BOOK REVIEW

*Diatoms and the Continuing Relevance of Morphology to Studies on Taxonomy, Systematics and Biogeography: Celebrating the Work and Impact of Patricia A. Sims on the Occasion of her 80th Birthday*, edited by Jakub Witkowski, David M. Williams, and J. Patrick Kociolek. Stuttgart: J.Cramer in der Gebr. Borntraeger, 2015. 228 pp. €119.00 (softcover). ISBN: 978-3-443-51066-4.

This book is a compilation of papers from numerous authors with the overall focus on diatom taxonomy and systematics. This collection celebrates the 80th birthday of Patricia Sims, who significantly contributed to the field of diatom taxonomy through her lengthy career as a curator at the Natural History Museum (NHM).

The first article, by David Williams and Grethe Hasle, provides a detailed biography of Sims and the revolution in diatom taxonomy at the onset of her career at the NHM in 1951. The advent of electron microscopy in the 1950s allowed Sims, with assistance from her supervisor Robert Ross, to more effectively classify centric diatoms. Later, Sims worked with Thomas Barrington Barnes Paddock to effectively document the complex valve structures of the Epithemiaceae-Surirellaceae species groups. The article concludes with a bibliography of ninety publications by Sims, highlighting her prolific contribution to the discipline.

Subsequent articles encompass a wide breadth of subjects, but consistently emphasize the importance of careful diatom curation as scientific advancements improve our understanding of diatom functionality and taxonomy. This is exemplified in an article by David Mann that describes the "unconventional diatom collections" of Lothar Geitler. The collection is deemed unconventional because the diatoms have not been cleaned, and thus preserve the cytological details. Mann describes the cytology of Geitler’s slides and illustrates that such observations, made with advancements in microscopy, allow us to place seminal diatom research within a modern taxonomic framework.

Scanning electron microscope (SEM) imaging played a major role in the career of Patricia Sims, and is likewise an integral part of nearly every article in this book. The SEM images were particularly useful for authors to describe new species and to detail the formation of minute structures that are invisible using light microscopy. For example, Strelnikova and Kozyrenko document unique morphological features of *Biddulphia heteromorpha* that lead them to propose a new genus (*Donskinica*). Meanwhile, Richard Crawford investigates the formation of the complexly engineered three-dimensional array of spines of the *Corethron* genus. The images provided throughout the book are remarkable, and provide both intrigue and value to a reader who is not familiar with diatom taxonomy, such as myself.

Many of the articles provide important advancements to diatom taxonomy, particularly the numerous descriptions of new species or, for example, the observation of a documented species in a new locality by Hernández-Becerril and colleagues. However, the book as a whole is disjointed because of the disparate nature of the collected articles and organization by the author’s last name instead of subject matter.

As a foraminiferal micropaleontologist, I found this book to be a challenging read without significant prior knowledge of diatom morphology and taxonomy. Most articles are written for diatom experts who will be interested in only a few articles that directly relate to their research. Although most readers will not read the book cover to cover, the diversity and technicality of the compiled articles mirror the relevant and extensive contributions of Patricia Sims. In that regard, the book pays due homage to the career and contributions of an exceptional scientist.

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