time, of explaining the mystique of the latter to the uninitiated.

Undoubtedly, this is a worth-while and interesting attempt. Students of biochemistry, whose instruction may include little physical organic chemistry, will find a clear although rather elementary account of organic reaction mechanisms, essentially in the spirit of what the Americans call the 'English School'. Chemistry students, on the other hand, will profit from the view that enzymatic reactions are not essentially different, except in complexity, from any other kind and that a study of their mechanisms is both legitimate and potentially profitable.

However, Dr. Waley's approach has its limitations. The hydrolysis of glycosides, for example, is correctly formalized as a nucleophilic substitution on carbon (p. 166). In the context of this book this formulation carries the implications that the criteria which have been so fruitful in distinguishing in simple systems the so-called S_N1 and S_N2 categories, could, in principle, be used for the enzymatic hydrolysis of glycosides and, further, that such a distinction is valid and useful. Both implications may be wrong. In fact, their acceptance leads Dr. Waley to favour Koshland's view that the glycosidases act by producing two configurational inversions, each the result of a simple S_N2 displacement. This may be so, but there is no evidence supporting it. Enzymatic mechanisms cannot be deduced by analogy with simpler systems ; they can only be understood in relation to the structures of the catalytic proteins, a subject which occupies little space in this book.

Nevertheless, Dr. Waley's account could be read profitably by both students of biochemistry and of chemistry. The style is good and clear and the book is well arranged. The price (70s.) however, is to be regretted. Not many students will be able to afford it.

C. A. Vernon

'PARKER AND HASWELL ZOOLOGY' REVISED

A Text Book of Zoology

Vol. 2. By the late Prof. T. Jeffery Parker and the late Prof. William A. Haswell. Seventh edition, revised and largely rewritten by Prof. A. J. Marshall. Pp. xxiii+952. (London: Macmillan and Co., Ltd.; New York: St. Martin's Press, Inc., 1962.) 70*s*. net.

IT is appropriate that this old favourite, originally written more than sixty years ago by the professors of biology in the Universities of Otago and of Sydney, should be revised and much expanded by an alumnus of Sydney, and should appear as he returns to his own country as professor of zoology and comparative physiology in Monash University, a step in a distinguished career of research and teaching on which all his friends congratulate him.

Prof. Marshall has preserved the general plan of this text-book that has well served so many generations of students, but in his revision he has "attempted to retain basic morphology and yet at the same time emphasize functional aspects and, where possible, present animals as living creatures rather than as laboratory specimens". The strong dose of natural history that he has injected into the book brings it very much to life, and he has followed the lack of solemnity that he admires in Simpson's *The Principles of Classification and a Classification of Mammals* by giving many pieces of out-of-the-way information with characteristic humour—students will surely be glad to find a smile here and there and an occasional broad guffaw in a book so crammed with facts.

The book gains greatly from the criticism and collaboration of a number of zoologists whose names make an impressive list; some of them have contributed authoritative sections on the subjects of their special study. The book is further improved by the expansion of the sections on palæontology in spite of the opinion of some zoologists that the previous edition already carried too much information about fossil forms—"it is impossible to gain a good understanding of living animals, either in form or function without an adequate appreciation of what is known of their ancestry". An innovation is the inclusion of the elements of a classification under many of the illustrations in order to "help the student more or less painlessly to familiarise himself with the animal's systematic position". The student will also be grateful for the lavish cross-reference system so that comparative information can be found quickly and "without tediously repetitive consultation of the Index or Contents".

The book is even more fully illustrated than before; not only are there the familiar figures from Wiedersheim, Owen, Flower and many others but also new figures have been introduced from the works of numerous authors. In addition, the work is embellished with many attractive pen drawings and diagrams by Jane Marshall. These, whether showing living animals or reconstructions of extinct creatures, illuminate the text in more senses than one, but their difference in style from the others gives the volume a certain lack of uniformity that although no detriment is slightly disconcerting to the reader on first perusing it. Perfection is impossible: some misprints have slipped through the proof-reading, and an error of fact appears on page 780—a blue whale yields about 135 barrels of oil, not 1,380, equivalent to about 22½ tons, not six.

The book concludes with an extensive list of references and a copious index. With Prof. Marshall's re-writing *Parker and Haswell* starts a new lease of life and will assuredly well serve further generations of students.

L. Harrison Matthews

EXOTIC FOREST TREES IN THE BRITISH COMMONWEALTH

Exotic Forest Trees in the British Commonwealth

By R. J. Streets. Edited by Prof. Sir Harry Champion. Pp. xii+765+23 plates. (Oxford: Clarendon Press; London: Oxford University Press, 1962.) 63*s*. net.

EXOTIC trees play an important part in organized forestry and this is very true of many countries of the British Commonwealth. Plant collectors and travellers were responsible for introducing small numbers of exotic trees which were treated, in most cases, as individuals or small groups, but a landmark in the large-scale use of exotics is the middle of the eighteenth century, when extensive plantings of European larch were made in Perthshire. Since the middle of the past century, the use of exotic forest