Book Review

Hausmann, K. and Radek, R. (Eds.)

Cilia and Flagella – Ciliates and Flagellates

Ultrastructure and cell biology, function and systematics, symbionts and biodiversity

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One more nicely looking and very interesting protistological book saw the light. In fact this book is a collection of materials presented and discussed at the relatively small (13 participants) meeting held under the title "International Wendlandian Symposium: Five Decades of Basic Research on Cilia/Flagella and Ciliates/Flagellates" in fall 2012, Wendland, Germany. In the case of the book there are 17 contributors. The focus of the Symposium at which these presentations were made was to reconsider our understanding cilia/flagella and ciliates/flagellates which developed during the last 50 years. The point is that majority of contributors have been constantly working in protistology for more than 45 years, starting as PhD students to become professors and world-reknown specialists. It means, they actively participated in the field development during this past period and somehow the book could be treated also as a fine collection of the personal stories in science (a history of the modern protistology). The volume does not cover all aspects of the discipline, but focuses on ultrastucture, cell biology, motility, taxonomy and systematics, symbiosis and biodiversity (partly).

In the introduction made by the editors, general characteristics of the subjects (cilia and flagella; ciliates and flagellates) are given. The first chapter is dedicated to ultrastructure and is split into two parts. In the first part, G. Antipa, using *Didinium* and *Conchophthirus* as model objects, presents "Cellular architecture, growth, morphogenesis and chemoattractions". In the second one, K. Hausmann addresses to "Ejection, Ingestion, Digestion, and Expulsion in Ciliates", focusing on *Paramecium*, *Homalozoon* and *Pseudomicrothorax.*

The next chapter "Cell biology" comprises two articles: "A Song of Praise for *Paramecium* as a Model in Vesicle Trafficking" (performed by H. Plattner) and "Ciliate Mating types and Pheromones" (presented by P. Luporini, C. Alimenti, and A. Vallesi), mostly dealing with *Paramecium*, *Blepharisma,* and *Euplotes*.

The third chapter "Motility" consists of three articles: "Encounters with Cilia" (written by M. Sleigh) with *Stentor* and *Paramecium* and several different flagellates, including *Opalina,* as

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model objects; “How do Protists keep up?” contributed by H. Machemer, a case study of *Paramecium* and *Stylonychia*; and “Ctenophores and Termites – Systems for Motility” (study by S. Tamm) through the example of several ctenophorans and some flagellates from the termites *Cryptotermes* and *Mastotermes*.

The fourth chapter “Taxonomy and Systematics” includes two articles: “Kinetids, Concepts, and Coincidences” presented by D. Lynn and dedicated to ciliate systematics and phylogeny and “On Algal and other Protist Flagella and Cilia” provided by Ø. Moestrup and focused on the exploration of protist flagella.

The “Symbiosis” chapter consists of three articles: “New insights into the *Paramecium-Holospora* and *Paramecium-Chlorella* Symbioses” by M. Fujishima and Y. Kodama; “Prokaryotic Endosymbionts in Ciliates” by H.-D. Görtz, mainly covering *Paramecium* symbionts; and, finally, “Symbionts of Symbionts – Termite Flagellates and their Bacterial Associations” contributed by R. Radek and J. Strassert, and regarding investigation of parabasalids and oxymonads from hindgut of lower termites.

The sixth chapter “Biodiversity” by K. Hausmann concerns “Smallest Protists in the Deepest Depths – Flagellates from Abyssal Sea Floors”.

The general retro- and prospective of the studies, presented by J. Boenigk as a particular final chapter, could emphasize the main aim of this publication: “Five decades of research in Protistology – what have we learned?”

A kind of deviation to ciliates studies is striking: of seven chapters only one is dedicated exclusively to flagellates, but two are entirely connected with ciliates (in the rest four – material on ciliates is dominating), not surprisingly, though, as the major part of contributors are ciliatologists. In some respect the book reminds the volume “Ciliates. Cells as Organisms” published in 1996. Of course, the team of authors is quite different and, again, in the present book each chapter strongly correlates with the author’s sequence of scientific activities and experience. In Addendum readers can also find some information concerning the authors and a dozen of humoristic pictures. Moreover, all chapters usually start with a full page image (micrograph), connected with the chapter content (made by different authors) and are well illustrated by micrographs taken from original articles. All together it makes the text vivid and more attractive for readers.

There are very few technical mistakes and only one, more logical, could be mentioned. In fact, including metazoans (Ctenophora) into protistological book is rather unusual. In any case the title “Ctenophores and Termites – Systems for Motility” (Contents, chapter “Motility”, and the head of the article on p. 147) apparently should be addressed to motility of ctenophorans and ***protozoans*** inhabiting termites!

Personally, I do like aphorisms, formulated at the end of D. Lynn article (p.187), which could be directed to budding scientists, at the beginning of their careers: “think big conceptually; think small organismically; think new technologically and think extreme environmentally”.

According to the back page comment, the volume is addressed to advanced students of biology and zoology, and all scientists teaching and working in cell biology and protistology. Taking into consideration the reasonable price, I hope, the book can reach all of its potential readers.