

Book Reviews

Marine Mammals, by **Richard J. Harrison & Judith E. King**. Hutchinson, 15s.

This book deals with what is, at first sight, an absurd biological success. The ability of animals to colonise the land was the first prerequisite for the evolution of the mammals; why then did some mammals, having evolved specifically for the land, go back to the water, basically an alien environment where they have to compete with the highly evolved natural water-dwellers? But they did so and succeeded to a phenomenal extent.

The three main groups of the most specialised marine mammals are described here, namely the Cetacea (whales, porpoises and dolphins), Sirenia (sea-cows), and Pinnipedia (seals, sealions and walrus). Obviously the prime considerations in such a book are the main anatomical and physiological specialisations whereby these animals have, during the process of evolution adapted to coping with the problems of being mammals in water. Not only must they be able to swim well enough to catch food from among the aquatic denizens (though the Sirenia are herbivores) but they must maintain sufficient contact with the air for respiration throughout the 24 hours of the day. Of these forms only the Pinnipedia ever leave the water and even they may be at sea continuously for weeks or months. Also, with the exception of the Pinnipedia, the young must be born into the water and get to the surface for their first breath; then they must be able to suckle under the surface. The authors describe the wide variety of specialisations which have occurred, and they are to be congratulated on the remarkable amount of information they have managed to pack into such a small book. But I suspect that it is largely because of this compression that they have sometimes failed to give a balanced picture on some controversial matters. For instance only one theoretical explanation of the mechanism of dolphin wave-riding is considered, and this is one which is only hydrodynamically acceptable under conditions rarely observed by dolphins and ships. Also, with the far too few illustrations, the descriptions of taxonomic differences are hard for someone unfamiliar with skull anatomy. But these are small matters in an excellent compact story of mammalian colonisation of the sea.

Perhaps the most remarkable aspect is that not merely has the sea been conquered by mammals but the process has occurred in a variety of ways. The three groups are all highly efficient marine mammals but they appear to have evolved by fundamentally different paths: even the seals and the sealions have followed entirely different routes to a roughly similar end point. In fact the only real similarity among the groups is a common ability to swim well and to be a success in the water.

K. M. BACKHOUSE.

Water and Life, by **Lorus & Margery Milne**. Deutsch, 25s.

The urgent need for long-term planning for water conservation is a subject that crops up only too frequently in our own national press and it does not require a strong imagination to visualise a world water shortage in the future if populations continue to increase at their present rate and man continues to squander or despoil his limited water resources as he does at present. This book, although concerned mainly with North American conditions and experiences, contains a great deal of information, pleasantly presented, on the problem.

According to the authors less than 3 per cent. of all the water in the world is fresh, and of that almost four-fifths is locked away in polar ice-caps and glaciers. Another tenth or more is in rock crevices or between

mineral particles that lie deeper than half a mile below the land surface, and therefore unavailable. Only 0.32 per cent. of the world's water, apparently, is where trees and man can reach and use it. Desalination of sea-water seems a partial solution and the authors have interesting figures and comments on this possibility. Their plea for the preservation of wetlands throughout the world will find a ready response among readers of this journal, and they present an interesting argument for the "farming" of native ungulates in the semi-arid high country of Africa in place of cattle, not merely on the grounds of selective grazing but because they require only about a twentieth as much water as the domesticated breeds. The chapter "Dead Water", which discusses pollution of rivers with synthetic chemicals and industrial effluents, inevitably brings to mind "Silent Spring", and indeed the present book presents a warning as solemn as that of Rachael Carson's classic. It would be reassuring to think that it would stir public conscience as much as hers did.

JOHN CLEGG.

Biogeography and Ecology in Antarctica, edited by **J. Van Mieghem** and **P. Van Oye**. Dr. W. Junk, The Hague, £11 10s.

This is the third in a series of publications devoted to the biogeography and ecology of the Southern Hemisphere, the first two having dealt with Australia and southern Africa. It is a composite work, with 18 authors summarising in 762 pages the present state of knowledge of subjects ranging from geology and geomorphology to such specialised fields as the Chaetognaths of the southern oceans and Antarctic Bryozoa. It would need a panel of experts of the competence of the authors to review the details of each chapter critically, but a more general appraisal may be attempted. Such articles as the 72-page review of Antarctic geology by H. J. Harrington and the 67-page account by N. M. Wace of the vascular plants known from the Antarctic will remain as standard references for a good many years, but others are of lesser importance, at least for the general naturalist. Nearly all are written for the specialist, but one of the exceptions, of interest to anyone with some general knowledge of birds, is the 40-page chapter on Antarctic birds by K. H. Voous. For conservationists the selection of subjects is disappointing, as there is no article on either seals or cetaceans; nor in fact is there any particular mention of the need for conservation in the Antarctic, which is outside the scope of the work.

The general impression is of much detailed information, mainly recently collected, from which relatively few interesting general conclusions can as yet be drawn. This is perhaps inevitable, since the study of the Antarctic fauna and flora is very much in the collecting stage, as it was on other continents a hundred years ago, though it will certainly pass rapidly. Problems of biogeography are often most intractable, since the evidence is often scanty and hard to interpret. Thus in spite of great increases in knowledge of past and present plant distributions round the southern pole, the old problem of the significance of the disjunct distribution of the southern beech *Nothofagus* in Australasia and South America is still as debatable as it was when Darwin and Hooker discussed it a century ago.

English readers must always be pleased and flattered when their language is chosen for works of international scope, and must admire foreign scientists' command of our language, but many minor mistakes of vocabulary and spelling would have been avoided in two of the chapters if they had been submitted to an English reader before publication. However, this does not detract from the book's importance as a major reference work on the least known of the six continents.

D. W. SNOW.