

and the vicissitudes of a great scientific institution. If their conclusions, like mine, differ from the author's, well, we should be grateful for the data so carefully organized and presented to us, for they have surely been stimulating to our thinking.

Science in the Subarctic. Trappers, Traders and the Smithsonian Institution

By Debra Lindsay

Foreword by William W. Fitzhugh

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To set the scene for this review, it is appropriate to quote from William Fitzhugh's foreword (p. x, xi):

Baird's field collecting method emphasized the collection of large numbers of carefully documented "voucher" specimens from a given region; such specimens, with later description and analysis, established a firm empirical basis for scientific classification. With analysis of field documentation and careful comparison of specimens, the method supported classification studies that, at higher levels of abstraction, revealed geographic, evolutionary, and historical relationships. The method applied equally to species of animals and plants, to languages, and to ethnographic studies. As the study region was gradually expanded, larger patterns developed that provided solutions to major problems of biological and cultural classification. Baird was particularly aware of the pristine conditions for collecting in northwestern Canada, the Northwest Coast, the Russian America. The prospects of expanding such analyses toward the Northwest, into Alaska, and eventually across Bering Strait into Asia were the larger vision that inspired Baird's labors as a research organizer in northwestern North America. [Robert] Kennicott's later Alaskan work as leader of the Western Union Telegraphy survey became the Smithsonian's entrée into Russian America, influenced the purchase of Alaska, and

resulted in the training of the first generation of America's Alaskan scientists, including William Healey Dall, Henry Wood Elliott, and others...

One of the most important innovations of Kennicott's Mackenzie program was the involvement of native collectors. Roderick MacFarlane, a Hudson's Bay Company agent, used native people extensively and to great advantage, making important collections of animals, birds, and ethnographic objects during the winter season when post managers and most naturalists were not out and about. The use of native collectors also provided other advantages, including the acquisition of native names, terminology, and observations on animal behaviour, on biological phase changes, and on ethnographic data.

The theme of this book, then, is potentially a very interesting one and it is clear, from the sources she quotes, that Ms. Lindsay undertook very extensive researches before writing it. There are three troubles with it. First, the title is misleading, suggesting a much fuller survey of the Smithsonian's connections with the subarctic than is actually presented. Second, the text is too brief for any in-depth examination of her themes, a mere 130 pages, forcing too much to be epitomized or cited without sufficiently full quotation. Third, as I shall illustrate below, she is not a good writer. A fourth objection for readers of this journal is that she is a historian, with interest in biology but not in geology. Although Baird indirectly, and Kennicott directly, made appreciable contributions to our knowledge of the geology of subarctic Canada, rocks, fossils and geology gain only the most passing of mentions (on pages 30, 31, 101, 113 and 185).

Problems for the reader are numerous. There are irritating duplications: the oologist Thomas Brewer is introduced on page 25 and again on page 33; the comments on Kennicott on pages 46-48 are repetitious; and Kennicott's view of egg-collecting as "glorious sport" (p. 70) unnecessarily prefaces a long quotation — one of very few — which included that phrase. There are phraseological awkwardnesses: "Fort Anderson did not drain into the Mackenzie River System" (p. 61) and "Their activities were similarly precipitated by scientific visitors" (p. 43). There are unexplained contradictions, as when page 105 informs us that

Kennicott "had always intended on going to Russian America" whereas page 106 tells us how very hard it was for Western Union to persuade him to do so!

Kennicott is called "the mysterious 'Bugs' Kennicott" on page 49, but we are told neither why he was considered mysterious nor how he gained that nickname. On the whole, the author shows a surprising hostility to Kennicott (p. 113 and earlier), yet her eventual comments on his childishness and physical frailty (p. 116) were not presaged in her earlier text, and his death, probably by suicide, comes to the reader as a shock of unreality.

Do the virtues of this book compensate for these problems? I do not think so, yet it has its importance in stressing how much the attainments of early field naturalists rested upon the work — sometimes voluntary, more often paid — of their assistants (native Americans in particular). For that reason alone, perhaps it deserves to be read until a better study, with fuller documentation by direct quotation from the original sources, is available.

From Stone to Star. A View of Modern Geology

By Claude Allègre

Translated from French by

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Harvard University Press

US \$16.95, paper

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A first requirement of a scientific text, surely, is that it should be accurately titled. In that regard, this title begins well, but ends ill. It is a history of how the investigations of scientists extended from the consideration of the rocks of this earth to the spectrum of stars and the constitution of the Universe: thus, *From Stone to Star* is accurate enough. However, it is *not* a view of modern geology. On the one hand, the account ranges far beyond geology into physics and astronomy, so that the subtitle is not broad enough. On the other hand, only