

**PENGUINS OF THE WORLD.** By WAYNE LYNCH. Willowdale, Ontario: Firefly Books Ltd., 1997. 143 p., Colour illus., appendices, maps, bib., index. Hardbound. Cdn\$35.00.

Few animals elicit greater interest than penguins, and virtually everyone is captivated by these fascinating seabirds. Indeed, as the author accurately notes, penguins are addictive (no doubt a beneficial addiction), and countless people are true penguin fanatics. Even so, given the plethora of penguin books appearing on the market in recent years, can anything new be said about penguins? Yes, indeed! Increasingly sophisticated and miniaturized instruments and recent satellite telemetry have taught us more about the penguin lifestyle away from the colony during the past decade than was learned in all previous years.

The six chapters of varying lengths are each split into three to six interesting topics. Chapter 3 (Sex and the Single Penguin), for instance, is subdivided into The Breeding Season, Truth in Advertising, Fidelity: Divorce and the Penguin Kiss, and Crowd-Crazy Colonies. Appendix One features a small photo of each of the 17 penguin species, as well as a range map, population estimates, and current status for each species. Appendix Two (Penguins and People) essentially chronicles our inhumanity to penguins over the years.

As only to be expected from one of North America's preeminent wildlife photographers, the real strength of the volume lies in the exquisite images. The more than 100 pictures are of exceedingly high quality and mostly well reproduced. The captions are generally interesting and accurate. Most images obviously focus on penguins, but also included are penguin neighbors and predators, such as the leopard and elephant seals, South American sea lion, snowy sheathbill, brown skua, southern giant-petrel, and striated caracara. The book title is somewhat misleading, because over half the penguin species are barely represented pictorially. The major emphasis is on the Antarctic Peninsula, South Georgia, Falkland Islands, and southern South America, but this is hardly surprising given that penguins range widely throughout the Southern Hemisphere, with some species restricted to tiny, remote, often exceedingly difficult-to-reach islands. Outside Appendix One, the emperor, Snares Island, royal, macaroni, Humboldt, and little blue penguins are pictured but once, and fiordland, erect-crested, Galapagos, and black-footed penguins are illustrated solely in the appendix.

Informative and easy to read, the text is up to date and effectively covers most basic aspects of penguin natural history. While the book is generally accurate, a few statements require challenging. For example, the implication that penguin chick eyes are closed (sealed together?) for the initial 3–4 days after hatching does not apply to surface-nesting species. The statement that Adelie and chinstrap penguins are not plagued with ticks is also incorrect. While tick problems are not common, I have

seen both species so heavily tick-infested that eggs and chicks were abandoned, and adult mortality possibly transpired. Lynch states that four leopard seals at Cape Crozier killed 15 000 penguins (5% of the breeding population) in 15 weeks. This equates to about 35.7 penguins per day per seal for 105 days. I worked five seasons at Cape Crozier, where countless penguin kills were witnessed. It is unlikely that even a large half-ton seal could consume (or even merely kill) some 400 pounds of penguin daily for three and a half months. Equally implausible is the claim that more than 80% of all emperor penguin chicks hatched in the Cape Washington colony were killed within a month one season by unsuccessful breeders fighting for possession of them. Cape Washington is the largest of all colonies; up to 25 000 pairs breed there in some years.

If I had to quibble, it would be over the book design. Design admittedly is a matter of taste, and what is art to one eye may not please another. However, books should be designed for the consumer, not to impress other designers. Layouts are obviously supposed to be eye-pleasing, but must image size and presentation be sacrificed to achieve this? To me, the substantial amount of wasted white space in this book is somewhat offensive, especially considering that the layout compromises the illustrations, many of which are not shown to best advantage. Double-page spreads for animal pictures, in my opinion, are seldom effective, as the split normally spoils the image. A double-page split that does not even use the entire second page is even less effective. Why ruin a superior image to provide a super-abundance of white space?

Despite these few shortcomings, I can easily recommend this volume to anyone with even a passing interest in penguins, or in wildlife in general. Far more than simply a sumptuous coffee table photo essay, this book offers something for everyone. In this age of overly expensive books, this attractive volume is a real bargain.

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**POLAR JOURNEYS: THE ROLE OF FOOD AND NUTRITION IN EARLY EXPLORATION.** By ROBERT E. FEENEY. Fairbanks, Alaska: American Chemical Society and University of Alaska Press, 1998. 279 p., 13 maps, 15 illus., 22 tables, bib., index. Hardbound, US\$41.95; Softbound, US\$27.95.

Robert E. Feeney, a professor of chemistry and nutrition especially interested in the history of vitamins, is well qualified to write this book. He made six trips to Antarctica between 1964 and 1971 to study the biochemistry of the Adelie penguin, and six Arctic trips to study antifreeze proteins in polar fish. He spent a sabbatical at the Scott

Polar Research Institute, Cambridge, England and is the senior author of a review paper on U.S. Army rations. In this book, Feeney has expanded his hobby into a major, 20-year history project.

Feeney's two introductory chapters deal with nutrition. Then nine chapters discuss Arctic exploration and six, Antarctic exploration, with varying degrees of emphasis on nutrition. A final chapter covers the nutritional aspects of space exploration. Useful appendices deal with descriptions of nutrition (mostly about vitamins), food and nutrition in the frozen cold, and hypervitaminosis A. Throughout the chapters about exploration, he uses quotations from published journals of Arctic and Antarctic explorers to good effect.

Antarctic exploration is described with particular enthusiasm. Chapter 14, "The Quest for the South Pole," was for me the most interesting. In it, Feeney analyzes the differences between Roald Amundsen, the first man to reach the South Pole, and Robert Falcon Scott, who arrived there one month and two days later. He doesn't give the date of Scott's arrival, nor does he comment on the remarkable navigational feats of both men, who arrived from different directions at the exact same spot in that trackless snowy waste. Scott was to find that Amundsen had not only arrived first but left his tent standing! Scott's incomplete and fatal round trip took over 140 days, while Amundsen's, over a slightly shorter route, took only 99 days.

Feeney explains, largely on nutritional grounds, why Amundsen succeeded, whereas Scott and two others died on their return journey only 11 miles short of One Ton Depot, where food awaited them. His explanation builds on the personal differences between Amundsen and Scott. At the main base, Scott separated officers from navy ratings, following the British class system, whereas Amundsen's group all worked together. Before their journey began, Amundsen forced his men to eat nearly raw seal meat (they had killed 200 seals), gaining a head start on vitamins, whereas Scott delayed serving seal meat and then cooked it in English fashion, driving out some of the vitamin C. Amundsen used sledge dogs (both more efficient and a built-in meat supply) whereas Scott's plan to use ponies failed; man-hauling increased human energy requirements. Scott would not have wished his men to eat dogs, man's best friend. Amundsen had decreased his party from eight to five members, though his depots contained food for eight. Scott increased his party from four to five, though his depots contained food for only four. Amundsen's men were better clothed, with fur headgear attached to Eskimo and Norwegian jackets, and warmer sleeping bags. Even Scott's supporting parties, which laid food in depots, developed scurvy, and one man in Scott's advance support party very nearly died.

Feeney calculates that the men in both parties, in severe cold and under extreme stress, required 5500 kcal per day. While their planned rations were rather similar—Amundsen's 4560 kcal per day and Scott's 4430—

Amundsen's reduced party had a large margin of safety and Scott's increased party had none.

The chapters dealing with northern Canada, in contrast, I found somewhat disappointing. An enormous literature now exists, yet Feeney is sometimes guilty of superficial assessments and uncritical dependence on popularizers such as Peter Newman and Farley Mowat. He appears not to have consulted some important primary sources, thereby omitting some interesting facets of northern diets. We are not told that eight pounds of meat per man per day was the staple ration for voyageurs who provided the muscle power to jumping-off places for northern exploration, nor that Franklin became famous as "the man who ate his shoes" (moccasins had some nutritious value because proteins had not been denatured by tanning). There is insufficient emphasis on hunting skills (e.g., of Dr. John Rae). Feeney fails to tell us that when the surviving members of Franklin's party reached Fort Enterprise after their tragic trek across the Barrenlands, they obtained sustenance from the warble-fly larvae in the caribou skins left from the previous winter's camp. Careful reviews of the game consumed by the Franklin party (Houston, 1984:195, Table 3) are not cited.

Occasional errors in the text and in the bibliography suggest less than the careful editorial scrutiny one expects from a university press. The index fails to include important topics mentioned in the text (e.g., lice and warble-fly larvae as food items), localities (e.g., Beechey Island), and people (e.g., Dr. John Richardson). John Franklin did not die at Beechey Island the first winter (1848–49, p. 51). There is no listing or evidence of perusal of well-known biographies, such as those of Elisha Kent Kane by George W. Corner, of Vilhjalmur Stefansson by Richard J. Diubaldo and William R. Hunt, and of Ernest Shackleton by Margery and James Fisher, nor of F.G. Roe's superb compilation of literature dealing with bison and hence with pemmican.

Nevertheless, as the first attempt at looking at polar and near-polar exploration from a nutritional aspect, this book contains much of interest. It will take its rightful place in most university libraries and on the bookshelves of many polar buffs.

#### REFERENCES

- HOUSTON, C.S., ed. 1984. Arctic ordeal: The journal of John Richardson, surgeon-naturalist with Franklin, 1820–1822. Montreal and Kingston: McGill-Queen's University Press. 349 p.

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