

PARKER & HASWELL

A

**TEXT-BOOK
OF ZOOLOGY**

VOL. II

SEVENTH EDITION REVISED

MARSHALL

A TEXT-BOOK OF ZOOLOGY

BY THE LATE

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IN TWO VOLUMES

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In conclusion, it must be pointed out that in order adequately to solve the problems of Zoology they must be approached from all sides. From the time of Cuvier to that of Owen comparative anatomy was the dominant branch of the science, and there was a tendency to depreciate the work of the 'mere' systematist and outdoor naturalist. For the last five and twenty years embryology has been in the ascendant, and the 'mere' anatomist has been somewhat overshadowed. To-day, hopeful signs of a renewed interest in ethology—the study of living animals under natural conditions—are accompanied by a tendency to look upon all laboratory work as necrology rather than biology—the study of corpses rather than of living things. But nothing is more certain than that if the new 'natural history' is to be superior to the old—more scientific, more concerned with the solution of general problems—it can only be by utilising to the full all that has been learnt in the laboratory in the departments of anatomy, physiology and embryology. (*Concluding paragraph, Parker and Haswell, 1st ed., 1898.*)

PREFACE

IT is now more than sixty years since the initial publication of 'Parker and Haswell'. Many changes were made in Volume II by Forster-Cooper in his Sixth Edition of 1940, but much of the original nineteenth-century text has nevertheless remained relatively unaltered. Consequently no apology is offered for the almost complete revision that follows.

When the publishers invited me to undertake the Seventh Edition they were kind enough to give me a free hand. For a while I thought of altering the whole scheme of the volume to one of my own devising. However, I decided (like my immediate predecessor) against the disruption of the 'general plan of a text-book that has served well so many generations of students'.

In general I have attempted, within the limits of available space, to retain basic morphology and yet at the same time emphasise functional aspects and, where possible, present animals as living creatures rather than as laboratory specimens. In this I have been helped by my wife, Jane Marshall, whose otherwise unacknowledged pen-drawings are scattered through the text: a collaboration, incidentally, that was responsible once or twice for minor domestic dissension owing to the conflicting claims of art and accuracy.

An innovation in the present volume is the inclusion of the elements of a classification under each illustration of a whole, or almost whole, animal. This may help the student more or less painlessly to familiarise himself with the animal's systematic position. Some trouble too, has been taken to provide a lavish cross-reference system so that comparative information can be found quickly and without tediously repetitive consultation of the Index or Contents.

It was at first hoped to include an appendix on the principles (and pitfalls) of systematics but there was no room for it. In any case, students can nowadays easily consult Mayr, Linsley and Usinger's *Methods and Principles of Systematic Zoology* (1953) or Simpson's *The Principles of Classification and a Classification of Mammals* (1945). (The last-named is additionally noteworthy in its lack of the solemnity that so many scientists believe to be indispensable to good scholarship.) Today, with such books readily available, only egotism or perversity, rather than ignorance, can be responsible for an extension of the taxonomic morass into which so many groups have been thrust: an unhealthy swamp that will need the labour of a century to remove.

The question of references has been one of some difficulty. Clearly it is

impossible to cite every source of information, most of which has been taken from original papers. A compromise has been made. In the first place, key references, leading to many others, have been included in the bibliography. Where an authority has been cited personally in the text, the publication date has been deliberately omitted. It is believed that it will provide a mild exercise in ingenuity and bibliographic skill for the honours man to discover the source from which he requires further information.

Another debatable point has been the appropriate amount of palæontology that should be given in a text-book of zoology. Some of my colleagues are of the opinion that there was already included rather too much information about fossil forms. I believe, however, that it is impossible to gain a good general understanding of living animals—either in form or function—without an adequate appreciation of what is known of their ancestry. Therefore the fossil sections have been expanded.

The elimination of *Neoceratodus* as the lung-fish 'type', and the substitution of *Protopterus*, needs brief explanation. The former is so rare, and rigidly protected, that not even an Australian student can confidently hope ever to dissect one. Living *Protopterus*, on the other hand, can be bought in unlimited numbers in fish-markets over wide areas of Africa. Thus they are available (for demonstration purposes at least) to university departments anywhere. It may seem surprising, in this view, that *Salmo* is retained as the teleost 'type'. However, there is employed for the purpose today (in the many countries where this book is used) such a wide diversity of bony fishes that any new choice would have only limited and local value.

Had I not had my first systematic instruction in zoology and physiology from students of Haswell, and made my first supervised dissections in the school that he founded, I would never have essayed the present revision. Yet, once begun, the task became surprisingly agreeable. It has been lightened by the rigorous but kindly criticism of friends who read sections of the manuscript dealing with subjects of their special interests. These are as follows:

E. C. Amoroso	A. J. E. Cave	E. W. Knight-Jones	D. L. Serventy
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D. B. Carlisle	C. Burdon-Jones	W. D. L. Ride	

If this edition is found to be deserving of any commendation, much of it is properly due to them. Some rewrote special pieces, and a few, in addition,

provided illustrations (below which acknowledgement is made). Almost all drew my attention to errors or half-truths, including, I have to confess, a few that I succeeded in introducing myself. On occasions, my benefactors disagreed in a most stimulating way among themselves—principally on minor matters of taxonomy and terminology—and so it is more than ever necessary to add on their behalf the customary disclaimer concerning responsibility. Nobody other than myself has seen more than a comparatively small part of the manuscript.

It is a final pleasure to acknowledge the loan by the British Museum (Natural History) of specimens for illustration, and the constant assistance given me by the Library staffs of University College and, particularly, the Zoological Society of London.

A. J. M.

Victoria

Australia 1960

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