

observations, and it has come at a time when radio-astronomy is growing so fast that it is becoming hard to see the subject as a whole.

It is singularly appropriate that it is at this time that Lovell and Hanbury Brown, who have been responsible for so much of the fine work at Jodrell Bank, have written a book which reviews the present state of our exploration of the radio universe. This, one feels, is the result of a pause for reflexion, in which the programme of the new radio-telescope has been considered in relation to the many branches of the subject. The book is for that reason concerned with considerable detail, offering some reward to the serious student; the main purpose of displaying the results and possibilities of the methods developed in the past few years is, however, in no way obscured by technicalities.

For the newcomer the first three chapters provide a background outline of the universe as we know it at present, and an outline of the techniques of radio-astronomy (we note incidentally an exceedingly diverting Fig. 33, which contains the only obvious error in the book). The distribution of the subject-matter over the main part of the book very naturally reflects to some extent the especial range of interests of Jodrell Bank. The chapter on meteors represents one of the best accounts available of the Manchester work, and naturally carries more weight than the rather shorter chapter on solar radio waves. Galactic and extragalactic radio emissions occupy less space than one could have hoped for, but there is little chance for expansion of this part of the universe when space must be found for the hydrogen line, scintillation, aurora, and the moon and planets.

The last chapter is devoted to the Jodrell Bank radio-telescope, of which we may all be justly proud. We wish the authors of this book all success in their new explorations of the radio universe.

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AMAZON FOREST

Wai-Wai

Through the Forests North of the Amazon. By Nicholas Guppy. Pp. xii+375+20 plates. (London: John Murray (Publishers), Ltd., 1958.) 28s. net.

IN 1952 Mr. N. Guppy, then an official of the Forestry Department in British Guiana, set off on a journey of exploration and research in the little-known areas of the extreme south of the Colony and the adjacent regions of northern Brazil. He went to the New River, a tributary of the Courantyne, to the Mapuera River, a tributary of the Amazon, and across the mountain range which separates the two river systems of Guiana and Amazonia. "Wai-Wai" is the account of this journey, the incidents in which he was involved, the American Indians whom he encountered there, and the type of countryside which it was his official task to investigate and record. The book is beautifully written, with excellent photographs and a useful index and glossary.

"Wai-Wai" is one more in the stream of books of exploration in remote parts of South America, but it has certain qualities which, in my opinion, raise it above the majority of its fellows. It is the best account of the South American tropical forest that I have read; the descriptions capture all the impressions of the forest, while managing at the same time to give a business-like exposition on various botanical

species and their characteristics. The forest is portrayed by a botanist with a poetic eye. To harmonize the romantic and the scientific and at the same time to convey the reality in print is no mean feat.

The mythical 'snake-infested and steaming jungle' of South American exploration is ignored, and instead the book describes the cool, dim rain-forest of reality, outwardly monotonous but, under examination, full of the most exciting products of Nature. It is a forest in which the intruder is more likely to twist an ankle on tree roots than to be bitten by a snake, to be lost rather than set on by warlike Indians, to suffer from infestation by fleas instead of being attacked by dangerous animals and, above all else, to be called on to endure the consequences of inadequate diet.

In too many books the authors claim to be the first in an unknown area and conveniently ignore previous explorers, missionaries and officials who may have opened the way. Mr. Guppy's claim that his area is largely unexplored is not only true but is also generously reinforced by specific references, from his own literary research, to those few travellers who did manage to penetrate it before his own visit. Information about past attempts at exploration and present missionary efforts adds much to the interest of the book and by no means detract from the author's own achievements.

There is a refreshing approach to the old legends of lost cities in the jungle, Amazons, white Indians and the oft-repeated assertions that Indian customs indicate the previous existence of a great civilization, now forgotten. Mr. Guppy looks sensibly at the forest environment and the type of society which characterizes the small Indian tribes, and provides his own answer to these exotic notions. For him the fruits of exploration are not lost cities or the settlements of those warlike ladies who gave their name to the region, but the gentler rewards of the discovery of a new variety of tree species, the reconstruction of the primeval forest landscape and the forces which worked on it and the understanding of the very human and likeable Wai-Wai and Mawayán tribesfolk.

One of the most interesting, and most controversial, portions of the book is the discussion and analysis of Wai-Wai Indian art. To substantiate his assertion that their art is proceeding from the realistic to the abstract would, I feel, require a longer period of personal contact with the people and possibly a knowledge of their language in order to get a direct point of view. To venture to account for such a change in style would also require the most widespread comparative studies. Mr. Guppy's opinions should not be taken for anything more serious than tentative hypotheses for future research to prove or disprove.

This book will appeal to all those who enjoy a well-written, intelligent and accurate account of a journey of exploration and research. It is the best literary introduction to life in a tropical forest that I know, and as such I recommend it to anyone who wishes to know about or to try this sort of life for himself. Although experts will regret the lack of more detailed information in their own particular spheres of interest, it is a measure of Mr. Guppy's success that he should arouse this interest in the reader; his work should provide the basis for future intensive research in this most interesting region of South America.

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