skuas or predator-prey interactions in general, but these ideas are difficult to access. If each chapter had more informative introductions and extensive conclusions, the book would be easier to use.

With such a long delay between fieldwork and publication, is the book sufficiently up to date to still be useful? Young has mostly kept up with the literature, but he does not cite work done by Gordon Court and Garry Miller, who recently studied skuas and penguins at Young's study site. Our understanding of the ecology of both species, and predator-prey interactions in general, has changed greatly in the intervening years. Young has done well in answering today's questions with data collected over twenty years ago. One aspect where I felt old data and methodology did not answer contemporary questions concerned the decisions skuas must make when foraging. Skuas can prey upon or scavenge penguins close to their nests, or feed at sea. Today, behavioural ecologists would want to understand the rules by which skuas decide whether to forage ashore or at sea. Young attempts to address this issue, but the results are inconclusive.

Young found great variation in the behaviour of individual skuas. Some territories contained many penguin nests, others few, and certain skuas preyed extensively on penguins, while others fed mostly at sea. I was pleased to see this individual variation addressed in detail. In many studies, collection of means and standard errors that describe the 'average animal' obscures individual variation which can tell us even more about how animals respond to their environment. Certainly with Young's skuas, individual variation was far more informative than any average animal he could have described.

The relationship between skuas and penguins changes through the short Antarctic summer as both species race against time to complete their breeding cycle. The analysis of seasonal changes comprises some of the most interesting sections of this book. For example, the risks and rewards of predation change markedly. Early in incubation, eggs are mostly yolk and albumen, which spills before much can be consumed. Later in incubation, embryos offer a greater reward for the same risk. Young chicks can be carried off whole, but first they must be extracted from beneath a strong and aggressive parent. There is more food on larger chicks, but they are difficult to kill and dangerous to remove from the colony.

So, after Young's study, what have we learned about the interaction between skuas and penguins? First the relationship is not as one-sided as that plethora of subjective observations suggested. Skuas are far less numerous than penguins, but their propensity to congregate at Antarctic bases and penguin colonies gives an inflated impression of their abundance. Skuas nesting in penguin colonies lose eggs and chicks to other skuas more often than do birds nesting at lower densities elsewhere. They also lose eggs to penguins who attack nesting skuas. Young suggests that it is possible that a greater proportion of skua eggs are lost to penguins than penguin eggs are lost to skuas. Skua predation on penguins is conspicuous, rather than common, and Young's exclosure experiments suggested that most skuas had little influence on the breeding success of penguins. A few skuas whose territories contained small penguin colonies with many edge nests did have a marked impact on penguin breeding success. However, even in these situations, only those skuas that showed both high interest in penguins and skill as predators markedly affected the breeding success of the penguins. The skua emerges not as the villain of common perception, but as an opportunist that obtains most of its food at sea, but exploits penguin eggs and chicks, carrion and rubbish from Antarctic bases whenever these are available.

This is an important reference book for anyone working on penguins or skuas, and it will prove useful to other scientists interested in predator-prey dynamics. Unfortunately this book could end up used mostly by penguin and skua specialists, as neither the synthesis nor the individual chapter introductions and conclusions give a full indication of the ideas presented.

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A CARIBOU JOURNEY. By DEBBIE S. MILLER. Illustrated by JON VAN ZYLE. Boston: Little Brown and Company. 32 p., colour illus. Hardbound. US$15.95.

The yearly migration of the Porcupine herd of barren-ground caribou from Alaska to the Canadian Yukon and back is one of Nature's great dramatic stories, and deserves to be chronicled in an artistic format. In *A Caribou Journey*, Debbie S. Miller and Jon Van Zyle have produced a record of that migration and the caribou's daily existence—with children as their primary audience.

John Van Zyle, the book's illustrator, has provided a handsome series of paintings to accompany the text. These paintings clearly reflect Van Zyle's familiarity with the caribou and his knowledge of the terrain he is depicting. The book has a very rich look! All of the full-colour paintings are laid out in a panoramic, double-page spread with the text clearly superimposed.

The author, Debbie Miller, is an accomplished writer who has lived in Alaska for twenty years. She has obviously taken care to record the migration and life of the caribou in an accurate manner. This is her first children's book and she is very well informed on the subject she has chosen.

The book, however, is not quite long enough to do justice to all the material it contains. There seems to be enough here for two books instead of one. The result is an overly condensed text that makes it difficult to determine and appreciate fully the complexities of the migratory caribou's life or the full magnitude of the Porcupine caribou's seasonal migrations. This is, perhaps, a valid consideration only for the adult reader and not truly a strong concern for the children who read this book. I cannot judge the exact appropriate age-range for *A Caribou Journey*. Perhaps, a good 'yardstick' is the fact that I did not have to consult Webster's Dictionary even once!

For younger children who are already reading on their own, the book may still require reading aloud by a parent. Put some drama into your voice (as if reading 'Little Red Riding Hood') to keep their enthusiasm from being overwhelmed by detail. Or get around this overload by doing the book in sections. There is certainly enough information about caribou and their habitat to stimulate a series of interesting discussions!

For older children the content will not be a problem. The writing is clear, and as mentioned, the book is not a long one. The quality of the text will give them more to sink their teeth into than the average nature book for children.

In any book endeavouring to relate factual material in an interesting format, there is a delicate balancing act necessary to keep the reader, of whatever age, involved. In *A Caribou Journey*, the impact of the migration itself (the sheer numbers involved and the enormous distances covered) is a little weak. Here again the illustration is well connected to the narrative and helps to create a more dramatic mood than the text alone might. As a 'long-in-the-tooth' caribou biologist, I could debate the exactness of several factual points. Those points are, however, mostly in the grey area of caribou biology or ecology and they do not overly detract from the high quality of the text. In reality, my concerns are again usually more a matter of too much brevity rather than one of too little accuracy. A good example is that lichens are the only forage plant mentioned by name throughout the book, with the one exception of "cotton grass," which probably should have been identified as a sedge. Passing references to a "few mouthfuls of lake plants" from a muskrat "push-up" and eating "the last of summer's green growth" really do not suffice. While lichens are indeed very important to caribou, the reader should have been given a fuller picture of the feeding requirements of caribou. That is, I think that the reader (even if a young child) should have had the benefit of learning that caribou feed on a wide variety of plants, including sedges, lichens, forbs, shrubs, and even mushrooms and horsetails (*Equisetum*). This becomes an important bit of knowledge, because a mixed diet of various plants is actually essential to the caribou's continual well-being. Caribou cannot persist over the long term on a diet of 100% lichens; thus, the unintentional omission (seemingly, due solely to the brevity) becomes in a sense an inaccuracy or at best an inadequacy.

A Caribou Journey does give a generally accurate and engaging picture of the caribou's daily existence, including its physiognomy, behaviour, and ecology. Debbie Miller treats her subject respectfully. She does not gloss over the dangers, either from predators or from the more unforgiving aspects of the northern wilderness. She presents caribou life realistically, but always bearing in mind the age group for which she is writing, does not cross the line into too-graphic or frightening description. The combination of Jon Van Zyle's illustration with Debbie Miller's text succeeds in allowing children to appreciate both the beauty and the precariousness of the caribou's life in the wild.

In an author's note at the end of the book, Debbie Miller briefly discusses the place of caribou currently and historically. The reader is given a strong sense of the unique importance of this animal. We are also reminded that despite its isolated range the caribou, like many other species, is under pressure from human-induced as well as natural agents.

If you or your children are interested in the world of nature and would like to learn about a fascinating animal, then *A Caribou Journey* would be well worth a look.

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THE CRANE SITE AND THE PALEOESKIMO PERIOD IN THE WESTERN CANADIAN ARCTIC. By RAYMOND J. LE BLANC. Hull: Canadian Museum of Civilization, Archaeological Survey of Canada, Mercury Series Paper 148, 1994. 130 p., illus. Softbound. Cdn $18.95.

Approximately 4000 years ago, a group of seemingly related cultures spread widely over most regions of Arctic North America. Their often meagre archaeological remains vary according to time and place, but show sufficient continuities that many archaeologists refer to them by the generic term "Paleoeskimos." More than half a century of archaeological research has provided us with comprehensive outlines of Paleoeskimo cultural development in both Alaska and the eastern Arctic. The western regions of the Canadian Arctic, on the other hand, until recently have remained quite silent on this era of arctic history. Discoveries of archaeological evidence of Paleoeskimo cultures in those regions have been sporadic, and such remains that have been found have often proven difficult to relate to the cultural and historical frameworks that have been devised for other areas.

Raymond Le Blanc's research on the Crane site reported in this monograph significantly advances our understanding of the Paleoeskimo period in the history of the western Canadian Arctic. In 1986 and 1987, while employed by the Archaeological Survey of Canada to develop an inventory of archaeological sites in the outer Mackenzie Delta region, Le Blanc discovered an impressive array of Paleoeskimo sites along a now-extinct channel of the Horton River on the Cape Bathurst Peninsula. Until recently it was commonly thought that coastal erosion had erased most evidence of Paleoeskimos who had camped along the unstable shores of the Beaufort Sea. Le Blanc's discoveries have shown that archaeologists have perhaps not spent sufficient time in attempting to understand other changes in the landscape that might have hidden, rather than erased, archaeological sites. Among the finds along the fossil river channel was the Crane site, which Le Blanc began to excavate in 1987 and continued two years later.