



Sexual Selection and Animal Genitalia.

Review Author[s]:
John Alcock

The Quarterly Review of Biology, Vol. 62, No. 1 (Mar., 1987), 100.

Stable URL:

<http://links.jstor.org/sici?sici=0033-5770%28198703%2962%3A1%3C100%3ASSAAG%3E2.0.CO%3B2-C>

The Quarterly Review of Biology is currently published by The University of Chicago Press.

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/ucpress.html>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is an independent not-for-profit organization dedicated to creating and preserving a digital archive of scholarly journals. For more information regarding JSTOR, please contact support@jstor.org.

ancestral bilateral metazoans in various phylogenetic schemes. Ehlers' phylogenetic scheme of the Platyhelminthes proposes that the taxon "Turbellaria" be eliminated because it is a paraphyletic group. The four chapters on the pseudocoelomates reveal that there is still much to be learned about their relationships, although it appears that the Acanthocephala and Rotatoria are closely related. Barnes's summary chapter points out that such techniques as electron microscopy, along with the homology theorem and cladistic analysis, have proven to be important in investigating the relationships among these ancient groups.

I recommend this volume for researchers in the field, and especially for the reference shelf of introductory and advanced invertebrate zoology courses.

DAVID A. DOE, *Biology, Westfield State College, Westfield, Massachusetts*

SEXUAL SELECTION AND ANIMAL GENITALIA.

By William G. Eberhard. *Harvard University Press, Cambridge (Massachusetts)*. \$25.00. xii + 244 p.; ill.; index. 1985.

Evolutionary biologists have long known that the genitalia of most animals are highly species-specific, but this phenomenon has been viewed primarily as a fortuitous convenience for anonymous taxonomists trying to discriminate among closely related species. The primary traditional explanation for species-specific genitalia is that these structures contribute to reproductive isolation by providing a mechanical barrier to heterospecific pairings (the lock and key hypothesis). A major goal of William Eberhard's book is to convince us that the lock and key hypothesis and several other current alternatives cannot be valid as general hypotheses for what is an extraordinarily widespread phenomenon. Instead Eberhard argues that the most likely general cause of divergence in genitalic structures is Fisherian runaway sexual selection by female choice. The essence of this hypothesis is that male genitalia, far from merely being passive conduits of sperm, are "internal courtship devices" that provide sensory stimulation during copulation that females can evaluate (unconsciously) as they make decisions about which male's sperm to use in fertilizing their eggs. Females choosing males with more highly stimulating genitalia would enjoy a reproductive advantage because their sons would inherit especially stimulating genitalia and so would fertilize more eggs of choosy females in the next generation. This creates the runaway process that can in theory lead to the rapid evolution of extreme differences among species.

Eberhard presents his argument in highly readable prose and with many informative illustrations;

this is no dry taxonomic tome suitable only for bookshelves in museum basements. He clearly outlines previous hypotheses on the evolution of genitalic diversity, shows what predictions follow from these hypotheses, and then examines the evidence that enables him to test these predictions. Having convincingly demonstrated the shortcomings of traditional views, he turns to the sexual selection hypothesis and tests the assumptions and predictions associated with this approach while pointing the way for additional research. Information on everything from the male intromittent organs of *Enterobius* nematodes, to the spermathecae of hydraenid beetles, to the chelicerae of rhodacarid mites, to the spined penis of certain rodents is grist for his mill. Happily Eberhard has put sex back in the study of genitalia and in so doing has rescued an entertaining topic for the field of evolutionary biology as a whole.

JOHN ALCOCK, *Zoology, Arizona State University, Tempe, Arizona*

THE COCCIDIAN PARASITES (PROTOZOA, APICOMPLEXA) OF ARTIODACTYLA. *Illinois Biological Monographs, Volume 55.*

By Norman D. Levine and Virginia Ivens. *University of Illinois Press, Urbana (Illinois)*. \$19.95 (paper). vi + 265 p.; ill.; index. 1986.

A FUNCTIONAL BIOLOGY OF NEMATODES.

By David A. Wharton. *Johns Hopkins University Press, Baltimore (Maryland)*. \$30.00. x + 192 p.; ill.; index. 1986.

This volume aims to present an overview of the functional biology of nematodes and is intended to be a primary reference source for people who know little about nematodes and would like to know more. Unlike many of the specialized books in the field, this exposition spans the whole of the phylum Nematoda—the animal parasites and the saprophagous, bacteriophagous, predacious and plant parasitic nematodes—a perspective that is refreshing and to be found in the works of only a few parasitologists (such as A. F. Bird and N. A. Croll). The result is an admirable small textbook, presented with clarity, neither too complex for the beginner nor too superficial to satisfy the needs of those who really want to gain a useful perspective of nematode biology.

The text is organized into seven chapters which, as a whole, give comprehensive coverage of aspects of nematode morphology, function and physiology. The line drawings have been chosen with care to illustrate specific points and the quality of reproduction of the several photographs is uniformly excellent.

A significant weakness in the book is the misspel-