

## Book Review

### A Beginners Guide to Diatoms

**A Beginners Guide to Diatoms by Jacob John**

Gantner Verlag Liechtenstein, 2012. 150 pages, 77 plates with 305+ colour and black & white photos; paperback. ISBN 9783905997125



Jacob John is considered the foremost expert of diatoms in Australia and it is through decades of research into diatom taxonomy and ecology that *A Beginner's Guide to Diatoms* has been produced. *A Beginner's Guide to Diatoms* is a taxonomic guide that aims to educate novices on all aspects of diatom research from slide preparation to key morphological features.

Diatoms are effective indicators of wetland health, but advancing to the level of species identification requires an understanding of basic diatom morphology, which is what this guide aims to achieve. Recognising the scarcity of guide books on basic diatomology, John's current contribution targets an audience in education and research, in particular those who may not be formally trained in diatom taxonomy or phytoplankton sampling.

*A Beginner's Guide to Diatoms* is a simplified taxonomic guide where 102 genera from fresh to saline waters are

described and illustrated. With only a few references to Western Australia, the book is suited to an international audience and is valuable foundation resource for anyone wanting to study diatoms in Australia.

Overall, the guide is relevant to a current need and provides a good introduction to diatomology. As an instruction manual, it is short and concise with only four chapters. With the target audience in mind, the text is clearly presented. Key terminology is written in bold and a glossary of descriptive terms is accompanied by well-labelled diagrams, both of which will aid in student learning. Colour photographs of field sampling are aligned with both light and electron micrographs to show the sequence of events from field collection to laboratory processing, and finally to identification using both light and electron microscopy.

Chapter 1 introduces the reader to the essential skills required to collect, process and identify diatoms. The permanent preparation section reads as a step by step guide for instructors, enhanced with images from the author's laboratory. Environmental officers will find the section on sampling methods useful. The health and safety considerations when preparing slides through acid digestion is important advice from the author, especially considering that the guide is written for an audience starting out in diatom research.

Chapter 2 covers biology and the application of diatoms in forensics, biomonitoring and paleoecology. The chapter provides only a brief account of diatom use, which is my only criticism of this guide. It is clear that the objective of this book is to provide a foundation for the study of diatoms, therefore the reasons for studying diatoms should have been more substantial to engage and inspire the reader. In particular the section on harmful diatoms, which students would find particularly interesting and water managers would access the most, could have included a list of Australian taxa and images of *Chaetoceros* and *Pseudonitzschia*. Likewise, the section on diatoms use in forensic science and paleoecology could have directed the reader to more current studies. As a result, the reader would need to source this information from other publications, so the guide cannot be viewed as a standalone book in diatom education. In spite of this criticism, John does direct the reader towards more of his extensive publications to gain further knowledge and direction.

Chapter 3 and 4 provide the working vocabulary and diagnostic descriptions. It is the content of these chapters that allows *A Beginners Guide to Diatoms* to be an effective tool in teaching the basics of diatom morphology. What is presented is a quick guide to common genera, looking at their defining characteristics and common occurrence. In Chapter 3, John forms a conceptual guide based on key morphological characteristics and uses a mind map to show how 'based on a few simple parameters, it is relatively easy and convenient to classify diatoms into genera' (p. 51). The section on recent name changes is very helpful. Chapter 4 is simplified by the lack of dichotomous keys, morphological measurement and

overdetailed descriptions, resulting in a user-friendly manual.

Right from the beginning, John describes a global appreciation for the diatoms which lends his latest publication to be more than just another identification guide. The content is educational, yet personal as John uses his own experiences to inspire a new generation of scientists into diatom research. I strongly recommend this guide for undergraduate teaching in aquatic science, and

as a foundation for honours and postgraduate research. *A Beginners Guide to Diatoms* does not only provide insight into the world of diatoms, but an introduction to Jacob John's extensive research on the diatoms of Australia.

A KEMP

*School of Arts and Sciences  
University of Notre Dame Australia  
PO Box 1225  
Fremantle WA 6959*