temporary medical periodicals, newspapers, minutes and letters, yet he wears his learning lightly and unobtrusively, and his style is both elegant and delightful. Some readers might criticize his story on the grounds that it is too detailed and too discursive, and that the lengthy accounts of his contemporaries detract from a true appreciation of the subject proper of the biography; but even those who would have preferred a more succinct narrative will yield to none in their admiration for an invaluable work of reference.

We meet Charles Hastings as a medical student at Edinburgh, where he developed "a catarrhal inflammation of the lungs", which was treated by the distinguished physician, James Gregory, and we learn that this malady inspired his lifelong interest in diseases of the chest. In 1820 was published his classic "Treatise on Inflammation of the Mucous Membrane of the Lungs", which was translated into German two years later. We accompany him to Worcester, where he was appointed physician to the Infirmary, and watch him first using the stethoscope in the summer of 1820. We read how he founded, and edited, the *Midland Medical and Surgical Reporter* in 1828, and in 1832 launched the Provincial Medical Association, which was watched by Thomas Wakley in London "carefully and with considerable suspicion". Little did Wakley realize that one day it would grow into a British Medical Association. Hastings was "the pivot around which the Association revolved, for they all looked to him for guidance and inspiration". We are told that he narrowly escaped becoming mayor of Worcester, paying a fine of £50 for having refused office. We see him in the role of naturalist and in his company attend a dinner where twenty toasts were drunk. "When the celebrants finally arose they had completed just over six wonderful hours of feasting and conviviality." It is interesting to find that in 1844 a National Association of General Practitioners was formed with seventeen branch secretaries.

Lavishly and fascinatingly illustrated, Dr. McMenemey's book bristles with bitter controversies in "disturbed and disputatious" meetings. It concludes with a bibliography of Hastings's writings, a general bibliography, and a model index. I like the chapter headings.

W. R. BETT

PANBIOGEOGRAPHY

Panbiogeography or an Introductory Synthesis of Zoogeography, Phytogeography, and Geology, with Notes on Evolution, Systematics, Ecology, Anthropology, etc.

By Léon Croizat. Vol. 1: The New World. Pp. 1018. Vol. 2a: The Old World. Pp. iii+1-771. Vol. 2b: The Old World (continuation). Pp. iii+772-1731. (Codicote, Nr. Hitchin: Wheldon and Wesley, Ltd., 1958.) £16 10s. (paper bound).

IT is a distinct understatement to call this enormous work unusual. Published in three separate books making up two volumes which weigh something like ten pounds unbound, it contains 2,700 pages and probably at least a million words. To this must be added that it is highly prolix and repetitive; that it is written in a peculiar brand of semi-colloquial idiomatic English which often obscures the author's exact meaning; and that it contains too many animadversions on biologists with whose views Dr. Croizat is not in accord. In short, the author seems to have

put almost every possible obstacle in the way of the reader who wishes first to understand and then carefully to consider his opinions. This is all a great pity because there are two excellent reasons at least why this *magnum opus* should on no account be regarded as unreadable and therefore safely to be ignored.

The first reason is that the book is a vast compendium of information about plant and animal distribution which is arranged and discussed on a geographical and not a taxonomic basis, thus making it much more valuable than it might otherwise be. Indeed, the broad sweep of its geographical background is one of the book's best features. The first volume begins with an introduction, which concludes with a remarkable piece of self-criticism by the author, and is thereafter concerned with the New World in general and then with Venezuela, Colombia, Ecuador, the West Indies and Galapagos (that is, with several crucial areas) in particular. The first book of the second volume deals with Africa, Eurasia, Malaysia and Australasia: the second book covers Polynesia and is thereafter made up of conclusions; a long epilogue on evolution; and various addenda, of which the most extensive is one on physical anthropology. The chapter of conclusions is the shortest of all the chapters but also the most readable.

The second reason is that Dr. Croizat is a man of quick intelligence who has for years pondered over many fundamental problems of biology, not only in its narrower sense, but also in its wider philosophical expression in which it comprehends the whole history of the human race and of its thought. His comments and beliefs on many such subjects are interlarded, as it were, through his immensely long recital of the data of biogeography, but they often reveal great discernment and may therefore be forgiven for any digressions they cause.

As regards biogeography Dr. Croizat's main thesis is that plant and animal distribution, using this word in its more particular sense of 'dispersal', must not be studied in isolation; it is simply one aspect of the three basic factors of evolution, namely time, space and form. To quote his own words, his book "replaces the Darwinian understanding of 'species' originating at some definite spot on the map and 'migrating' via 'occasional means' with a fitting understanding of form-making and translation in space as a single process".

Thus, this vast book is, in essence, a study in evolution, chiefly, but by no means only, from the biogeographical point of view. It is clearly inspired by the author's discontent with the approaches to this subject of Darwin, Wallace and some of their successors, and so it is yet another contribution to the swelling stream of opinion that the general biological outlook which we now call Darwinism, however great its value may have been in the past, is no longer a suitable vehicle for progress in the biological sciences.

The maps, with which the book is liberally supplied, are open to some criticism. Most of them might be clearer and too many of them are drawn on Mercator's projection, which is quite unsuitable for depicting biological distributions. Also, they are too plentifully supplied with arrows purporting to show movement along various 'tracks' of migration. It is easy enough to postulate tracks of this sort but it is quite another thing to produce satisfactory evidence to show which way along them movement has been.

RONALD GOOD