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978-0-521-31173-1 - The Origins of Angiosperms and their Biological Consequences

Edited by Else Marie Friis, William G. Chaloner and Peter R. Crane

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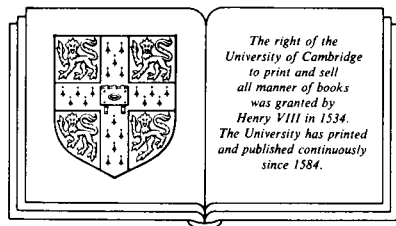
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## *Preface*

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The dramatic radiation of the angiosperms toward the end of the Early Cretaceous initiated major changes in terrestrial ecosystems throughout the world. During the Late Cretaceous and Early Tertiary, the ancient Mesozoic plant communities of gymnosperms, ferns, horsetails and lycopods were replaced by angiosperm-dominated vegetation. Jurassic dinosaur faunas dominated by sauropods were replaced by ornithopods, and these, in turn, were ultimately replaced by rapidly diversifying mammalian faunas during the Early Tertiary. During the same Late Cretaceous and Early Tertiary interval, birds and insects underwent remarkable radiation and many of the sophisticated pollination and dispersal systems that characterize extant angiosperms developed for the first time. Although the geological history of these plant and animal groups has been intensively studied for many years, studies of their co-evolutionary interactions have concentrated on living organisms, with little integration of the historical perspective provided by data from the fossil record.

This book provides a new interdisciplinary perspective on one of the most significant events in the evolution of terrestrial organisms, based principally on data that have accumulated over the last two decades. In nine integrated chapters, the authors review alternative hypotheses on angiosperm origins and relationships, the vegetational and faunal changes consequent on the rise of the angiosperms, and the time sequence of development of ecological interactions between angiosperms, pollination vectors, dispersal agents and herbivores. In addition to contributing broad reviews of the major subject areas, each chapter also presents new data and new interpretations. Most of the contributions were presented at a symposium held during the Third International Congress

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of Systematic and Evolutionary Biology at the University of Sussex, Brighton, England in August 1985. The theme of the symposium, 'Angiosperm origins and the biological consequences', was intended to update and develop further the published results from an earlier symposium on the 'Origin and early evolution of angiosperms' presented at the first International Congress of Systematic and Evolutionary Biology in 1973. The book is designed primarily for the advanced undergraduate and graduate student interested in ecology, evolutionary biology, and palaeobiology, and is intended to provide a factual background for understanding the historical development of past and present angiosperm-dominated ecosystems.

In view of the multidisciplinary nature of the book, and the diverse readership that we hope to attract, the introduction provides a general characterization of the angiosperms and a brief description of their position in the history of plants. There are also a glossary, a stratigraphic table that includes the Cretaceous and Tertiary stratigraphic units used throughout the book, and a conspectus of classification of the major animal and plant groups that includes every genus mentioned in the text.

We wish to thank all those who participated in any way in the preparation of the book, including the numerous typists and artists, particularly Mette Dybdahl for invaluable assistance, and the authors for their co-operation with our efforts to achieve an integrated coverage of the field. We are especially grateful to Dr R. A. Pellew, Cambridge University Press, for encouraging us to publish in this form, for his help and advice, but above all for his firm but kindly interpretation of the rights and obligations of editors.

March 1986

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