

BACKGROUND BOOKS

ANTARCTICA

The geologists and paleontologists and ornithologists who followed the early Antarctic explorers unlocked some of the continent's secrets. But many things about the Earth's fifth-largest land mass—its political future, its distant past—remain a mystery.

In other ways, too, it is sometimes difficult to get a fix on the continent. In *Antarctica* (Mayflower, 1979), lavish color photographs by Peter Johnson and a spare text by Creina Bond and Roy Siegfried help to establish a sense of place, even if that place is always shifting. Place a wooden stake at the South Pole, the writers observe, and it will stay there for a moment only: "Tomorrow the ice will have crept [several] centimeters."

Man got to know Antarctica slowly. One of the best accounts of the early voyages of exploration is *Quest for a Continent* (McGraw-Hill, 1957) by *New York Times* science editor Walter Sullivan. Antarctica repeatedly failed to live up to expectations. In 1820, Sullivan writes, an optimistic British Admiralty sent Lieutenant Edward Bransfield to search for land in the far south, directing him to "observe the character, habits, dresses, and customs of the inhabitants, to whom you will display every friendly disposition."

The only natives Bransfield met, however, were the seals, penguins, and skua gulls of the continent's enveloping ice pack.

For later visitors, the Antarctic held a fascination of its own. British physician Edward Wilson believed that the emperor penguin might be the missing evolutionary link be-

tween birds and reptiles and sought an emperor embryo to make his case. In 1910, Wilson set out from McMurdo Sound for a remote penguin rookery. One of his two companions, Apsley Cherry-Garrard, remembered the trip as *The Worst Journey in the World* (Constable, 1922; Chatto & Windus, 1965).

The problem: Emperor penguins breed only during winter, in almost total darkness and in temperatures far below zero. (They shelter and warm their eggs beneath their bellies while standing virtually motionless for a period of two months.) The three explorers barely survived the 36-day trek. Their sweat formed a thin layer of ice upon the skin, and their clothes froze if they stayed in any position for too long. But they got their eggs.

Such experiences were not unique. The literature of Antarctic exploration is harrowing. Two fine first-person accounts are Frederick A. Cook's *Through the First Antarctic Night 1898-1899* (Doubleday, 1909; McGill-Queens, 1980) and Edward Wilson's *Diary of the Discovery Expedition to the Antarctic Regions, 1901-1904* (Humanities, 1967).

Wilson perished with Captain Robert Falcon Scott in 1912 on the return trip from the South Pole. That fatal journey is described most vividly by Scott himself in his journal, *Scott's Last Expedition* (Smith, Elder, 1913; Dodd, 1964). Not all subsequent accounts have been sympathetic.

Roland Huntford, a former correspondent for the *London Observer*, depicts Scott as a "heroic bungler"

in **Scott and Amundsen** (Putnam's, 1980). The British captain, he says, doomed his party by providing poor organization and scant rations.

In this controversial critique, Huntford also questions the accuracy of Scott's journal as it has come down to us. He claims that Scott's heirs excised all passages that indicated bitterness toward his Norwegian rival, Roald Amundsen, or criticism of his companions, or Scott's own incompetence. But for his "martyrdom" and brisk literary style, Huntford argues, Scott would have become a symbol of ineptitude. Indeed, Scott "was a suitable hero for a nation in decline."

Huntford dismisses the importance of the 35 pounds of geologic specimens that Scott's men collected near the Beardmore Glacier and refused to abandon. Yet the rocks contained the plant fossil *Glossopteris*, also found in India and Africa, providing the first solid evidence for the existence of the prehistoric "supercontinent," Gondwana.

The Gondwana hypothesis did not win immediate acceptance. The skepticism expressed by such prominent polar researchers as geologist R. E. Priestley and ornithologist Robert Cushman Murphy in **Problems of Polar Research**, edited by W. L. G. Joerg (American Geographical Society, 1928), reflected the attitude that prevailed until the "Air Age" of Antarctic exploration produced compelling new evidence.

The airplane opened up the continent but, as Paul A. Siple observes in **90° South** (Putnam's, 1959), it didn't make staying there any easier. Siple, who accompanied Richard E. Byrd to Antarctica as a 19-year-old Boy Scout in 1928, recalls how the admiral, aware of the psychological toll the Antarctic environment could

take, once brought a morale "specialist" to Little America. The specialist, Siple writes, "equated good morale with an ability to play the ukulele. He had brought along boxes of ukuleles and was prepared to teach us how to strum the strings to keep us from growing morose or homesick. Unfortunately, the men considered it a morale booster not to have him or his ukuleles around."

Byrd himself once foolishly attempted to stretch the limits of human endurance. During the 1934 Antarctic winter night, he single-handedly manned the Bolling Advance Weather Base, deep in the interior, as he recalled in **Alone** (Putnam's, 1938; Grosset, 1961). Driven to "know that kind of experience to the full," Byrd nearly died of gradual carbon monoxide poisoning owing to a faulty stove that he was unable to repair. For two and a half months, he struggled with a steadily deteriorating mind and body before his garbled radio transmissions alarmed his colleagues and a tractor party from Little America II rescued him.

Byrd, the symbol of the early Air Age and an accomplished self-promoter, wrote several other books on the Antarctic, including **Little America** (Putnam's, 1930) and **Discovery** (Putnam's, 1935; Gale, 1971).

After World War II, air travel to and around the continent became routine. By the time Richard S. Lewis and Philip M. Smith published their wide-ranging collection of essays, **Frozen Future** (Times Books, 1973), geologists airlifted into the Transantarctic Mountains had uncovered fossil remains of the *Lystroraptor*, a prehistoric animal that was also common to Africa and India. *Lystroraptor* dispelled any lingering doubts about Gondwana. Because the now-extinct reptile could not

have crossed the oceans that today separate Africa, India, and Antarctica, scientists concluded that these lands must once have been joined.

The contributors to *Frozen Future*—Antarctic scientists, for the most part—address such topics as glaciation, climate, biological adaptation, and research policy. All of them stress the need to maintain the cooperative spirit of the 1957–58 International Geophysical Year, whatever the continent's commercial allure. Antarctica, they argue, must remain an "international laboratory."

So far, it is just that. Antarctica, and most of the writing about it, falls mainly within the scientists' domain. Specialists report on their experiments and activities in several journals. Chief among these are the *Polar Record*, published by the Scott Polar Research Institute (United Kingdom), and the *Antarctic Journal of the United States*, published by the National Science Foundation.

Not all of the research is disinterested, however. As Barbara Mitchell and Jon Tinker show in their detailed introduction to **Antarctica and Its Resources** (Earthscan, 1980, paper only), the 14 parties to the Antarctic Treaty and other nations have long had their eyes on the continent's oil, gas, fish, and mineral resources.

If the region's past experience of commercial exploitation is any precedent, Antarctica could be in for trouble. Its waters were once the world's premier whaling grounds, producing 10 times more whale oil than did all others combined, ac-

ording to the U.S. Central Intelligence Agency's data-laden **Polar Regions Atlas** (CIA, 1978, paper only). But some of the largest whale species were nearly hunted to extinction. The population of blue whales is down to 5 percent of its 1900 level; for the smaller humpback, the figure is closer to 3 percent. Only the drastic quota cuts decreed by the International Whaling Commission in the early 1970s curbed the slaughter.

Today, the focus has shifted from whales (and seals) to krill and oil. In her comprehensive **Antarctica in a Resource Age** (forthcoming), *Science* reporter Deborah Shapley argues that the United States has failed to protect its own interests in the new Antarctic resource sweepstakes.

Before the 1961 ratification of the Antarctic Treaty, she points out, the United States could have laid claim to as much as 80 percent of the continent. Today, owing to its weak resource exploration effort under the treaty's loose arrangements, America may be taking a back seat in Antarctic affairs to Japan, the Soviet Union, and West Germany, nations that are pushing ahead with plans for commercial ventures.

It is inevitable, Shapley concludes, that when the treaty comes up for review in 1991, decisions about the management and exploitation of Antarctic resources will be shaped by governments that know something about them. Hence, she argues, the United States should step up its research program and take a more active role in Antarctica.

EDITOR'S NOTE: Many of the titles in this essay were suggested by Franklin Burch, director of the U.S. Center for Polar and Scientific Archives.