

gators who have become prominent in this area is Dr. Roger W. Russell, formerly of Pittsburgh, who has recently succeeded Sir Cyril Burt as professor of psychology in University College, London.

The summary and conclusions on abnormal behaviour (p. 463) and social behaviour (p. 473) will appeal very much to a wide range of readers, though they tend to give the gloomy impression that rats are on the whole no more regardful of other rats than are human beings of each other. Thus (p. 475): "The clearest instances of what might be regarded as truly cooperative behaviour are those in which two rats learned to take turns in sitting on a platform so that each could feed without receiving an electric shock".

Dr. Munn's italicized postscript (p. 476) gives an excellent indication of the content of his book. "We have seen that the rat is an exceedingly useful tool for the investigation of a wide range of problems having relevance for human psychology. Of especial significance from this standpoint are the findings on: (1) physiological aspects of motivation, (2) contributions of sensory processes in learning, (3) the role of brain processes in learning, retention, and reasoning, (4) effects of drugs and vitamins on the learning process, (5) equivalence of stimuli in perceptual response, (6) evaluation of learning theory, (7) effects of nutritional conditions upon abnormal behaviour, (8) conflict as an etiological factor in behaviour disorders, (9) analysis of the procedures and outcomes of shock therapy and (10) objectification of psychoanalytic mechanisms. In some of these fields the research is well advanced and rather definite conclusions are possible. . . . In others, and particularly the last-mentioned, research is in its initial stages."

ALEC RODGER

BIRDS OF PARADISE AND BOWER BIRDS

Birds of Paradise and Bower Birds

By Tom Iredale. Pp. xii+239+33 plates. (Melbourne: Georgian House Pty., Ltd.; London: Phoenix House, Ltd., 1950.) 105s. net.

ON p. 2 of this book there occurs the following pronouncement: "The acme of uselessness in ornamentation appears to have been reached in the Birds of Paradise, as here coloration and feather structure appear in the male, making it a very beautiful creature, while the female has remained very ordinary". It is a minor tragedy that the book, superbly illustrated by Mrs. Iredale (Lilian Medland) and finely produced by its Melbourne publishers, is in its text a hotchpotch of such statements, old-style taxonomy and long and uncritical quotations from the frequently inaccurate accounts of collectors and bird photographers.

The birds of paradise are unrivalled in their epigamic adornments and astonishing in the use they make of them. The bower birds are generally not only of outstanding physical beauty, but also perform complex displays at their bowers and display-grounds to which they bring coloured or shining flowers, berries, leaves, shells and bones. Each species makes its choice according to the hereditary conservatism of its kind. Three species paint the walls of their bowers with various substances. One Australian

bower bird actually fashions a tool to help it apply the paint which, in this instance, is a mixture of saliva and charcoal obtained from logs burnt by bush-fires. Another clears a patch of dark jungle floor and covers it with a striking pattern of leaves sawn from neighbouring plants with a remarkable 'toothed' beak that is adapted to the job. Yet in this book no attempt has been made to relate habit and function. Mr. Iredale has steadfastly ignored all the implications of the work of Howard, J. S. Huxley, F. H. A. Marshall, Lorenz and other pioneers who have revolutionized our understanding of the function and physiology of display during the last three decades. Mr. Iredale has likewise largely ignored the opinions of Stresemann, Stonor, Mayr and others who have done so much work on the anatomy and phylogeny of the birds of paradise. He dismisses a little contemptuously the possibility that some of the rare birds, collected and described during the trading days, are the result of natural hybridization. The present reviewer has never been directly concerned with this problem; but he cannot help feeling that it is the careful studies of Meise and Stresemann, rather than the present generalizations, that carry the more weight with the disinterested worker in a neighbouring field.

On the credit side, in addition to the coloured illustrations, typography and binding, there are interesting historical data concerning the legendary attributes of the birds of paradise. Thus, John Huyghen van Linschoten, after a voyage to the East Indies: "In these Ilands onlie is found the bird, which the Portingales call *passaros de Sol*, that is Fowle of the Sunne, the Italians call it *Manu codiatas*, and the Latinists, *Paradiseas*, and by us called *Paradice-birdes*, for ye beauty of their feathers which passe al other birds; these birds are never seene alive, but being dead they fall on the Ilands: they flie, as is said alwaies into the Sunne, and keep themselves continually in the ayre, without lighting on the earth, for they have neither feet nor wings, but onlie head and body, and the most part tayle . . .". This legend arose, of course, from the birds' unearthly beauty and because trade-skins (which were bartered from tribe to tribe long before recorded Pacific history) often lacked legs and wings.

Other accounts stated that besides lacking wings and legs, paradise birds also lacked stomachs. But a latter-day sceptic had the following to offer: "It was believed by the credulous and ignorant, the most numerous class of men, that it lived alone upon the air and dew; that it had no intrails, nor feet; but remained perpetually floating upon the air while sleeping, as well as while awake; while hatching and laying as well as while procreating its young. . . . Instead of a stomach and intestines, which, to so extraordinary a feeder, would have been useless, the cavity of its abdomen was said to be filled with fat."

There is also included brief but welcome information concerning the great nineteenth-century travellers A. R. Wallace, D'Albertis, Beccari and Macgregor. But, incredibly, the book has no references and there is no index.

Whatever one's friendship and affection for the author—extending over twenty years—one cannot find in the text much else to praise. It is "as dry as the remainder biscuit after a voyage". Mr. Iredale has indeed strange places crammed with observation—and he has vented it in mangled form.

A. J. MARSHALL