

PREFACE

Echinoderms are an important group of animals that have been a major component of marine ecosystems from the Cambrian to the Holocene. Our understanding of this group requires not only the study of modern forms, but also investigation of their highly diverse fossil record. The five recent classes of echinoderms are just a small part of the group's wide disparity, which was largely restricted to the Palaeozoic. Throughout their existence, echinoderms have been strongly affected by major events in Earth and life history, including mass extinctions, climate change, sea level change and the rise and fall of important predators.

Because they possess a hard skeleton made of calcite plates, echinoderms are characterized by a relatively good fossil record, which allows us to reconstruct their diversity through geological time. Moreover, their complex skeleton offers palaeontologists a unique opportunity to assemble comprehensive phylogenetic datasets in order to address major macroevolutionary questions. Echinoderms are also good indicators of past environmental change, modifying their ecology and distribution in response to fluctuations in salinity, ocean acidity or temperature, for example. Taken together, all these aspects make echinoderms an ideal group for addressing fundamental questions about the history of life on Earth.

This book, "*Progress in Echinoderm Palaeobiology*", is divided into three main parts. The first part comprises a tribute to one of the most important echinoderm workers of the past 35 years, Dr Andrew Smith FRS FRSE, a researcher from the Natural History Museum, London, who recently retired after a career of outstanding work on echinoderms. The second part consists of a series of papers dealing with a wide range of echinoderm research topics, such as taphonomy, ecology and new technologies for their study. Lastly, the book ends with a very detailed field guide highlighting the most important echinoderm fossil sites from the Palaeozoic of North Spain, which represents the itinerary of the field trip. This book follows the path of previous important publications on echinoderms that have contributed to the understanding and discussion of this important group of animals, including *Geobiology of Echinoderms* (1997; Waters and Maples Eds.), *Echinoderm Phylogeny and Evolutionary Biology* (1988; Paul and Smith Eds.) and *Echinoderm Paleobiology* (2008; Ausich and Webster Eds.).

This book will serve as an indicator of the current state-of-the-art of echinoderm research, and will also highlight future lines of enquiry. The publication of this book would never have been possible without the assistance of a number of echinoderm researchers who have contributed major advances in echinoderm palaeobiology, as well as the tremendous efforts of the organizers of the field trip. The quality of the papers was ensured thanks to the detailed comments of the scientific board members.

The Spanish Geological Survey (IGME) was founded in 1849 and one of the current aims of the institution is to support research in the different fields of the Earth sciences. Thus, the publication of this book and the support of the PEP'15 meeting are a source of great pride. We acknowledge all the institutions and sponsors that have helped support the meeting, especially the Spanish Ministry of Economy and Competitiveness, Government of Aragón (DGA), academic institutions such as Universities of Zaragoza, Oviedo and León, and the Palaeontological Association.

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