

BOOK REVIEWS

Wild animals in New Zealand. Compiled under the direction of A. L. Poole, Photographs by J. H. Johns, A. H. and A. W. Reed. Price \$4.50.

This book could have been the authoritative and popular account of the native and introduced mammals of New Zealand but, unfortunately, it has not realised its possibilities. Although its various sections have been written by experts (though the choice among those available is sometimes a little surprising) the emphasis is very strongly on the so-called problem mammals — particularly the game mammals. This brings up the point that the title is a little unfortunate since the word “animals” has a very broad meaning, whereas “mammals” is precise and is understood — although perhaps not used — by virtually any educated person. Therefore, those who order the book, unseen, may be misled about its contents.

The smaller mammals such as hedgehogs, mustelids, bats, etc. receive a rather cursory treatment and it would not have been very difficult to have included maps showing their distributions, as these have already been published elsewhere. The same mammals have also been rather neglected, insofar as references are concerned. One surprising statement in the Introduction is that the Polynesian rat (*Rattus exulans*) is a “native” even though it is stated there that it was brought to this country, admittedly a very long time ago.

The main appeal of the book will be in its large number of excellent photographs — in black and white and colour — though anyone who has seen the originals will be a little disappointed at the quality of some of the reproductions, but this is only because the originals are of such a high standard. Not only will the photographs permit one to see the various mammals in sometimes striking circumstances but they also will give an excellent idea of the back-country habitat in which they live. Incidentally, there are one or two errors in the captions and some misprints (as well as omissions) in the bibliography.

Such distribution maps as there are are valuable because they should be authoritative; and there is a thoughtful initial chapter by Mr. J. T. Holloway which surveys the whole subject. Reading this chapter prompted me to ask myself this question: It is generally agreed that much of the New Zealand native vegetation is very sensitive to grazing and browsing and it is always assumed that this is because of the original absence of grazing and browsing mammals in this country. However, there seems to be no obvious reason why such a state of affairs should always result from such an absence and it would be interesting to know to what extent such sensitivity is found elsewhere under these circumstances and to what extent vegetation that has evolved in the presence of a native mammal fauna is sensitive to browsing and grazing by mammals foreign to the ecosystem.

G. R. Williams

Molesworth, L. W. McCaskill, A. H. and A. W. Reed, Reed, Wellington. \$4.50.

It is not an easy task to run a farm of 450,000 acres which includes 10 different soil types (each with its own particular demands), supports a host of pests and has had an early history of poor management — accidental and otherwise. The story of such a task is the theme of Molesworth, and Mr McCaskill tells it in his inimitable way and interweaves with it a fairly good coverage of natural history, a number of character studies and a few amusing tales.

Originally the settlers' interest in this vast inland area, which virtually all lies above 3,000 feet, was to find a route from Nelson to Canterbury. In 1850 Mitchell and Dashwood did so and in 1852 Lee, Jollie and Benny took the first sheep through. Incidentally, they were the first of many to set fire to the country. Soon after, run-holders started taking up the land; and at this time the native vegetation was “luxuriant” and the land was thought to hold great promise. In fact, it was suggested to a Commission in 1882 that, if a railway were put through, some of the land could be used for market gardens!

By 1890 William Acton-Adams had bought, or obtained by lease, some 300,000 acres and McCaskill describes the problems that high country farming involved at that time: economic depression, sheep scab, severe losses of stock in snow, rabbits and, of course, isolation. Some of these problems are still with us. Acton-Adams was a conservationist, a progressive and a litigious businessman. He tried valiantly with the limited knowledge of the day, to attain all his farming objectives. Burning most of his property was a mistake, but one about which not only he was slow to learn better.

In 1911 the run was sold and from then until 1937 had changed hands — despairingly, optimistically — many times. The depression of the 1930s was, after rabbits, over-grazing and match-farming, the last straw.

Many readers will not be as charitable as the author in avoiding laying blame for Molesworth's state at that time. But in 1938 a new era began when the Crown took back the de-stocked Molesworth-Tarndale area and vested it in the Department of Lands and Survey. What was to be done now in the way of rehabilitation?

All experts (except one!) agreed that there must be an unrelenting war on rabbits, most conceded that a period of spelling the land was essential but only a few believed in the efficacy of stocking with cattle. The first mobs arrived in 1940 and two years later Mr M. M. (Bill) Chisholm was appointed manager. It was on the wisdom, patience and foresight of this former deer-culler that the success of this huge experiment was to depend.

Eradication of the rabbits (and to a lesser extent of the goats, pigs and deer) was instrumental in rehabilitating the plant and soil communities; and when, in 1949 the run to the south, St. Helens, was added to form the present-day Molesworth complex, the battle against the rabbit had to be won on yet another front.

Oversowing was the next advance to be made. Techniques were only in their infancy, but experiments soon showed that English grasses and clovers could be established where there were already soil and plants. On barer areas succession had first to go through *Raoulia* spp. to sorrel. By 1965 45,000 acres had been oversown at a cost of \$92,000. Now, oversowing has ceased so that briar and broom may be controlled. (Except that it has no forest problems, Molesworth exhibits virtually all the ecological problems besetting New Zealand in less than 1% of the area.)

As desolation retreated judicious grazing by cattle was skilfully extended so that the country was even further improved and a profit finally made. By 1960 the Station had paid back all that had been spent on conservation and development and by 1968-69 it had achieved the virtual miracle of returning over \$500,000 to the Consolidated Fund.

What of the future? At the time the book went to press the Commission on Molesworth had not reported its findings and recommendations.

Are afforestation and farming compatible? Not if forests are to be planted on the already-scarce winter country. Hunting and stock are not compatible either — one shot can disperse a mob of cattle that may have taken days to muster. Other recreations such as fishing and tramping seem more acceptable, but the scenery does not have a wide appeal. Farming must still be the main role for Molesworth; but sheep not properly managed would rapidly undo much of what has been so hard-gained. Furthermore, the whole enormous area is virtually indivisible if cattle are to be the crop, because of the scarcity of good winter country. Size and value seem to rule out any kind of private ownership; so we are back to the present situation, although McCaskill makes some worthwhile suggestions about administrative changes.

Molesworth must go on much as it is now going, but with even more intensive application of what we now know of the principles of ecology, range management and good farming practice. From Bill Chisholm's time the history of Molesworth has been a success story with conservation and husbandry being complementary and the one paying for the other. Those near-half-million acres are geographically isolated and probably are best kept that way.

L. R. Kingsbury

The grasslands revolution in New Zealand. P. W. Smallfield. Hodder and Stoughton, Auckland; in association with the English Universities Press, London, \$3.60.

New Zealand has been an acknowledged world leader in grassland improvement for several decades. The title of this book suggests that it is an account of the development of grassland farming to its present high level of efficiency. This is not so. Rather, it is the life story of a member of the New Zealand Department of Agriculture from the time of his joining as a young instructor fresh from Lincoln College in 1921 to retiring as Director-General in 1962. The early chapters, describing the author's experiences in the field are the most interesting. Here are first-hand accounts of early land development in the pumice country and gumlands of the North

Island, of the impact of early soil surveys on pasture topdressing technique in the Waikato, and of seed certification on pasture improvement. The author emphasizes the lack of scientific knowledge in the 1920s which severely handicapped early farm-advisory work. That situation makes the problems which face farm advisers today seem insignificant by comparison.

In general, however, the book makes rather pedestrian reading. This is disappointing when we consider that an account of grassland improvement in New Zealand from a person with the breadth of experience of P. W. Smallfield could have been outstanding. Although the book traces grassland development up to the present day, changes in the last 15 years are covered rather sketchily. For example, aerial topdressing is dismissed in half a page, the discovery of molybdenum deficiency in even less; and no mention is made of the impact which sulphur has had on grassland development in the South Island. Little is said of the outstanding feature of grassland farming in the 1960s, the improved use of our pastures under rapidly-increasing stocking rates. The chapter on Canterbury farming would amuse farmers in that province for its out-of-date account, particularly the conclusion that "over the past 50 years methods (on the medium and heavy arable land) have not changed much".

A number of technical errors occur: Ariki ryegrass is described (p. 67) as a cross between perennial and Italian ryegrasses. It is actually a cross between perennial and short rotation (Manawa) ryegrass. Ruanui (perennial) ryegrass is continually spelt "Ranui" and the botanical names of a number of plants are incorrect, e.g. *Danthonia* spp. (*Notodanthonia* spp.), *Danthonia rubra*, *D. rigida*, *D. flavescens* (*Chionochloa rubra*, *C. rigida*, *C. flavescens*), *Bromus catharticus* (*B. unioloides*), *Sporobolus capensis* (*S. africanus*).

This is not a book for the shelf of every grassland worker, agricultural student or farmer. Rather, it is for those who are interested in the earlier history of grassland development in New Zealand, as told by someone who had wide practical experience in that in the 1920s and 1930s.

J. G. White

Mammals in Hawaii. P. Quentin Tomich. Bishop Museum Press, Honolulu, Hawaii. US\$5.00.

Like New Zealand and other islands remote from continental land masses, the Hawaiian Archipelago has a poor mammal fauna which has been much enlarged by Polynesian and European settlers and by the early navigators. These parallels, which extend to the reasons for making introductions and, in a large number of instances, to the species which have been introduced, lend particular interest to this account of mammals in Hawaii.

Subtitled "A synopsis and notational bibliography", the book is a brief but exhaustive review of the origins, histories, distributions, and habitats of mammals successfully introduced to Hawaii plus an account of what is known of their effects on the environment, and some cautious comments based on the author's unpublished observations. Accounts of the indigenous mammals (a single bat, a seal and several whales and dolphins) are also included. Each entry is fully documented and the frequent references accentuate a certain sparseness in the text.

The entries for each species and an 80-page bibliography make up the bulk of this short book; the bibliography owes its length to the inclusion of an abstract of each work cited and to the thoroughness of the author. He has apparently not permitted himself to overlook any material relevant to his subject. Dipping into the bibliography at random one is equally likely to discover:

“ . . . a poem in five stanzas depicting the difficulties of befriending a penned water buffalo in order to photograph it . . . ”; or

“ . . . a detailed examination of the reciprocal effects of goats and native vegetation in selected localities. . . . ”

Sandwiched between these two major parts is a section entitled “Some perspectives in Hawaiian mammalogy” — a series of short essays on subjects as divergent as Hawaiian names for mammals, public health and mammalian diseases and the state of some of the heavily exploited islands. In some of these essays the author gives slightly freer rein to his own knowledge of the environment, but their brevity is frustrating.

The book sets out to be a summary of Hawaiian mammalogy, a work of reference for those interested in the subject, and it succeeds admirably. The author is punctilious in all respects, not least in the inclusion of a thoroughly detailed index. It may be that he felt that a more generous discussion would detract from these qualities, or the length of the manuscript may have been a limiting factor. With this minor reservation made, there is no doubt of the book's value, particularly to New Zealand mammalogists and ecologists. It permits comparisons which were previously well-nigh impossible.

I. G. Crook

Australian seashores in colour. Text: John Yaldwyn; photographs: Keith Gillett. A. H. and A. W. Reed. \$3.50.

This pleasant little book is one of a popular series on Australian and New Zealand natural history; and each is written by an expert in the field and generously illustrated in colour.

In spite of the title the subject matter is mainly eastern Australian — there is little of the shore communities of southern, western or northern Australia. Nevertheless, for the non-specialist reader the book is a fair introduction to the biogeography and shore ecology of the area with which it deals.

The main emphasis throughout is on invertebrates with only fairly brief accounts of algae, fish, marine reptiles, mammals and birds.

As usual for this series there is a fine collection of colour photographs and a useful list of references.

We look forward to the publishers producing a similar book on New Zealand seashores.

G. R. Williams

Design With nature. Ian L. McHarg, Natural History Press, Garden City, New York. US\$19.95.

This is a remarkable and timely book. The author is, according to the jacket, “a teacher, practising landscape architect, planner, writer and lecturer. The largest part of his energies is devoted to the Department of Landscape Architecture and Regional Planning at the University of Pennsylvania of which he is founder and Chairman. This department, with its research arm, The Center for Ecological Research in Planning and Design, is dedicated to producing a new breed of landscape architects and regional planners competent in the natural sciences integrated by ecology.”

With the present world-wide concern about the natural environment and man's ultimate effect on it, reinforced locally by the recent meeting of the Physical Environment Conference, such a book could hardly come at a better time into a reviewer's hands.

The book's main theme is the problem of the City — how to make it a place that is alive and worth living in, how to control its growth and how to prevent the tentacles of urbanisation continually spreading and destroying the countryside.

For most people the major impact of the book will be in its fully-committed ecological approach. Some professional ecologists may be a little toffee-nosed about some of the author's ecology; but everyone should be grateful that he has chosen to deal with the problem in the only really fundamental way. No less a person than Lewis Mumford says, in his introduction, that the book will take its place with “only a handful of works in a similar vein, beginning with Hippocrates, and including such essential classics as those of Henry Thoreau, George Perkins Marsh, Patrick Geddes, Carl Sauer, Benton MacKaye, and Rachel Carson”. If Mumford is right then we can be grateful in advance for the wide impact this book will have.

Perhaps its most impressive part for ecologists (who will, of course, tend to take the exposition of ecological principles more-or-less for granted) is that section that explains the techniques for finding the best sites or routes for major man-made constructions. Briefly, McHarg studies a number of essential factors (geological, ecological, historical, sociological and economic), prepares a transparent map of each and then superimposes them all to find what he calls the minimum-social-cost alignment (or area) which is the one that is then recommended to the developers.

It is the great variety of factors considered that is so impressive; and one cannot help wondering how many of these (apart from the economic) are used by government and private planners in New Zealand. Very few, is my guess. What little planning there is of this kind in New Zealand is usually both superficial and quite unintegrated with other similar local plans. I suppose I should be fair and say there are a few minor exceptions.

McHarg illustrates his philosophy and techniques by accounts of various planning projects in the United States — all of which are exciting to look at and read

about whether you are interested in ecology or town-and-country planning or both. Furthermore, he deals well in a short space with the historical, sociological and religious backgrounds to man's attitude to nature.

Cities need not die at their centre nor spread, uncontrolled, like a cancer over the countryside; nor need man's most obvious and largest works be ugly or never preferable to the natural scene; but unless some wide-reaching change in attitude develops soon, enlightenment will come too slowly and an over-populated world may well find itself faced with problems that can no longer be solved.

Design With nature should not only be in every ecological library (and personal library, too, if you can afford it), but it should also be in the libraries of all major planning organisations and part of the required reading for every politician.

The book is fully illustrated — unfortunately, not in full colour, but this is a minor point — and is certainly

one of the most important, if not the most important, of its kind to come our way for a very long time.

I should like to end this review with McHarg's final paragraph:

"In the quest for survival, success and fulfillment, the ecological view offers an invaluable insight. It shows the way for the man who would be the enzyme of the biosphere — its steward, enhancing the creative fit of man-environment, realising man's design with nature."

G. R. Williams

Also received:—

Ekologia polska, Series A, Volume 16 (1968). Published by Panstwowe Wydawnictwo Naukowe, Warsaw. All but three of the 44 papers are in English (the three exceptions are in French).

REPORT OF CONSERVATION SUBCOMMITTEE

REPORT OF CONSERVATION SUB-COMMITTEE, 1970

Manapouri

The main conservation issue for the Society during the past year has been Lake Manapouri. The Society has confined its attention to ecological considerations and, within this context, has issued a press statement to the effect that, because of the ecological risks inherent in raising the lake, it would be deplorable if this were to be done without proper investigation beforehand. Unfortunately, the Press Association released the statement with a misleading heading. In May, the Society prepared a submission to the Select Committee on Lake Manapouri, listing the ecological questions which should be put and answered before this — or comparable — projects are proceeded with.

Physical Environment Conference

This has been an important event this year, and the Society has been active in presenting ecological viewpoints to the Conference. Dr. G. T. Daly was a member of the working party considering pollution of the environment, and seven members of the Society's Council attended the conference, and (with Professor G. A. Knox and Dr. J. F. McCahon) put forward and had adopted, four recommendations to the proposed Physical Environment Council. These stressed long-term ecological considerations, especially the need to determine the optimal size of population for New Zealand.

Preservation of native communities and natural features

With the appointment of Dr B. P. J. Molloy to the Botany Division, D.S.I.R., the Society's responsibility for the preservation of remnants of native vegetation of the Canterbury Plains ends on the happy note of two reserves having been created and two others well under way towards being so. Other moves drawing to a successful conclusion, and in which the Society has taken part, concern Cape Turakirae (where 175 acres will be reserved to protect coastal features) and low altitude snow tussock grassland north of Lake Mahinerangi (where however, the reserve will be considerably smaller than requested.) The Society is still negotiating about the protection of native vegetation and natural scenery in the Taupo district and on the Lindis Pass.

Miscellaneous

The Society supported a proposal to preserve natural features in and around Porirua Harbour and a recommendation by the Ornithological Society for extermination of noxious mammals on the Kermadec Islands. It has continued to express concern at the state of conservation in the Chatham Islands, and has written to the Department of Lands and Survey about a proposal to fish commercially for giant crabs at the Auckland Islands. Other correspondence has related to a stand of kauri in the Mangapapa catchment, Bay of Plenty, and pines in the Dun Mountain mineral belt, Nelson.

P. Wardle, Convenor