

the better armed and more numerous Arabs of the north, whose camels and cattle are affected by tabanids more than are the pigs and goats of the Nuba tribes. When a spitting cobra discharged its venom into his eyes, giving him intense pain, he was unable to see properly for 20 hours, but these, and other discomforts, he apparently accepted with equanimity.

Some of the quotations are reminiscent of an earlier period, so beautifully described by Reginald Davies in *The Camel's Back* (John Murray, 1957): in particular, Sweeney cites a report on termites which concluded with the words, 'this tenacious enemy has started to attack the laboratory without mercy'; but, 'our work continues with unabated zest and fury'.

It was Sweeney's misfortune to have been in the Sudan before Independence so that he was to some extent denied the pleasure of mixing on equal terms with the people, surely among the most friendly and hospitable in the world. His writing is sometimes clumsy and the sequence of events confused. The only date given is 'the year 1371 by the Muhammadan calendar but as far as El Obeid was concerned it could almost have been the same year by Gregorian reckoning'. It is clear, however, that the Nuba Mountains have changed little since Sweeney commented on their wildlife and natural history.

J. L. CLOUDSLEY-THOMPSON

Antarctic Ecology, edited by M. W. Holdgate. Academic Press, 2 vols., £11.

This exceptionally well produced account of the Symposium on Antarctic Biology, held in 1968, and organised by the Biology Working Group of SCAR, comprises 81 papers, introduced by a discussion of the past environments, flora and fauna of Antarctica, which, for much of geological history, was subject to temperate conditions. Most of the papers are concerned with the marine ecosystem, with sections on plankton and its consumers, the pelagic resources, benthos, fishes, biology and adaptations in seals and birds. The second volume has sections on the freshwater lakes, soils, vegetation and terrestrial fauna.

A useful account of conservation gives a very clear exposition of conservation objectives, generally accepted as the protection of scenic beauty, birds, mammals and terrestrial and freshwater life, and the restoration or stabilisation of those island ecosystems that have been disrupted by man and his imported alien species. A further important aim is 'the wise management of the biological resources of the Southern Ocean so that a protein crop can be taken without irreversible damage to the ecosystem or the undue depletion of populations'. Tourism is increasing and poses a possible future problem. The present state of the Antarctic ecosystems, current conservation measures under the Antarctic Treaty (which in effect provides a unified management plan for a region of millions of square miles), and desirable future developments in three fields (specially protected species and areas, and management) are dealt with.

Of special interest to the conservationist also are a series of papers documenting changes in the oceanic ecosystem due to the removal of the large whales by the whaling industry, and speculating on the possible consequences in the marine food chains. The total estimated standing crop biomass of whales supported by krill has fallen from 24



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million tons initially to some 2 million tons in 1967, and there is a general agreement that there is a potential annual krill surplus of about 100-150 million or more tons. This must have led to changes in the stocks of the other consumers. Already krill has been the object of a small experimental fishery, and the prospect of its uncontrolled exploitation is alarming. It is stated that the development of a krill fishery would probably allow us to double the present world catch of aquatic organisms from the world ocean. But on the krill depend the superb and spectacular bird and seal colonies as well as a host of less conspicuous but important consumers, including the surviving great whales. The editor suggests that the most pressing task may be the drafting of guide lines for an industry based on krill, such as has already been achieved for the Antarctic seals.

RICHARD M. LAWS

Birds in the Australian High Country, edited by H.J. Frith, illustrated by Betty Temple Watts. Reeds A \$9.50.

A Field Guide to Australian Birds: Non-Passerines, by Peter Slater and others. Oliver & Boyd, £3.

Common Australian Birds, by Alan and Shirley Bell. Revised edition, O.U.P., £3.75.

Small Birds of the New Zealand Bush, by Elaine Power. Collins, £1.25.

Studying this small collection of books on the birds of Australia and New Zealand brings home very forcibly to a Northern Hemisphere ornithologist how extremely fortunate we are in the bird artists who have been practising in Britain and North America in recent years. Roger Peterson for one has set such a high standard that although he now has his peers north of the Equator, there is no evidence yet that he has any south of it. Of the three Australian artists represented here, Betty Temple Watts is easily the best, and her best work is done with birds she is familiar with in the field; her touch is not nearly so sure with those which I suspect she had to do from skins, such as the Palaearctic waders. Before I correctly identified her picture of the wood sandpiper, for instance, I was surprised to think that the ruff was found in Australia. Peter Slater's birds are highly stylised; it would not be fair to complain of their not being more artistic, because they do achieve their purpose of aiding identification. Shirley Bell's pictures are the least good of the three; something very odd seems to have happened to the shapes of her introduced goldfinch, greenfinch and starling, for instance. Elaine Power's birds, however, strike me as being the best of the four – as birds – and by far the most artistic; they look genuine and alive.

Frith and his 14 collaborators deal with the birds of the south-eastern Highlands of Australia, in New South Wales and Victoria, including Canberra. In contrast to the plains that occupy most of Australia, this comparatively small area, containing the greater part of the continent's high ground, provides its most varied habitats, including an alpine zone. The text adequately covers identification, voice, distribution, habits, breeding and feeding. This is a useful book for both residents in or visitors to the area, but too big to use in the field. A most commendable feature is that the artist's royalties go to the Australian Conservation Foundation.