



Buchbesprechung

STEVENS, C. E.; HUME, I. D.: **Comparative physiology of the vertebrate digestive system**. Second Ed. Cambridge, New York, Melbourne: Cambridge University Press 1995. Hardback, 400 pp. US\$ 80.00. ISBN 0-521-44418-7.

The second edition of this book, now jointly authored by C. E. STEVENS from the College of Veterinary Medicine of North Carolina State University and I. D. HUME of the School of Biological Sciences of the University of Sydney, is a much expanded (from 300 to 400 pages) version of the first edition, which was published in 1988 by STEVENS alone. New chapters on "Energy and nutritional requirements", on "Digesta transit and retention" and on the "Evolution of the digestive system" were included and many new research results added. The wealth of data published in the volume is very impressive. Such a book will find favour among readers from very different fields of science. Not only those interested in physiology will appreciate this remarkable publication, but also veterinarians, nutritionists, anatomists, and zoologists in general, to name just a few.

The characteristic illustrations published by STEVENS in the first edition can also be found in the present volume. Some colleagues called them "radiator pictures" because of the schematic zig-zag position of the small and large intestines in these drawings. This comment was not always meant positively, but these semischematic presentations make differences in the general composition of the gastrointestinal tract clearly visible and stimulate comparisons. The complex topography of the digestive tract in the abdomen is, most probably, much more influenced by the availability of intraperitoneal volume than by aspects of comparative nutritional physiology.

The present reviewer found the new chapter on aspects of evolution of the digestive system especially interesting. In it STEVENS and HUME also consider invertebrates, but in most cases this does not really help to improve the understanding in vertebrates. Today, a discussion of "evolution" of the digestive process and the digestive tract in vertebrates still presents considerable problems. Only few data that help to understand the process of evolutionary differentiation in digestive physiology can be presented! Two examples may illustrate this point: In the case of birds (page 309) and mammals (pages 310 and 311) the authors speak of "major types of digestive strategies practiced" by these vertebrates, but the respective illustrations depict different types of morphological differentiations of digestive tracts. Presently, it is still necessary in many cases to extrapolate function from morphology! Another example is the short section on cetaceans (whales) on page 317. The recent findings indicating "a close relationship between the cetaceans and artiodactyls" "could account for the complex cetacean forestomach". This might well be so, but it should be mentioned in this book that the morphology of the digestive tract in whales and even-hooved mammals is remarkably different – and the digestive process, very probably, differs as well!

The above haphazardly picked examples of criticism do not at all diminish the positive impression given by this fine book. The authors can only be admired for the gigantic amount of data they discuss; their list of references comprises 62 pages! An index of 10 pages makes the contents of the text accessible. The inaccurate spelling of many non-English words in the list of references is a general problem in many books published in English. The editorial office of the publisher should have checked and corrected the misspellings that can, e.g., be found in the titles of the publications by RUCKEBUSCH et al. (1970), HARDER (1950), and PERNKOPF (1930, 1937).

P. LANGER, Giessen

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