

**BOTANICAL STUDIES IN THE LAKE HAZEN REGION, NORTHERN ELLESMERE ISLAND, NORTHWEST TERRITORIES, CANADA.** By JAMES H. SOPER and JOHN M. POWELL. Publications in Natural Sciences, No. 5. Ottawa: National Museums of Canada, National Museum of Natural Sciences, 1985. 67 p. No price indicated.

In organising the Canadian IGY Expedition to Lake Hazen, 1957–58 ("Operation Hazen"), the Defence Research Board believed that full advantage should be taken of the logistic effort by promoting field work in other disciplines besides geophysics, which was the main purpose of the expedition; the extra cost would be minimal. Accordingly, invitations were issued to other government organizations (including the national museums) to participate by sending field scientists. The present publication is one of the welcome results of this participation.

The authors give a comprehensive account of the vascular plants, which were their main concern during their collaborative work in the 1958 summer and during the junior author's further work in the 1959 summer. Following a general description of the natural features and climate of the area and a history of its botanical exploration, brought up to date with a note on post-IGY collections, the authors provide an annotated list of the 125 species of vascular plants they collected — 32 species more than had previously been recorded from northern Ellesmere Island.

Of the species on their list they estimate that perhaps one-third accounts for over 80% of the vegetation, the other species being restricted to certain habitats, such as solifluction lobes, marshes, consolidated scree slopes or bird perches. A description of these and the other more widespread habitats, such as turf hummocks and sandy areas, occupies a good part of the publication, and this is perhaps the most interesting part for the general reader. The authors show that in all habitats plant growth — or, indeed, the presence or absence of plants — is strongly influenced by aspect to the sun, exposure to the wind and, above all, the availability of moisture from melting snow and glaciers. By a fortunate dispensation of nature the permafrost ensures a high table for such water as there is in the soil. Some plants, e.g., *Salix arctica* and *Saxifraga oppositifolia*, are tolerant of most habitats, but others, e.g., the attractive *Arnica alpina*, are of occasional and local occurrence on rocky clay banks and around animal dens. For some plants altitude in itself, at least up to quite high levels, is not a barrier to growth, provided that moisture is available from melting snow patches; thus, *Papaver cornwallisensis* was found in flower at an altitude of nearly 1400 m on a nunatak. (In this connection it is worth recording that in 1967 the reviewer collected a moss *Grimmia* sp. at an altitude of c. 2500 m on Barbeau Peak to the northwest of Lake Hazen.) As might be expected, there is considerable variation between the flowering periods of the plants, which are dependent on the time of disappearance of the snow from particular sites. Some species flourish in both early exposed and late exposed sites, while others are restricted in their flowering periods. The vascular plants as a whole fall mainly into four phytogeographical groups: Circumpolar (73 species), amphi-Atlantic (24 species), wide-ranging North American (14 species) and endemic North American (10 species).

In spite of the delay of about a generation since the field work, this publication was well worth waiting for, and it will prove an indispensable guide to all summer visitors — not only botanists — to one of the most beautiful areas in the Canadian Arctic. Twenty well-chosen photographs give an excellent idea of most of the habitats and types of vegetation.

G. Hattersley-Smith  
British Antarctic Survey  
Natural Environment Research Council  
High Cross, Madingley Road  
Cambridge, England CB3 0ET

**THE EXPEDITIONS OF THE FIRST INTERNATIONAL POLAR YEAR, 1882–83.** By WILLIAM BARR. Calgary: The Arctic Institute of North America, 1985. Technical Paper No. 29. 222 p., 50 illus. Softbound. Cdn.\$21.00.

The First International Polar Year (IPY), 1882–83, was the forerunner of the Second IPY, 1932–33, and the Third IPY, also known as the International Geophysical Year (IGY), 1957–58. The First IPY involved 14 major expeditions and several auxiliary projects in the Arctic and Antarctic, organized by eleven nations. The idea was to establish a network of stations in the polar regions to make simultaneous observations for a year of meteorological phenomena, aurora and geomagnetism. In the event, all but two of the main expeditions were in the north polar regions. Each group had to maintain series of synchronous, standardized observations, some of which involved very rigorous, time-consuming schedules. However, most expeditions had sufficient time and personnel to undertake various local scientific and exploratory work so that the results of the year also include such things as topographic and geologic maps, anthropological observations, and reports of horticultural experiments.

The expeditions were remarkably conscientious and thorough in terms of their scientific and other records. Almost all submitted comprehensive reports, but these were written in a variety of languages. As a result they have not received due attention in the literature. William Barr, in his latest book, performs a great service in bringing together for the first time information on these expeditions, for it is as an interconnected group that they are most important.

The book includes a relatively short overview and appreciation of the IPY and its scientific programs, but the bulk of it is a blow-by-blow account of the expeditions themselves. In each case, the reader is given a careful description of the organization and personnel of the expedition, an account of preparations for the trip and travel to the selected base, and a description of the region and of the daily life, work, trials, etc., of the party. The cumulative impact of this for all 14 expeditions and 3 of the auxiliary projects can be appreciated only by a careful reading of the whole work.

Although most will enjoy dipping into the book, especially those who have a current interest in the regions concerned, I would urge all who are addicted to polar literature to clear the decks so that they have several hours to read this volume from cover to cover. Any other reading strategy will result in a considerable loss of the detail and linkages, which are the strengths of the book.

Here are some glimpses of the volume's contents.

The Germans organized two major expeditions, one to Baffin Island and one to South Georgia, and two auxiliary projects, one to Labrador and one to the Falkland Islands. Barr treats them all but the last. The expeditions, at near opposite ends of the earth, not only maintained synchronous scientific observations, but they also had more or less duplicate equipment, including identical build-by-numbers houses. Both expedition reports contain information on the whaling industry of the time, observations from two hemispheres. The Baffin group, for example, had a visit from a whaler's longboat manned by an American, a German, a Spaniard, a Polynesian and an Australian. The Baffin group's report was also notable for its detailed observations of Inuit life, as their base at Clearwater (Kingua) Fjord was a heavily populated area. The South Georgia Expedition was one of several that took along domestic animals, including dogs, geese, cattle, sheep and goats. (Other expeditions had pigs, pigeons, reindeer, and hens.) Not content with these, they kept King Penguins in leather corsets for scientific purposes. They were in the field at the time of the Krakatoa eruption and so were able to record some of its effects on the southern hemisphere atmosphere and oceans.

The German "extra" project in the northern hemisphere consisted of sending a physicist, Dr. K.R. Koch, to maintain six stations for observing weather and other phenomena at the Moravian missions along the Labrador coast. He ran the Nain station himself, training missionaries to run the others, but he did travel up and down the coast a good deal checking up on things. The idea was that the line of stations pro-