north of the Antarctic Convergence. Almost midway between Tasmania and Antarctica, it was discovered by sealers in the early years of the 19th century. For well over a century it was a source of fur seal pelts and the oil of elephant seals and penguins. Mawson's Australasian Antarctic Expedition 1911–14 established a radio station on the northern end of the island, and since 1948 the same area has been continuously occupied as the site of an ANARE scientific station. Macquarie is of particular interest to ecologists, whom this book will please immensely. Written by three biologists who clearly know the island well, *Subantarctic Macquarie Island* has chapters on Macquarie's discovery and human occupation, physiography and climate, origins and geology, geomorphology and quaternary history, vegetation, lakes, birds, mammals, microbiology, nearshore environment and human management. There are appendices on vascular plants, bryophytes, lichens, fungi, freshwater and terrestrial algae, marine algae, land, littoral and marine invertebrates, nearshore fishes, introduced land mammals, and the masses of sea birds and seals that make up the bulk of the island's biomass. There are black and white photographs, maps and diagrams aplenty, and the style is clear and reasonably concise.

The book raises an important point relevant to many similar islands in both polar regions. Macquarie is by any standards well-known ecologically and well protected by conservation measures. Under Tasmanian State legislation since 1933, in 1970 it was designated a State Reserve, in 1977 an IUCN Biosphere and Strict Nature Reserve and in 1978 a Nature Reserve under the Tasmanian Parks and Wildlife Act. Access is by permit only, and Tasmania seems to take seriously its responsibilities toward the island. However, the surrounding sea, on the produce of which so much of Macquarie's more spectacular wildlife depends, remains relatively unstudied, its plankton and fish vulnerable to exploitation. Perhaps the relative difficulty of drawing up protective legislation for a patch of ocean has discouraged effort. Whatever the reason, the bulk of Macquarie Island's wildlife, however well protected ashore, remains at risk while the produce of the surrounding ocean is open for grabs. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

BLUE ICE AIRFIELDS

AIRFIELDS ON ANTARCTIC GLACIER ICE. Mellor, M. and Swithinbank, C. 1989. Springfield Va., US Army Cold Regions Research and Engineering Laboratory (CRREL Report 89-21). 105 p, illustrated, soft cover.

Landing and take-off poses problems for transport aircraft in polar regions. Those with retractable wheeled undercarriages are conventionally restricted to landing either on hard-ground airstrips or on specially-consolidated ice runways. The former are possible only in ice-free areas, the latter only in the coldest regions, and both are costly to lay out and maintain to high safety standards. Ski-wheels and skis increase the range of possible landing sites, but only within narrow limits: not every inviting-looking snowfield is safe for landing. Usually skis cannot be retracted, and their drag severely reduces cruising speed and range. Switching from wheels to skis can be done only on the ground, requiring special equipment and taking up valuable time.

The authors of this report have examined another kind of landing site in Antarctica — ablation or 'blue-ice' areas, which are smooth, extensive ice fields at all elevations, swept free of snow by persistent winds. Detectable from satellite imagery, some that are extensive and free from obstructions make splendid air strips, requiring little preparation or maintenance, and capable of taking the heaviest aircraft. Blue ice runways make it possible to fly heavy transport aircraft direct from South America, Australia or New Zealand, and land with substantial loads on a wide range of sites throughout Antarctica.

The first blue ice landing sites were investigated in the Pensacola Mountains by CRREL in the mid-1970s, for possible flights by US expeditions direct from South America. Remarkably, they were never used, and official US interest flagged. In 1986 Swithinbank surveyed sites at Wilson Nunataks and Patriot Hills, and the latter was developed for tourist flights in the following year. As this report demonstrates, official interest has again stirred; some 37 sites have now been identified and several have been investigated in detail, notably at Mt Howe and Mill Glacier in the Transantarctic Mountains, and at Casey Station and in McMurdo Sound. The authors conclude that there are enough suitable blue ice sites to provide a well-distributed system of Antarctic airfields for large conventional transport aircraft, and that costs of development should be very low. These are important conclusions, opening up new logistic possibilities and adding substantial safety margins to trans-continental flights. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

BRIEF REVIEWS

THE GREENLAND MOUNTAIN BIRCH ZONE, SOUTHWEST GREENLAND. Fredskild, B. and Ødum, S. (editors). 1990. *Meddelelser om Grønland Bioscience* 33.1990: 1–80.

A symposium of eight papers on growth and characteristics of trees and shrubs, especially native birch, in the relatively mild fjordlands of southern Greenland. An introduction by the editors is followed by papers on mapping and monitoring of woodlands and scrub in Qingua-dalen (Feilberg and Folving), hybridization, introgression and taxonomy of mountain birch in Iceland and Finnish Lapland (Sulkinoja), stomatal behaviour of mountain birch (Kauhanen), insect grazing on mountain birch in Greenland and Norway (Tenow), afforestation experiments (Ødum), nutrient ecology, vegetation and biomess of Greenlandic birch sites (Eurola, Laine and Wielgolaski) and fungi of mountain birch in Greenland (Elborne and Knudsen).