

REVIEWS

ZOOGEOGRAPHY. By P. J. DARLINGTON. Messrs. Chapman and Hall (a John Wiley book). Price £6.

Professor Darlington has written a remarkable book. It is not a handbook of ecological animal geography, like the admirable volume by Hesse, Allee and Schmidt. It starts from the postulate that Zoogeography is a branch of science in its own right, relying on the actual facts of the present distribution of animals, as interpreted in the light of their capacities for dispersal and retraction, both now and in the evolutionary past, and capable of shedding light on other branches of biological and geological science.

The author confines himself to vertebrates, and almost entirely to land and fresh-water vertebrates, for these are decisive for establishing zoogeographical rules and principles. After a general introduction on the history and principles of the subject, he deals with the distribution of the five classes of vertebrates in the different zoogeographical regions of the world. Not since A. R. Wallace has there been such an exhaustive and comprehensive treatment of regional faunas, and of course Darlington can draw on many facts unknown to that great pioneer of zoogeography. The final third of the book is devoted to general topics such as continental drift, patterns of distribution and their evolution, ending with a chapter on man.

All naturalists will find here much of absorbing interest, both in respect of factual detail and of general ideas. Professor Darlington comes down heavily in favour of the Old World tropics as the main centre of evolution of land and fresh-water vertebrates (as against W. D. Matthew's suggestion of the North Temperate zone), and links this view with the principle, first enunciated by Darwin, that abundant species and abundant groups will evolve faster than less abundant ones. Thus the inhabitants of large, diversified and favourable regions like the Old World tropics, are likely to give rise to types possessing higher degrees of biological dominance and greater capacity for dispersal than those of smaller and less well-endowed regions.

Among many interesting points I may mention his map showing how far Reptiles fall behind Amphibia in their capacity to live in high latitudes, his firmly argued case against land bridges and continental drift, and his general treatment of dominance and competition between groups, with their consequences in expansion and retraction of occupied areas.

A few criticisms may be made. There is no mention of the recent work on direction of magnetization in rocks, with its implications of changes in the position of the poles. It is a pity that Spitsbergen is not discussed as the best example of a high Arctic island, or Iceland as possessing avifauna as transitional between the Palearctic and the Nearctic. The rabbit is not indigenous in Britain. Too much weight is given to Sewall Wright's "drift" as an agency of evolution.

Darlington does not refer to that beautiful example of convergent adaptation, the possession of a brush-tongue by the nectar-feeding Australian marsupial *Tarsipes*, as well as by the Lories. While giving an admirable treatment of migration, he omits all reference to hibernation as a factor in the distribution of mammals (and other groups). He does not mention E. B. Worthington's valuable studies on the fish fauna of the great lakes of Africa, nor the fact that the lion extended into Europe in proto-historic times. He might have used the Old World wren as a striking example of the wide diffusion of a single species of an abundant group which happens to have high cold-tolerance. When he speaks of the complex dispersion of "Man" in the mid-Tertiary (p. 346), this is clearly a slip for early hominids (p. 626). He mentions the suggestion that Monotremes may be descended from Marsupials without pointing out the zoological absurdity of this idea—unless one enlarges the concept of a marsupial to include forms laying large shelled eggs. More serious, he asserts that Marsupials and Placentals were "parallel groups" with equally wide distribution before the end of the Cretaceous (p. 322); but if this were so, how could the Placentals have failed to reach Australia? Assuredly the dominance of the two groups must have been successive in evolution, with the major rise and spread of the Placentals occurring somewhat later than that of the Marsupials.

But these are minor points: they do not detract from the general value of the work, which will be indispensable not only to zoogeographers but to all serious students of animal evolution.

J. S. H.

CHARLES DARWIN. By RUTH MOORE. London: Hutchinson, 1957. Price 12s. 6d.

The author starts her book appropriately enough with an account of the "eminently curious Galapagos", those remote mid-Pacific Islands, which made such a lasting impression on