

written in conjunction with Raymond Priestley and subsequently to become a fundamental work of reference in this field. The publication of these diaries is a fitting tribute to a pioneer of Antarctic science. (H.G.R. King, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

THE STRUCTURE AND DYNAMICS OF ANT-ARCTIC POPULATION. Juan Carlos M. Beltramino. 1993. New York: Vantage Press. xvii + 105 p, illustrated with tables and maps, hard cover. ISBN 0-533-10205-7. US\$16.95.

Knowledge about Antarctica is rapidly accumulating, but demographic research has not received much attention, even from the SCAR Working Group on Human Biology and Medicine. Data are not registered centrally by the UN or World Bank, which cover all other regions, and Dr Beltramino has done a service in writing this slim book that contains much of interest; the lengthy acknowledgements reflect the extensive correspondence that has been necessary to obtain data (to 1990) from all the countries involved. The author draws attention to the uniqueness of Antarctic demography, characterised by its international nature, the short residence times of individuals relative to other regions, the sex and age biases, the lack of natural increase, and the special nature of mortality. This means that full demographic procedure cannot be applied. Two chapters then describe the natural setting and the historical and political background; it is the one region on Earth that, for obvious reasons, never had an autochthonous population. Unfortunately, a table of historical events makes no mention of SCAR, which predated the Antarctic Treaty and has served it well, and Beltramino does not make clear the primary intention to create 'a continent for science.'

The remaining five chapters contain the meat of the book. The populations are broken down by wintering and summer, including tourism and small adventure expeditions, but largely omitting whaling, sealing, and fishing operations. The results are summarized in six maps, eight tables, and a number of additional tables in the text. Appendices list the primary data on wintering expeditions starting with *Belgica* in 1898; on scientific stations operating in winter, their location and breakdown by station and year; similar information about summer scientific and support expeditions; and mortality rates at scientific stations and on summer expeditions. The author emphasises the approximate nature of some of the data, which is beyond his control.

From the beginning of this century it took 50 years for the wintering population as a whole to reach 100, only a further five years to reach 500 (influenced by the IGY), and 80 years in all to reach 1000. Women increased from two in 1974 to 74 in 1990 (from only six countries and Greenpeace) and children from 14 in 1978 to 29 in 1990 (from only Argentina and Chile). The largest number of stations was present in the IGY. Summer populations are more difficult to establish, but the approximate totals are

given; numbers increased from 75 in 1941/42, jumping to 6167 in 1956/57 representing IGY activities, and then increasing to 8340 in 1989/90. The number of women in summer increased from eight in 1947/48 to 260 in 1989/90 (from 14 countries and Greenpeace).

There are many other interesting points brought out by Dr Beltramino in his analysis. I would like to mention three. First, mortality rates: in wintering expeditions, almost all in the 'heroic era,' the rate 25.9‰; on scientific stations from 1904 to 1990, it was 2.5‰; and on summer expeditions 0.55‰. The causes of deaths in winter were 87% due to environmental hazards; in summer 61% to aviation accidents (greatly influenced by the 257 deaths in the crash on Mt Erebus in 1979) and 33% to other accidents, mainly involving air staff, seamen, and vehicles. Deaths due to medical problems are minor. Second, brought out clearly, is the very low winter density of people — a mere .000081/km² in winter (compared with a world average of 39/km²). Third, meteorology is the predominant scientific discipline in winter, whereas biology is in summer.

This is a useful contribution, written in an engaging style, well-produced with clear maps, graphs, and tables, and commendably free of typographic errors. However, I must declare a prejudice against the irritating term 'wintering over'; why not the simpler 'wintering'? The author clearly defines his terms and draws attention to the deficiencies of the data. It is a worthy contribution to an emerging topic. (R.M. Laws, St Edmund's College, Mount Pleasant, Cambridge CB3 0BN.)

HIGH LATITUDES: A HISTORY OF SWEDISH POLAR TRAVELS AND RESEARCH. Gösta H. Liljequist. 1993. Stockholm: Swedish Polar Research Secretariat in collaboration with Streiffert Förlag AB. 607 p, illustrated, hard cover. ISBN 91-7886-102-0.

To the majority of English-speaking individuals interested in polar exploration, the period 1857 to 1859 is most notable for Francis Leopold McClintock's expedition in *Fox*, which helped finally to resolve the fate of John Franklin's Northwest Passage expedition. However, during the same years, a series of expeditions that have rarely even been mentioned in English-language books on polar exploration helped to lay the foundations for much of modern polar research. At the center of these scientific developments was Otto Torell (1828–1900), a Swedish glaciologist who was the first major figure to propose scientific study of the Arctic as a goal and not just an addendum to commercial or geographical investigations. Torell's expeditions to Iceland (1857), Spitsbergen (1858), and Greenland (1859) served as preparatory work for his leadership of the Swedish Arctic Expedition of 1861, which included nine scientists, among them Adolf Erik Nordenskiöld, Karl Chydenius, and Nils Dúner. The expedition had three main goals: interdisciplinary studies of Svalbard and the seas adjacent to it; a reconnaissance for establishing a triangulation network for future measure-