

is in two parts. The first deals with the anatomy and physiology of the eyes of various animals. The domestic animals are dealt with in detail, and in addition reference is made to birds, fish and reptiles. The sections on animal vision and the optical system are compiled very well, and the author has correlated the work of others and contributed the results of his own observations.

The second part of the book is devoted to the clinical aspect and consists of two hundred pages. All aspects of veterinary ophthalmology are reviewed, and methods which have stood the test of time as well as new treatments are described. This section is introduced with a description of the clinical examination of the eye followed by chapters dealing with anatomical regions of the eye. Clinicians and students will find this a valuable source to which to refer, especially with regard to the incidence, diagnosis and medical treatment of the conditions described so comprehensively. The surgical references are somewhat disappointing. No method of extirpation of the eyeball which might give promise of first intention healing is described. Many methods of dealing with entropion and ectropion are detailed and these defects, which are usually simple to treat, are made to appear complex. Extraction of the crystalline lens in the dog, on the other hand, seems simpler than most would agree. The book ends with fairly complete chapters on therapeutics and ophthalmic preparations in daily use.

It is hoped that the next edition might have the references removed from the text and placed at the end of each chapter. Some chapters, particularly that dealing with methods of examination, could be given titles of greater clarity.

Despite these few criticisms the wealth of information in this book, which is full of illustrations, line drawings, photomicrographs and photographs, should be studied by all who are interested in advancing their knowledge of veterinary ophthalmology. The author has filled a need, and the publishers should be congratulated on their part of the task.

C. FROST

CHEMISTRY AND TECHNOLOGY OF WOOL-WAX

Wool Wax

Chemistry and Technology. By Dr. E. Vernon Truter. Pp. xi+368. (London: Cleaver-Hume Press, Ltd., 1956.) 60s. net.

IN the preface to his book, Dr. Truter expresses the hope that this work—the first comprehensive and critical account of the chemistry and technology of wool-wax—will help to encourage further research and development on this most interesting subject. Undoubtedly the author has succeeded in presenting the subject in a most instructive manner and should, by virtue of this, provide a stimulating influence to prospective workers in his field. The diversity of subjects covered may be indicated by the fact that the topics discussed vary from the structure of the wool follicle to the stereochemistry of clathrate compounds and that there are 571 references.

The contents of the fleece and their distribution, and the factors affecting these variables are discussed fully in Chapter 1. Chapter 2 deals with the chemical constitution of the wax and describes the large

amount of work that has been carried out on this subject in the past decade. The constitution and uses of suint, the water-soluble portion of wool-wax, merits a chapter on its own. There follows a critical discussion of the physical chemistry of oil-water emulsions which is aided by several photomicrographs and clearly drawn diagrams. The derivation and utilization of the principles involved in the recovery of wool-wax from oil-in-water and water-in-oil emulsions follow quite naturally, as does the account of the various saponification processes.

Of particular interest is the space devoted by the author to a discussion of the isolation, purification, determination and properties of cholesterol and isocholesterol. No fewer than 146 of the 356 pages are devoted to these topics. The chapter in which is described the preparation and uses of clathrate compounds ("Sorting Molecules by Size and Shape") is particularly interesting, albeit it suffers from a slight surfeit of thermodynamics. In the chapter entitled "Lanostane Derivatives" is given a comprehensive account of the step-wise elucidation of the structure of the one-time *bête noire* of the triterpene chemist, 'lanosterol'. The account is presented logically and is helped in no small measure by a generous recourse to diagrammatic reaction schemes which are clear and unambiguous.

The chapter on steroidal derivatives begins with a short account of the stereochemistry of the steroid nucleus. This would have been better placed in the previous chapter on lanostane in order to explain the stereochemical notations used, for they are common to both classes of compounds. This chapter might be considered a valuable adjunct to the standard book of reference "Natural Products related to Phenanthrene" by Fieser and Fieser, since about half the references cited are later than 1949—the date of the last edition. After a very enlightening chapter which describes the remarkable 'Bradford Recovery Process' for the recovery of wool-wax from the city effluents, there are listed the many and varied uses of the wax in various states of purity. Space is also devoted to an account of the destructive distillation and vacuum distillation of wool-grease.

The book is written in a lucid and unassuming style, and is gratifyingly free from misprints; as a source of reference for workers on wool-wax and allied fields it should prove a valuable asset.

D. A. LEWIS

MEASURE AND INTEGRAL

Mass und Integral und ihre Algebraisierung
Von Prof. C. Carathéodory. Herausgegeben von P. Finsler, A. Rosenthal und R. Steuerwald. (Lehrbücher und Monographien aus dem Gebiete der Exakten Wissenschaften. Mathematische Reihe, Band 10.) Pp. 337. (Basel und Stuttgart: Birkhäuser Verlag, 1956.) 38.50 francs; 38.50 D.M.

THIS is a charming book; all mathematicians must regret that it is the last we shall have from its distinguished author. For some twenty years, in a series of papers, Carathéodory worked at the construction of a theory of measure which should start from the concept of a set of objects for which Boolean addition, multiplication and complementation could be defined, and should proceed from there to a measure theory and a definition of the integral, the Boolean ring playing a part analogous to that of the

point function. In fact, it is possible to trace the first steps of this programme in his delightful "Vorlesungen über reelle Funktionen" (1918), to which those students who came fresh to real variable theory just after the First World War owe a great debt of gratitude. Fortunately, Carathéodory lived long enough to gather up into a systematic and self-contained account the half-dozen or so papers in which he developed his programme, and this volume has all the clarity, elegance and power which we had come to expect as a matter of course from his pen. The elegance is particularly shown in the chapter introducing the theory of measure, and the power is exhibited effectively in the chapter which deals with limit processes, convergence in the mean, and culminates in an admirable account, following H. R. Pitt, of G. D. Birkhoff's ergodic theorem.

Although we may feel that this is a classic exposition marking the close of an era, rather than the crude but stimulating signpost to unexplored domains, its urbanity and charm cannot be denied; no one save possibly de la Vallée Poussin has written so attractively about the real variable.

T. A. A. BROADBENT

MARINE CREATURES

Window in the Sea

By Ralph Nading Hill. Pp. 240+24 plates. (London: Victor Gollancz, Ltd., 1956.) 18s. net.

The Living Sea

By John Crompton. Pp. 256. (London: William Collins, Sons and Co., Ltd., 1957.) 15s. net.

Creatures of the Deep Sea

By Klaus Günther and Kurt Deckert. (Translated by E. W. Dickes.) Pp. 222. (London: George Allen and Unwin, Ltd., 1956.) 18s. net.

Adventuring with Beebe

Selections from the writings of William Beebe. By Dr. William Beebe. Pp. xii+284+8 plates. (London: The Bodley Head, 1956.) 18s. net.

The World of Water

By Dr. J. Gordon Cook. (Science for Everyman.) Pp. 192+8 plates. (London: George G. Harrap and Co., Ltd., 1956.) 12s. 6d. net.

FAR from causing a decline in reading, as was once predicted, it is now becoming evident that television has led to a greatly increased sale of books dealing with topics which have proved popular on the screen. This is perhaps most evident in archaeology, but it is becoming noticeable in other fields too. The growing sport of undersea swimming has reinforced the demand for books about sea life, the publication of which has received a further fillip from the film and television successes of Hans Hass and Jacques Cousteau. We cannot blame the publishers for trying to satisfy this demand, but we can blame them for publishing books seemingly written in haste merely to profit from this fashion. The past twelve months have seen the publication of several excellent works on sea life, but of the five here reviewed only one is really to be recommended. "Window in the Sea", a description of the genesis and functioning of the 'Oceanarium' in Florida, is clearly intended as an extended piece of journalism, written by someone well versed in his craft, and as such succeeds admirably. To the marine biologist it affords tantalizing

glimpses of the functioning of this overgrown aquarium, and it has a few minor errors of fact, but I found it of absorbing interest. The prose has a compulsive quality, the construction is as tightly woven as a good detective story and the subject is of both popular and scientific interest.

"The Living Sea" is a more pretentious piece of writing, in essence again a piece of journalism, but disguised. I receive the impression that Mr. Crompton has hurriedly read up marine biology in order to write a book on a subject which will sell. Mistakes of fact abound; for many pages together not one may be found free of error. That an author should attempt a book on sea life without knowing or finding out what is meant by 'plankton' is truly astounding. "The Living Sea" is illustrated by twenty-four uninformative, badly executed line drawings, nearly half of which deal with land animals. By contrast, "Creatures of the Deep Sea" is copiously illustrated, entirely by well-conceived and executed line drawings. It is, however, apparent that these are the same blocks, now well worn, that were used for the original German edition seven years ago. Perhaps the economy is justified in a lower price, but the drawings deserve better printing. Indeed, the chief merit of this English edition lies in the drawings, but any student with access to a library copy would be well advised to use the original German edition, printed before the blocks were so worn. For a work so evidently intended for students this book is thoroughly out of date. If it had been written for the general reader this would not matter so much, but even in 1950 it was a trifle behind the times. The seven years which have elapsed before the appearance of the translation have seen the publication of enough of the results of the *Galathea* and *Albatross* deep-sea expeditions to revolutionize our knowledge of this field. The publishers are at fault in commissioning this translation, which is moreover little more, in places, than a transliteration: some of the sentences even have the verb at the end, and one is conscious throughout of the Germanic construction. Mr. Dickes evidently is no marine biologist; he does not know the English names of fishes or of fishing gear, however well he may know the German. Teufelfisch and devilfish, for example, are by no means the same thing: they are not even in the same phylum. Nor is a trawl a townt. The book provides a reasonable summary (provided we take heed only of the scientific names) of our knowledge of deep-sea fish as it was ten years ago. It is much less good on invertebrate groups, which are, of course, of the greater importance in the economy of the extreme depths. As a picture gallery of biological curiosities it does fulfil a useful function.

The same cannot be said of "Adventuring with Beebe", which consists of isolated chapters reprinted from earlier books by Dr. Beebe. I cannot believe that Dr. Beebe supervised the publication of this hotch-potch. It is pleasant to meet again his elegant if sometimes over-fanciful prose, but the sudden jumps from subject to subject, with missing antecedents, are disconcerting. A re-issue of "Half a Mile Down", the account of his bathysphere descents, would have been acceptable, but these extracts are not. Nonesuch Island loses its fascination when treated in this cavalier manner. This is a book published to profit from a passing fashion.

"The World of Water" is free from this taint. It is one of a series designed to inform the general reader on scientific topics of the day. It is badly produced and