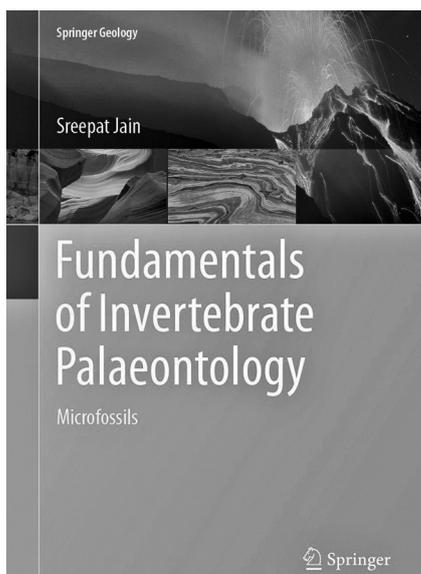


**Fundamentals of invertebrate palaeontology. Microfossils**, by Sreepat Jain, 2020. Springer Nature India, New Delhi. 323 pages. Hardcover: price \$129,99, ISBN 9788132239604.



The scientific importance of micropalaeontological studies is indisputable. On the one hand, such research yields data that in themselves are important, while on the other, the applied usage of microfossils has permitted to come up with solutions for various geological tasks, such as high-precision stratigraphical correlations, the interpretation of depositional environments, hydrocarbon exploration and so on. Thus, to study micropalaeontology or, at least, to learn about its basic principles, is of great importance to the majority of earth scientists, who need good reference books that can be used for teaching and self-education. The ‘high-tech’ nature of modern geology, as well as a certain decline in classic palaeontology, have led to a decline in the number of synthetic works that are essentially classic in style, yet comprehensive and based on present-day scientific achievements. Jain’s new book ranks amongst the best reference tomes in reviewing current micropalaeontological knowledge and communicating this in a highly suitable form, i.e., professionally, without oversimplifications and briefly. The present volume matches the previous tome by the same author and devoted to microfossils (Jain, 2017) in character.

Jain’s book comprises a short preface, eleven main chapters, a list of illustrated species and a subject index. Each main chapter deals with a particular microfossil group and consists of subchapters covering several levels; these reflect the overall logic and facilitate any information search. Eleven major microfossil groups are dealt with, namely Chitinozoa, acritarchs, pollen and spores, dinoflagellates, conodonts, radiolarians, marine diatoms, ostracods, benthic foraminifera, calcareous nannofossils and calpionellids. The author focuses on their morphology, thereby paying particular attention to tiny details, and also considers their stratigraphical distribution and evolution through geological time. In numerous cases, also notes on classification and palaeobiology are provided. It is worthy of praise that the author combines some obvious, well-known data with novel discoveries in micropalaeontology; for instance, some new information on the conodont apparatus is provided. There are lots of figures illustrating numerous representatives of each major group; thus, this book aptly demonstrates the amazing diversity of microfossils. Important is the fact that all chapters are organised and styled similarly, and their length is comparable, making this tome really comprehensive. The chapters also list the basic literature sources, inclusive of numerous recent papers in specialised journals: this bibliographical information in itself is a treasure trove.

As to contents, two comments are needed. First, only benthic, not planktonic, foraminifera are considered. Secondly, current achievements in molecular phylogeny can have a significant impact on the nomenclature of microfossils, as is well known for foraminifera (Pillet et al., 2013; Holzmann & Pawlowski, 2017). This is not to say that the present book shows weaknesses in this field; I just wish to recommend readers to keep this issue in mind.

The overall writing is very professional, the text full of technical terms. However, both clarity and brevity of explanations make this book an easy read for a wider audience, including those people who have only very elementary knowledge of microfossils, or none at all. However, some basic geological

education is mandatory for a proper understanding of these texts. Of special importance are the illustrations; these are numerous and accurate. The author is to be praised for coming up with three solutions. First, he is right in preferring drawings over photographs. In the real world, representatives of the same taxon may look different as a result of some morphological variations or taphonomic patterns. A schematic drawing communicates an abstract idea of a taxon, i.e., it reflects its characteristic features, irrespective of its appearance in any given sample from anywhere. Secondly, many geological time tables, representing biozonations, are included. This is very important for demonstrating the stratigraphical utility of microfossils. Thirdly, several illustrations depict diversity changes within key microfossil groups. Undoubtedly, these figures make this volume of interest from a palaeobiological point of view. Finally, it should be noted that, despite the large amount of graphical elements, these are well balanced with the text.

The present tome is highly recommended to (micro)palaeontology educators and students, as well as to all those academic and industrial geologists

who need general, microfossil-related advice or a deepening of their knowledge. In my opinion, this book is also suitable for elementary micropalaeontological self-education. It does hint at the increasing importance of classic-style palaeontological reference books in a modern, 'high-tech' geoscientific world.

## References

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