

Book Reviews

Spiders and Their Kin

Arachnology. Proceedings of a symposium, Exeter, England, July 1977. P. MERRETT, Ed. Published for the Zoological Society of London by Academic Press, New York, 1978. xxxii, 530 pp., illus. \$46.50. Symposia of the Zoological Society of London, No. 42.

Arachnology is the proceedings of the seventh international congress on the subject. The 48 articles and 31 abstracts it contains illustrate how the study of a poorly known group such as the arachnids can be rewarding on such divergent levels as classic 19th-century-style natural history and modern ecology. The articles range from a report of a new function for old organs (Rovner on scopulae) to sophisticated ecological analyses of predator-prey relations based on immunological techniques (Greenstone on the wolf spider *Lycosa*) and energy balances (Reichert on the sheet web spider *Agele-nopsis*), and from basic natural history (Carico on a species derived from web-building ancestors that has developed a behavior for attacking ants so efficient that it has ceased spinning webs) to scanning electron microscope studies of missing links (Foelix and Jung on *Hypo-chilus*, Kraus on *Liphistius*). Modish terms like "strategy" share billing with the excitement of the discovery of a new family in Australia.

The most common topics are ecology, represented by 16 articles and 12 abstracts, and higher-level taxonomy, with ten articles and four abstracts. (The family-level taxonomy of spiders and their kin is currently in a period of drastic revision; this, combined with the primitive state typical of the species-level taxonomy of most invertebrates, makes taxonomists the most numerous and in many respects the most important group of arachnologists.) The other major topics are behavior (seven articles and five abstracts) and anatomy and physiology (ten articles and two abstracts).

The emphases on ecology and behavior reflect some of the particular fascinations of spiders. In many areas spiders are probably the single most important

group (in terms of numbers) of predators on insects. Web building makes their biology unusual and sometimes even bizarre. Instances are described in the book in which silk lines and webs serve as substrates for sex attractant pheromones, as vibration conductors for courtship signals, as possible indicators of both prey specificity and phylogenetic relationships, as population limiters (where there is a scarcity of appropriate supports), as foci for the evolution of group living (which has occurred at least 15 times), as scaffolds from which kleptoparasitic species suspend themselves as they artfully remove prey from the webs of their hosts, and as sites where eunuch males (castrated as a result of recent successful copulation) defend their paternity by fighting off newly arrived candidates for emasculation.

Mechanically, the production of the book is excellent: there are few misprints, and the illustrations are of good quality. The inclusion of abstracts with references showing where the papers have been published in their entirety increases the book's usefulness to its two major audiences: active researchers trying to keep up with new developments and beginners looking for entries into currently active fields.

WILLIAM G. EBERHARD

*Departamento de Biología,
Universidad del Valle,
Cali, Colombia, and
Smithsonian Tropical Research Institute,
Balboa, Canal Zone*

Developmental Biology

Mechanisms of Cell Change. Papers from a symposium, Tokyo, Aug. 1977. JAMES D. EBERT and TOKINDO S. OKADA, Eds. Wiley, New York, 1979. xiv, 344 pp., illus. \$35.

This book is essentially the record of a symposium that formed part of the eighth congress of the International Society of Developmental Biologists. The most interesting aspect of the book is the selective overview it presents of work

currently being done by Japanese developmental biologists. Seven of the 20 contributions were authored by Japanese scientists. Most of the non-Japanese scientists who contributed papers to the book belong to the over-reviewed crowd. A number of these individuals have written similar papers that have appeared as chapters in books reviewed in *Science* during the past year.

In spite of the editors' assurances in the preface, the volume has no unifying theme. The book begins with a dedication to the memory of Louis Gallien, Ernst Hadorn, and Reiji Okazaki, whose collective contributions, the reader is informed, "span virtually the entire range of chapters in this book." There is, however, not a single reference to the work of Gallien or Okazaki in any of the papers.

The first part of the book contains four papers that deal with oocyte maturation, fertilization, and cleavage stages of development. This is a subject on which Japanese scientists have made important contributions over a long period of time. Kanatani reviews his work on the hormonal control of oocyte maturation in starfish. One interesting feature of the paper is his description of the way in which ideas generated by the work on starfish have influenced the experimental work on vertebrates and vice versa. Another chapter, by Dan, Noguchi, and Uemura, deals with some of the consequences of unequal cleavage during the first stages of embryogenesis in the sea urchin. This paper is an outgrowth of Dan's long-standing interest in the mitotic program that controls the timing of cytokinesis and the positioning of the mitotic apparatus so that divisions occur in the correct place at the appropriate time.

The book also includes two sections on gene expression and sections on the cell surface and the diversification of cell types. An excellent chapter by Eguchi in the last section reviews the work that has been done on the control of the transformation of pigmented epithelial cells of the vertebrate eye into other kinds of differentiated cell types. This is another research problem that has had a long history in Japan, dating from the pioneering work of Sato in the early '30's.

I am sorry that a larger number of Japanese developmental biologists did not contribute to this volume. It is always interesting to find out what one's colleagues in other parts of the world are doing.

GARY FREEMAN

*Department of Zoology,
University of Texas, Austin 78712*