Bringing Fossils to Life

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Book review

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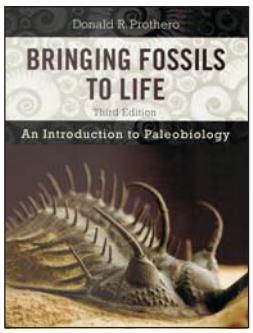
Bringing fossils to life

Donald R. Prothero 2013. *Bringing Fossils to Life: An Introduction to Paleobiology. Third Edition.* 672 pp. Columbia University Press, New York. Softcover. ISBN: 978-0-231-15893-0. Price $95.00/£65.50; Hardcover. ISBN 978-0-231-15892-3. Price $180.00/£124.00.



This is a textbook aimed at an undergraduate student audience. The author is an acclaimed palaeontologist and currently a research associate in Vertebrate Palaeontology at Los Angeles County Natural History Museum. As noted in the preface, palaeontology underwent a "palaeobiological revolution" in the 1970s that has not worked its way into most university teaching courses. Hence, based on his extensive (34 years) teaching experience the author has presented a revised version of his previous work, which places less emphasis on the more mundane (but no less important) traditional taxonomic and systematic palaeontology and more emphasis on how fossils can be used to address interesting palaeobiological questions. The aim has been to focus on what will excite and maintain the interest of students, who will hopefully become the professional palaeontologists of the future.

On the whole the book works well and covers the diverse range of topics that an undergraduate will need in order to achieve a good understanding of the field. However, although the work incorporates the palaeobiological revolution initiated in the 1970s, it includes little about the palaeontological revolution of the last decade (since the 2003 edition), most notably, new imaging technologies applied to the study of fossils. Examples such as computed tomography, computer modelling of locomotion, etc., are sadly lacking and these are the very techniques that really bring the fossils to life and also add the "wow" factor to current palaeontology research trends as so often depicted in scientific press releases and the popular media. These new methodologies are most likely going to attract and inspire our future palaeontologists, so there should have been at least mention of these, if not a chapter.

In terms of completeness and accuracy of content I can only comment in areas where I have considerable expertise. Unfortunately, the coverage is sparse in these areas and many important recent references have been overlooked. In some cases the information is wrong. For example p. 366 states only 400 species of fossil arachnids have been described; the actual value is closer to 2000 (Dunlop and Penney 2012). Although not explicitly stated, p. 8 suggests that DNA has been successfully extracted from amber fossils (very few people actually believe this) and although PCR techniques are included, there is no mention of next generation sequencing techniques, which are currently the method of choice for ancient DNA research. Amber fossils are very poorly covered and the index does not include all pages, where these fossils are discussed or figured (e.g., 391, 173); the volume by Penney (2010) is not cited.

Similarly, significant recent references are missing for fossil insects, which are much more diverse, and hence palaeoecologically significant, than this work will lead students to believe (e.g., Rasnitsyn and Quicke 2002; Grimaldi and Engel 2005; Martill et al. 2008; Dong et al. 2010). Likewise, Boucot and Poinar (2010) is missing from the fossilized behaviour section. I also get the impression that other chapters have not been revised to current standards (e.g., most recent reference in Functional Morphology is 2000; no mention of morphometrics). Apart from three palaeobotanical studies the most recent reference in the Palaeoecology section is 1999, despite this discipline having progressed in leaps and bounds since the end of the last century.

In summary, in trying to achieve a more attractive balance between palaeobiology and traditional palaeontology the work is good, but for a revised edition I feel it is still rather dated and important areas of 21st century palaeontology are missing. The production quality is good, but the design is very much that of a traditional black and white textbook.

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