

St. Bonaventure



Contents

The poles of the world have had their past recorded largely in fleeting snow and solid ice. The unique life forms which populate these regions tell part of the story of life in this harsh environment. Now man is beginning to claim the polar regions for his own—and he may upset the **BALANCE AND THE WORLD** if he persists in his present course of action.

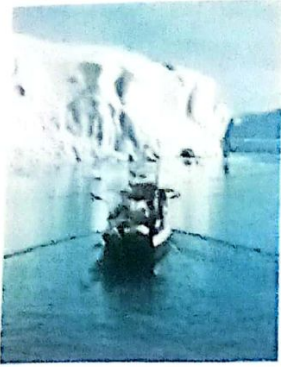
Ice and snow are familiar enough to most people, but ice in **THE POLAR SETTING** (Chapter I) exhibits a much broader range of characteristics than can be imagined. There is freshwater ice that forms on land and sea ice that forms a protective skin over the ocean. There is ice that forms anew each season and ice that lasts from year to year. The respective ends of the earth are quite different, however, with the North Pole holding a massive ocean and the South Pole anchoring an entire continent.

The world's weather system is deeply influenced by the poles, for by their frigid nature they help maintain a balance and establish the flow of air that results in winds. But as far as animal life is concerned, **COPING WITH COLD** (Chapter II) presents some major problems, such as acclimating to the six-month-long days and nights and adjusting to the extremes of temperature in the continental interiors. The solutions include a variety of designs in fat and fur.

History is written on the face of the earth, at least those parts of the lands that were covered by glaciers which were **ICING OVER THE PAST** (Chapter III). The river valleys that were widened, the mountain tops that were flattened, and the lakes that still exist today all attest to the advance and retreat of glaciers. The forces behind these great glacial movements are still unknown, but their effects are being felt even now.

The differences between air and water temperature and the seasonal alternations of ice—forming, then breaking up, then re-forming—make for a perilous **LIFE IN THE BALANCE** (Chapter IV). Thermo-regulation is needed for life on an ice floe; protection is needed from wind and snow. The hunters, wanderers, foragers all must make their adaptation to the cold.

Despite the forbidding cold and the lack of *terra firma*, there is **LIFE ON SOUTHERN ICE** (Chapter V), ranging from the flightless penguins to the blubbery seals. Of necessity, these warm-blooded animals are creatures of two worlds, for when they are not on the ice, they are in the water feeding.



No traveler to southern oceans has ever failed to be impressed with the abundance of life IN THE AIR ABOVE THE ICE AND WATER (Chapter VI). The seabirds include the great albatrosses of sailors' legends, the ubiquitous petrels, and the multitude of gulls, shearwaters, prions, skuas, and cape pigeons that make their home far from man's land.

84

Although it may seem strange to visitors from more temperate climes, animals form a major part of the RICHES OF THE POLES (Chapter VII). The diversity of creatures is not so great as might be found elsewhere in the world, but in terms of sheer numbers of organisms, the polar regions are unsurpassed. From the shrimp-like krill, which are so numerous that they turn the sea into a red soup, to the giant whales that feed on them, the sea is a storehouse of riches. On land, the riches become visual, from the sparse but colorful vegetation to the spectacular aurorae, borealis and australis.

96

Fish in polar waters must adapt to a way of life BELOW THE ICE (Chapter VIII). Conditions include not only the ice cover, but also variations in salinity, depending upon whether the ice is melting or forming, and water temperatures sometimes below freezing. Yet many different species, perhaps a hundred, have found these conditions bearable, including the ice fish, with its white blood coursing through a semi-transparent body.

106

Biological rules of development and evolution have been based upon observations in THE POLAR LABORATORY (Chapter IX). The type and distribution of animals, the size and shape of the body, the length of appendages all fit into general rules correlating heredity and environment.

114

One of the major accomplishments of man is to live IN HARMONY WITH THE ENVIRONMENT (Chapter IX). The Eskimoos achieved this in their arctic homeland with a way of life that extracted everything useful from the habitat, wasted nothing, and exploited nothing. But today's residents of the area—military, scientists, pioneers, and modern Eskimoos—have forgotten the lessons of the past.

122

The history of man in the polar regions has been one of exploration and exploitation, especially of the animal resources like whales and seals. Now man must decide whether he will change this, whether he wants TO PLUNDER OR TO MANAGE THE POLES (Chapter XI). Will the despoiling continue, or will the direction follow the spirit of accord that brought about the Antarctic Treaty, which preserved that continent for science?

132