign specialists to identify materials.

This book is valuable because of what it tells us about John Macoun and the political context of the Geological Survey and will be of interest to anyone planning a course on the social history of science and wishing to add a lecture drawn from Canadian materials on the influence of social factors on the development of science. In the chapter entitled 'The Search Widens,' we have a vivid illustration of how the supposedly neutral activity of identifying and naming mosses was in reality a highly charged cultural activity: one that reflected the prevailing American view of Canada as a scientific hinterland. Equally important in this episode is the clear indication of just how difficult it was for Canadian scientists like Macoun to challenge the hegemony of the American scientific establishment.

The book fleshes out some of the important political debates and issues that surrounded the Survey's work during the latter part of the century, though it does not make good its promise to use Macoun's career as a prism to illuminate the

development of Canadian botany and zoology in the aftermath of Darwinism. Indeed, because this is a narrowly-focused study of Macoun's botanical and zoological collecting and the subsequent influence of these on the establishment of the National Museum, we have little basis to assess the central tenet of the book which is that while the rest of the world moved boldly from the field and into the laboratory with the tools of Darwinism, Macoun's mania for field collecting kept the National Museum's work rooted in the nineteenth century. The absence of the finely-spun web of Macoun's intellectual affiliations has precluded a portrait of the richly-textured nature of the botanical enterprise in Canada and the intellectual and social substance out of which Macoun constructed his science. Consequently, we have no real foundation on which to compare the development of Macoun's work with that of his colleagues in other parts of the world.

The Field Naturalist raises several interesting questions for future research and includes a bibliographic guide for those who will doubtlessly be challenged by this new book to continue investigation on this important point in Canadian scientific history.

Gale Avrith

Gale Avrith is an independent scholar who has been working recently upon the history of Canadian anthropology.
