

descriptive approach, but emphasizes comparative description of single egg-characters from group to group. Conclusions are best presented in several phylogenetic trees; these trees in some ways appear too smooth for the data offered, but they do present a challenge against which subsequent findings may be tested.

"A preliminary discussion of the phylogeny of the suborder" (pp. 350-78) anticipating the next two volumes probably should have awaited them. Agreement with Cobben's statement that the student is faced with "a bewildering array of 'higher classification'" comes easy, but the bewilderment is not allayed by a partial review of the literature and comments on scattered structures culminating in a phylogenetic tree (fig. 360) with a series of purposely unnamed and undescribed derived branches presenting the author's "original" idea that "all Heteroptera descended from Amphibicorisae-like ancestors." Unnamed confusion is no less bewildering.

The list of 44 points of "Summary and conclusions" makes a useful guide to enable one to follow the generalizations while reading the wealth of description and examples. The 21 pages of references certainly should have started with the footnote from page 421 which informs the reader that "our list of references should be supplemented by the comprehensive bibliography of Southwood's publication." A brief (18 pp.) summary of the book in Dutch is included.

Some taxonomically significant changes are sandwiched in the discussions. The composition of several supercategories is changed ("Geocorisae" in a taxonomic sense is eliminated); and even a specific synonymy is made (p. 42): "Based on adult characters . . . [*Omania*] *samoensis* is conspecific with *marksae*. . . ." [These species were well separated by Herring and Chapman, *Proc. Ent. Soc. Washington* 69, 354-59 (1967).]

New meanings for old words with long-established, simple definitions can be misleading in subsequent application. The word "aft" is adopted as an embryological term and defined as referring to the side of the egg "most closely associated with the substrate": this is surely quite unlike the usual English meaning of behind, posteriorly, or caudad, and quite likely will cause confusion.

Cobben says "it may be some time" before the remaining parts of the work

are published. One hopes parts 2 and 3 continue to evidence the scholarly attention of the first part and take time to refute rather than ignore the reasoning on which other classifications have been based. There is still the potential trap of building a classification on one or two characters, searching out those facts that support it and simply dismissing those that do not.

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Hormones: Control and Effects

Frontiers in Neuroendocrinology, 1969. WILLIAM F. GANONG and LUCIANO MARTINI, Eds. Oxford University Press, New York, 1969. xii + 444 pp., illus. \$19.50.

Neuroendocrinology is a science which encompasses not only the neural control of endocrine secretion, but also the effects of hormones on behavior and virtually all of the complex interactions between the brain and the internal environment. *Frontiers in Neuroendocrinology*, 1969 is one of the few successful attempts to review, summarize, and correlate the findings from all the diverse disciplines comprising the field. It is the first of a biennial series to be published to update a previous two-volume survey (*Neuroendocrinology*, edited by Martini and Ganong; Academic Press, 1966-67) by reviewing areas in which there have been recent advances, innovations, or controversies.

A detailed description of the fine structure of the median eminence, with attention to its phylogenetic organization and the development of function, constitutes an excellent first chapter. Other chapters devoted to the hypothalamus correlate changes in catecholamine concentrations or single and multiunit electrical responses of various regions with endocrine secretion and activity. The effects of isolation of the hypothalamus from the rest of the brain on endocrine function are also reviewed. Interspersed among these hypothalamus-oriented chapters are reviews on the regulation of growth hormone and gonadotropin secretion, fluid volume and vasopressin secretion, and the regulation of renal sodium excretion by the sympathetic nervous system. The apparently random order of these reviews and those on the effects of peptides on behavior, "short" feedback control mechanisms, and the mechanisms of action of releasing fac-

tors gives the impression that organization was on a first-received, first-printed basis. But there is clearly something for everyone interested in the field. In some areas the advances have not been recent or dramatic, and one might question their inclusion when such topics as that of the controversial pineal body are omitted.

In several of the reviews the controversial nature of the topic, of the experimentation or of the results or their interpretation, frequently disappears, and one might be led to believe that the issues are more settled than they actually are. Short descriptions of the experiments and results would have eliminated this problem in several instances and would have placed the reader in a better position to form his own conclusions without having to return to the original work. The addition of at least a brief summary on the "long," "classical" feedback mechanism or on control systems in general would have strengthened the description of the "short," "internal" feedback mechanism; in the experiments discussed there were obvious instances when "open-loop" conditions and the absence of adequate feedback existed. The importance of the "short" feedback system must be established in the presence of "long" feedback as well as in its absence.

The word "frontiers" used in the title, meaning unsettled, not fully explored regions, is an appropriate description of the field or territory neuroendocrinology. Some of its frontiers are older and more settled, more carefully mapped, than others. They are, however, still frontiers. If the book offers nothing else, it presents several good reviews of a number of important areas in neuroendocrinology as they exist, mapped but unsettled, at this moment.

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Books Received

Abstract Methods in Partial Differential Equations. Robert W. Carroll. Harper and Row, New York, 1969. x + 374 pp. \$14.95. Harper's Series in Modern Mathematics.

A.D. Twenty-One Hundred. A Narrative of Space. John Williams Andrews. Illustrated by Arthur Schaffert. Branden, Boston, 1969. 56 pp. \$4.25.

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