

revolution. We live in a more modest age: our social histories, as Wegs' book indicates, unfortunately reflect this "reality."

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Suzanne Zeller. *Inventing Canada: Early Victorian Science and the Idea of a Transcontinental Nation*. Toronto: University of Toronto Press, 1987. vii, 356, illus., \$35.00 cloth, \$15.95 paper.

The developing Canadian interest in intellectual history has had a number of striking consequences, not the least of which has been the way it has transformed understanding of old and familiar subjects in the nation's nineteenth-century past. This is most obvious in the way comprehension of areas not traditionally considered in terms of their foundation in thought has been affected—Doug Owsram's *Promise of Eden* (Toronto, 1980) considerably enlarged our view of the Confederation movement—but it can also be seen in relation to fields defined from the beginning by the fact that they concerned (at least in principle) the operations of the mind. Study of the history of science—to take the most obvious example—has thus moved away from the institutional focus evident in the work edited by H.M. Tory, W.S. Wallace, and G.F.G. Stanley and towards the sort of preoccupation with argument, controversy, and idea to be seen in Carl Berger's *Science, God, and Nature in Victorian Canada* (Toronto, 1983). Increasingly

aware of the role that the ideological environment can play in shaping action, behaviour, and belief, historians have quite simply been moving—and with a notable vigour—to give that environment its very substantial due.

Suzanne Zeller's richly-researched book fits squarely into this steadily strengthening movement: taking ideas to be a fundamentally important constitutive element in the historical process, it attempts a new reading of events, sequences, and combinations of circumstance the meaning and character of which have long been taken to be clear. This, moreover, is done in relation not just to one but to two such sets of sequences—the two, as it happens, mentioned above—with even greater interest being added to the study by the fact that what it claims to be novel about the way each of those sequences should be viewed is seen as a function of its relationship to the other.

Central to this complex and imaginative undertaking is a close, detailed, and useful examination of what Zeller calls the "inventory sciences." Regarding geology, terrestrial magnetism, meteorology, and botany as having formed the core of scientific activity in nineteenth-century British North America, she looks at their entry onto the provincial stage, their sojourn there, and the quite considerable results which flowed from it. These matters are not, however, considered in isolation, for—this is the heart of the book's argument—Zeller believes this scientific work to have had a critically important relationship to major political developments simultaneously in train. Part of that relationship, she

thinks, inheres in the fact that the emerging tendency to think in terms of British North America as a kind of unit helped foster the very investigation of it to which she pays so much attention—the Hind expedition was, of course, one manifestation of this thrust—but, she insists, its most vital component was described by the way scientific work encouraged ideas of political union. Holding, in fact, very strongly to the view that “to a great extent, the idea of a transcontinental Canadian nation grew from the degree and quality of self-understanding made possible through the practice of Victorian inventory science” (p. 52), she makes elucidation of that interesting claim the central feature of the work.

Considered as a contribution to the history of science in Canada, this study has much to offer. Though its focus is not institutional, it takes account of the extent to which political and bureaucratic circumstances influenced the formation and even the character of major scientific enterprises. The manoeuvrings which surrounded the formation of the Geological Survey of Canada (1842) are detailed, while the even more complex minuet danced around the Province of Canada's 1853 assumption of responsibility for the Magnetic Observatory in Toronto also receives close scrutiny. In a broadly related vein, the part careerist concerns played in the promotion of certain kinds of scientific activity—as the treatment given J.W. Dawson's lobbying makes clear—is also set out. The sociological dimension of the scientific enterprise receives attention too, and

this not just through stress on science's obvious dependence on a complex, differentiated society but also by means of the emphasis given the manner in which such affiliations as that linking J.H. Lefroy to the Toronto elite advanced the work in which he was engaged.

Particularly impressive—to move to the important things said about the sciences themselves—is the way British North American scientific work is set in its international context. It is put there, moreover, in terms not simply of the tracing of origins—though readers will learn much of the way Lyell's innovations in geology, Humboldt's work in meteorology, and the systems built in botanical studies by Linnaeus, Buffon, and de Collande enforced an interest in British North American strata, weather systems, and plants—but also of the particular relevance science in the provinces had for the development of these fields as a whole. Indeed the role played in the shaping of geology, terrestrial magnetism, and botany generally by investigation of the precambrian shield, the search for the magnetic pole, and the classification of arctic and sub-arctic flora forms a central part of the story here recounted.

More problematic is the way the book's claims for a link between the “scientific” and the “political” are constructed. On one level, to be sure, matters are handled satisfactorily enough. Readers are made aware early on that scientific work was an outgrowth not merely of curiosity, or a concern to foster mental discipline, or a desire to be cultivated (though all these motives were present) but also of

an interest in determining the extent to which the provinces possessed the resources, climate, and plant-growing capabilities necessary to settlement. This leads easily into an argument the burden of which is that, as knowledge of the provinces' geological features, meteorology, and flora grew, so also did the conviction that they were in an important and quite natural sense a unit, bound together by rock formations, weather systems, and vegetation in ways an awareness of which could hardly help but foster a sense that they be united politically as well. Indeed, argues Zeller—this claim too is handled convincingly enough—not only did east, west, and centre come to be seen in this way and with this result; the whole they were held to comprise took on an increasingly special, “northern” character as observers noted in it the presence of phenomena—shield, magnetic pole, arctic flora—not seen further south. And when, she insists—again the contention is quite credible—one adds to this the fact that British North American scientific accomplishment was a source of a certain “national” pride even before Confederation—Daniel Wilson, for example, pointed in 1860 to the place the Geological Survey and the Magnetic Observatory had carved out for Canada in international science—the case for giving science a central role in the emergence of a national—even nationalist—feeling seems convincing and sound.

On another plane, however, that case is much less effectively made. Not—it must be frankly said—well assisted by a failure carefully to note that the relationship between causes and

results can take a variety of forms, Zeller does not make altogether clear under what precise aspect one is to view the very important link she sees existing between Confederation and the science-created frame of mind she has identified. At one point that frame of mind is seen simply as a factor contributing to Confederation (“terrestrial magnetism and meteorology did not originate the idea of a political union....But they helped to create the intellectual climate which made such ideas appear sensible and perhaps even inevitable” (p. 180); at another as a necessary condition of it (“a scheme like Confederation was unthinkable without the aid of science” (p. 180); and at still another as its sufficient cause (“Victorian inventory science defined premises...which gave rise to national policies” (p. 269). One can readily concede that sorting this kind of matter out is difficult: indeed it is here more troublesome than usual, for “normal” problems encountered in getting the causal dynamic clear are in this case compounded by the fact that one must be working as well in terms of the kind of tie which exists between idea and action. The fact that reasons for the deficiency may be readily found does not, however, excuse it. One is entitled to expect rigour, precision, and exactitude in the handling of these sorts of issues and when one doesn't find them the fact has to be recorded as a shortcoming.

This difficulty aside—though its importance is not to be minimized—one can view this book with interest and a certain measure of real satisfaction. Not only does it show scientists shaping a picture of British North

America which plainly reinforced the nation-building process of the mid-nineteenth century; to return to an earlier point, it also portrays them in the act of enlarging knowledge in their fields as a whole. They thus emerge from its pages not just as catalysts of a new nationality but as contributors to the construction of a global, Humboldtian vision of the world; perhaps, indeed, its rendering of them in those more comprehensive terms will show itself to be at least as important a legacy as the one it seeks to leave in characterizing them as agents of the community-creating process with which it is so relentlessly concerned.

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James D. Anderson. *The Education of Blacks in the South, 1860-1935.* Chapel Hill and London: The University of North Carolina Press, 1988. xiv, 366 pp.

James D. Anderson's *The Education of Blacks in the South, 1860-1935* offers a richly detailed analysis of the major forces affecting southern black schools between the Civil War and the Great Depression. Separately and together, the author assesses the educational ideology and aspirations of blacks, white southerners, northern missionaries, and industrial philanthropists. What emerges is a expertly interwoven account of the conflict among blacks who sought a liberal education, southern whites who opposed any schooling for blacks whatsoever, and a coalition of northern

philanthropists and white progressives who sought universal education for blacks along the lines of the Hampton-Tuskegee model of industrial schools.

A particular strength of Anderson's work is his emphasis on the role played by northern industrialists and their philanthropic agencies. The John F. Slater Fund, Peabody Educational Fund, Anna T. Jeanes Foundation, Phelps-Stokes Fund, Carnegie Foundation, Laura Spellman Rockefeller Memorial Fund, and Julius Rosenwald Fund all consciously promoted an educational philosophy designed to ensure the continued existence of an accommodating and dependent southern work force. Over the objections of both blacks who sought higher training and white planters who wanted no schools at all, northern industrialists forged an alliance with "forward-looking" southern whites and conservative blacks—especially Booker T. Washington—in shaping an educational ideology and philosophy "suitable for adjusting blacks to a subordinate social role in the emergent New South."

Re-addressing the notion that industrial education was the only option available in a southern society enveloped by racial prejudice, Anderson presents compelling evidence of northern industrialists' deliberate determination to shape a southern black labour force which would first, remain in the south, and second, provide cheap and docile workers for a society rejuvenated by northern investment. Under the auspices of the Southern and General Education Boards, northern and southern