monograph are K. P. V. Menon, director of the Central Coconut Research Station, Kayangulam, and K. M. Pandalai, joint director of the Central Coconut Research Station, Kasaragod. In addition to the discussions of morphology, floral biology, and genetics and variation, there are descriptions of field culture, plantation management, pests and diseases, and the utilization of coconut products. The orientation is practical throughout, and, presumably, this was responsible for the curiously mixed and often outdated presentation in the strictly botanical chapters. The authors have merely repeated previously published works without due regard for their publication date or for the possibility of changing concepts in biology. Thus one finds anatomy discussed in terms of dermatogen, periblem, and plerome, while pollen formation is the result of "heterotypic" and "homoeotypic" divisions of chromosomes derived from a "spireme."

Once past these unpalatable botanical items, the book presents detailed descriptions of the practical aspects of coconut growing, including much tabular material, derived from the very extensive bibliography. Unfortunately there is a separate bibliography for each of the 18 chapters, but separate author and subject indexes are provided. The book should prove useful to those interested in economic aspects of botany and will be a very useful introduction to the literature on the coconut palm.

RICHARD W. HOLM
Department of Biological Sciences, Stanford University

America in the Antarctic to 1840. Philip I. Mitterling. University of Illinois Press, Urbana, 1959. 201 pp. Illus. $5.

Current research programs of the United States and other nations have revived interest in the history of antarctic exploration. A failing of several recently published histories is that they recount only exploration which has occurred since the late 1800's. The distant past and, sometimes, the very recent ventures are excluded. This book partially corrects the deficiency by dealing with a little known period of United States antarctic exploration (1776–1840).

America's first expeditions to the southern oceans were for commercial enterprise. Reports of fur seals in these waters circulated widely after Captain James Cook's voyage of 1775 and led to a number of reconnaissance voyages by different nations. *The States,* first known American sealing ship to sail the antarctic seas, shipped out of Boston to the Falkland Islands and took 13,000 pelts for later sale in China. The spectacular profit gave rise to a large industry, centered in Boston, Nantucket, and Stonington, which enjoyed financial success until 1793 when the market declined. After a lull, fur sealing was resumed and continued throughout the early 1800's.

Intense competition resulted in voyages of discovery among the subantarctic islands of the Scotia Arc, among offshore islands along the Antarctic Peninsula (also called Palmer Peninsula or Graham Land), and on the peninsula itself even though few new seal grounds were found.

Mitterling has summarized these voyages concisely, giving careful attention to conflicting claims of discovery made by Nathaniel Palmer, Christopher Burdick, George Powell, John Davis, Benjamin Morrell, and Edward Bransfield. Each of these men led a voyage from the United States or from Great Britain; claims by either country for discovery of Antarctica often cite their work. Palmer's meeting with the Russian, Bellingshausen, in January 1821 is also treated with care and insight. I believe Mitterling shows the difficulty of basing a claim of continental discovery on a single voyage made during this period. He says "Attempts to substantiate this imperfect evidence . . . have obscured [the sealers'] real accomplishments . . ."

By 1820 exploration financed by the sealing industry had become costly. Several suggested a nationally sponsored United States expedition, but, curiously enough, it was a theory expressed by John Symnes and his associate Jeremiah N. Reynolds which led to a national expedition. Symnes declared "the earth is hollow, habitable within; containing a number of concentric spheres, one within the other, and that it is hollow at the pole." Impassioned public pleas along with solicitations in Congress and the Navy Department eventually caused the government to send an expedition to Antarctica in 1838. Under the command of Charles Wilkes, the ships made a few discoveries in the area of the Antarctic Peninsula, then, in a second season, sighted the land now bearing Wilkes' name. Wilkes' discoveries left no doubt that there was a large southern continent, a fact substantiated a year later by Sir James Ross. Mitterling writes "When the United States Exploring Expedition put to sea, a precedent for the use of Federal funds to explore throughout the world was established . . . thus, American beginnings in Antarctica were conspicuous ones."

Philip Mitterling has chosen a fascinating and little known period of United States antarctic activity and has described it in a highly readable yet scholary manner. Because of these qualities the book will be of great value for some time.

PHILIP M. SMITH
Antarctic Program, National Science Foundation

Tukani. Helmut Sick. Translated by R. H. Stevens. Eriksson-Taplinger, New York, 1960. 240 pp. Plates. $5.

This is the first detailed account of the famous Brazilian Roncador-Xingu Expedition, which devoted several years to blazing an 1800-mile route diagonally across Brazil from Rio de Janeiro to Manaus on the Amazon River. The author, a 50-year-old German-born naturalist, joined the expedition in 1946, and he ably describes the unknown lands through which the expedition passed.

Helmut Sick's sensitivity to the world of nature and to the problems of adjustment between civilized and primitive man makes this a valuable contribution to the historical and scientific record of one of the largest undeveloped regions in the world.

The title is taken from the name of a pet toucan that figures prominently in the book, but all living things captivate the author's alert mind. Sick discusses 10-inch stick insects, Indian women who feed water hogs at the breast and allow mice to build nests in their hair, exotic birds 1/15 the weight of a sparrow, stinging ants an inch long, lantern bugs glowing with luminous bacteria, and piping guans that play instrumental music with their wings when they mate.

One may doubt some statements, such as "[the natives] can pinpoint their position . . . [by] instinctive attributes with which many animals such as migratory birds and bees are endowed