

to facilitate easy comparisons of glacial processes for the lay reader. Describing the surge of Variegated Glacier, Alaska, in 1982-3, the "major surge was not a single simple event. Rather, the glacier behaved like an athlete warming up for an event by taking deep breaths, doing calisthenics, and engaging in short sprints to flex muscles and get in trim for the main event". Sharp personalizes glaciers and their actions: "[a] glacier also deepens the valley, not because it needs to, but because it can't help it" (p. 105). He points out the inevitable unknowns and mysteries of glaciology that await solutions by future investigators, such as dislocation creep (p. 66), "not yet fully and satisfactorily understood", and kinematic waves (p. 70), for which "more actual measurements of wave character and behavior are needed". For the future — "If all the world's glaciers were suddenly melted, the results would be catastrophic. Florida would be reduced to a few tiny islands ... [with a] rise in sea level of 70 meters or so". It is also possible that the last Ice Age is not over and we may be living in an interglacial period, to be followed by another period of cold and widespread glaciation. As the author states in the final words of the text, "Could it all happen? Yes, indeed!"

There are a few minor errors to be corrected in future editions; for example the maximum thickness of the Antarctic Ice Sheet appears as 4300 m on p. 24 and more than 5000 meters on p. 174, and there are spelling and printing mistakes. As the dust cover states, this book is a must "for anyone with a passing knowledge of earth science and an interest in the world of living ice"; it is also a genuine bargain for the price. (John Splettstoesser, 1 Jameson Point Road, Rockland, Maine, 04841 USA.)

#### HIGH ARCTIC VEGETATION

VEGETATION OF THE SOVIET POLAR DESERTS. V. D. Aleksandrova. 1988. Cambridge, Cambridge University Press (Studies in Polar Research). 228 p, illustrated, hard cover. ISBN 0-521-32998-1. £30.00, US\$49.50.

Published originally in Russian in 1983, this polar classic has been translated by Doris Löve, who also contributes a foreword. The English edition was encouraged and seen through the press by the late Dr Stanley Greene, who did much to make Soviet arctic studies available in English. The work is based mainly on the Aleksandrova's own research in Zemlya Frantsa-Iosifa, one of the world's most northerly island groups, but includes that of many Soviet colleagues in the far north and tundra. As such it is a valuable window on the Eurasian provinces of the Arctic.

The first 30 pages include a brief introductory chapter, followed by two short chapters describing the geographical background, climate, soils and snow regime, and giving detailed treatment of the microclimate in plant-growing conditions at ground level. Virtually all the rest of the book is devoted to the vegetation. Chapter 4, over 120 pages long, is a comprehensive survey of plants and communities on all the Soviet Arctic Ocean islands, in both the Barents and Siberian provinces. Chapter 5, of 40

pages, deals with the flowering plants, with special reference to seasonal development of named species that were the author's special study. The final chapter, called 'Conclusions' can best be described as thoughts on particular communities, on the overall structure of the flora, species composition of flowering plants and the concept of aggressiveness in plant colonization.

This is not an exciting, challenging or speculative book; it sticks tightly to its title, and has little to say about other arctic areas, still less about comparable plants and plant communities in the Antarctic. However, it puts before us in readable English a wealth of well-marshalled fact and natural history observation hitherto available only in Russian. Every polar plant ecologist will need it for reference. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER, UK.)

#### MUSK OXEN

THE MUSK OXEN OF POLAR BEAR PASS. Gray, D. R. 1987. Markham, Ont., Fitzhenry and Whiteside. 191 p, illustrated, hard cover. ISBN 0-88902-944-X. Can\$50.00.

David Gray met his first musk oxen as a member of the Canadian National Museum of Natural Science's first expedition to Bathurst Island in 1968. There followed a five-year doctoral study and later intermittent work, on which this book is based. Gray writes of musk oxen, of the Arctic and its wildlife, and of himself. This is an intensely self-conscious book, with the personal pronoun prominent on every page; some readers may find the author and his feelings unduly intrusive. Nevertheless he gives us plenty of solid information about the community of musk oxen studied, and abundant collateral information on the environment in which they live and plants, birds, mammals and people that share the habitat. The final chapter, 'Summing up', is the least personal and the most thoughtful — an admirable summary of the species, its ecology and behaviour. The book is well illustrated with photographs and maps, and excellent line drawings by P. Geraghty illustrate behaviour. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER UK.)

#### BRIEF REVIEWS

NORTHERN HYDROCARBON DEVELOPMENT IN THE NINETIES: A GLOBAL PERSPECTIVE. Frankling, Freddie, T. 1989. Ottawa, Geotechnical Sciences Laboratories, Carleton University. 257 p, illustrated, soft cover. ISBN 0-7709-0245-6. Can\$75.00. Available from GSL, Loeb Building, Carleton University, Ottawa Ont. K1S 5B6.

Proceedings of a conference held in September 1988 in Yellowknife and Calgary, to provide an overview of Canadian oil and gas developments, and examine them in a global setting. Over 40 papers under the following nine headings: Understanding Canada's north; Managing development; Northern hydrocarbon potential: Regulation; Science, technology and the environment; Environ-