

the book. The six zoogeographical regions are then explained, the methods of dispersal as well as the barriers to it, the outlines of evolution in mammals, and the theories on the probable distribution of the land-masses in the past. The fourth part is devoted to the interpretation of island faunas.

Its author has the unenviable task of trying to simplify a tangled field of knowledge in which explanations must be attempted although so many unknowns and variables need to be reconciled. There is a pleasing reluctance to be dogmatic, and a commendable readiness to keep the reader reminded continually that so much that is said on this subject is based on theory. The style is straightforward and the diagrams clear, indicating the author's pioneering in the use of economy of words linked with visual aids (obviously with "those who are starting zoology at school" in mind). It is with reluctance, therefore, that one ventures to direct attention to what may be shortcomings, but this may be of help in a future edition.

It was with some slight surprise that, on finishing the book, one turned back to the title-page to be reminded that the author is "Fellow and Tutor in Zoology . . . [at] Oxford", instead of at Harvard. There is something non-British (and highly commendably so) in the remark (p. 33) that ". . . Darwin and Wallace announced the theory of natural selection . . ." (Wallace is usually dismissed in a single line.) There is an American flavour in other respects also. Instead of the familiar Palaeozoic and palaeontology we have paleozoic and paleontology, and Cænozoic becomes cenozoic. The loss of the diphthong may be a matter of taste, but the dropping of the capitals impedes one's reading whenever it occurs, perhaps only because the eye is not used to it. It may be that with the increasing interchange of American and English editions the time is already here when uniformity should be sought in such matters or imposed by pioneers like Wilma George.

Even so, the use of conies for hyraxes, with no explanation at all, seems unjustified. The word originally referred to *Oryctolagus cuniculus*. It is true that we have corruptedly standardized the name for a young cony (that is, the rabbit) by applying it to adults as well, and admittedly the conies of the Bible refer to hyraxes. Yet even in the United States, where some authors tend to use it alone when they mean hyraxes, the best-informed mammalogists render it as hyraxes or 'conies'.

The otherwise commendable brevity in style of this book can at times go too far. It is, for example, doubtful whether many Fellows of the Royal Society even, much less beginners in schools, would know offhand what a degu is, or a blismol, even if they knew that Rhyzomyidae (p. 28) should be Rhizomyidae; and a "Dalliid blackfish" is, to say the least, unfamiliar and should be given a brief amplification, unless the aim is to compel the beginner zoologist to go rooting around among specialist books or the best encyclopædias. MAURICE BURTON

ORGANIC MICROANALYSIS

Methods of Organic Elemental Microanalysis

By G. Ingram. Pp. xvi+511. (London: Chapman and Hall, Ltd., 1962.) 75s. net.

THE periodical literature on organic microanalysis has now reached vast proportions, and the newcomer in this field—and, indeed, the moderately experienced technical analyst—needs some sort of 'filter' which will offer to him the critically assessed best of what have been proposed in the way of methods. To act as such a 'filter' has been the aim of Mr. Ingram, and he has achieved this very well indeed. Previous text-books on organic elementary analysis have tended to be the products of 'schools'—where sometimes one might suspect a certain amount of

special pleading. Mr. Ingram is not a member of any school or, in a sense, perhaps he is his own school. Out of a severely critical approach and a vast experience he has presented the best of the published methods, and has argued his choice competently.

He has elected to take a quite unusually wide interpretation of 'organic elements'. Instead of restricting himself to the usual ten, or at most about sixteen elements usually dealt with under this heading, he has recognized that more than fifty elements may be required to be determined in organic materials; he has widened his net accordingly.

He has also taken note of the remarkable advances in the ultra-micro range in the past few years, and has included a section dealing with the elementary analysis of samples of the order of 50 µg.

Mr. Ingram comments on one interesting anomaly: that although the techniques of organic elementary analysis have altered vastly in the fifty years that have passed since they were first devised by Fritz Pregl, the fundamental basis for the determination of some of the elements, for example, carbon and hydrogen, is still that evolved more than a hundred years ago. He suggests, with some justification, that more thought could be given to this by organic microanalysts than has been done in the past.

This book is a valuable contribution to the literature. It makes one hope that the author, in due time, may turn his attention to the field which here he has deliberately excluded—organic functional analysis.

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BIOLOGY IN AMERICAN HIGH SCHOOLS

High School Biology

Revised edition. American Institute of Biological Sciences. Biological Sciences Curriculum Study Committee on Innovation in Laboratory Instruction for Experimental Use During the School Year 1961/62.

A. (1) Blue Version. (2) Yellow Version. (3) Green Version (each version consisting of Text, in three parts, The Laboratory, in three parts, and The Laboratory (Teachers') Guide, in three parts).

B. Laboratory Blocks of: (1) Microbes: Their Growth, Nutrition and Interaction, by Alfred S. Sussman; (2) Animal Growth and Development, by Florence Moog; (3) The Ecology of Land Plants and Animals, by Edwin A. Philips; (4) Interdependence of Structure and Function, by A. Glenn Richards; (5) Animal Behavior, by Harper Follansbee; (6) Plant Growth and Development, by Addison E. Lee; (7) Regulation in Plants by Hormones, by William P. Jacobs and Clifford E. LaMotte.

C. The Teacher's Handbook (all-Text Version, parts 1, 2 and 3).

D. Biological Investigations for Secondary School Students, in two parts.

(The series are not in fact classified A, B, C . . . 1, 2, 3; this is done here purely for simplicity.)

(Washington, D.C.: American Institute of Biological Sciences, 1961 and 1962.)

CURRICULUM reform in American education has been carried out on a truly large scale in recent years at a cost of four million dollars furnished by the National Science Foundation. Starting in 1959, seventy teachers in schools and universities, together with other scientists, set about a comprehensive re-orientation of school biology. A first writing conference produced three different types of high school courses which were used in 1960-61 by 118 teachers and their 14,000 pupils in seventeen States. A second writing conference produced revised versions of the three courses which have been used in 1961-62 by 541 teachers and their 56,000 pupils in thirty-five States, while a final version is to be made available on the Ameri-