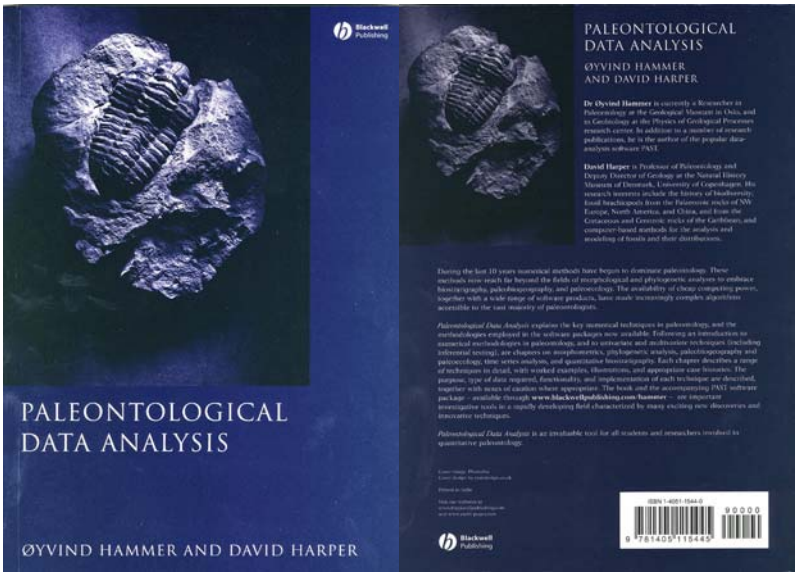
Hammer, Ø. & D. Harper. 2006. Paleontological Data Analysis. – Oxford, Blackwell Publishing

Book review by J.E. Jeffery



This book, as its title suggests, aims to introduce novices to mathematical (mostly statistical) methods for analysing palaeontological data. I think I am a good candidate to write this review, because of my deep aversion to stats. Do not get me wrong — I understand that statistics is an important subject, and (along with cement technology and proctology) I am jolly glad that someone takes the time to master the discipline. But forgive me, I am just not a natural number–cruncher! That said, I know that sooner or later most of us will have a research question which requires the use of statistics, and so I am interested in any book which could make this less painful. Hammer & Harper's work seems to fit the bill nicely. It is clearly aimed at undergraduates, and could supplement a course or self–guided learning. However, it would also form a useful reference book any postgrad or researcher.

The book is divided into eight chapters. The first chapter gives an encouraging pep–talk about the relevance of statistics to palaeontology and alerts the reader to various pieces of helpful software. Most interesting of these is 'PAST', a freeware package developed by the authors which can help with many of the methods described in the book. The next two chapters cover all the 'basic' methods common to all statistics (some of which I was surprised to find I even remembered from school) and some of the more advanced multivariate methods. So far, so good; the layout of the book was inviting and explanations were clear. The subsequent chapters address specific fields of study (morphometrics, phylogenetics, palaeobiogeography and palaeoecology, time–series, biostratigraphy) and the specific methods used in them. Oh dear, heads–down for the tough stuff.

Once I got stared, though, it was a pleasant surprise to find that the explanations remained clear, and (largely) easy to follow. Each method is discussed in a standard format, giving the purpose of the analysis, the data required, a description of the method and finally an example of the method using real data (often taken from published sources). Each chapter closes with an extended case study, showing how various methods can be integrated in an overall research programme. The chapter on phylogenetics (the section of most interest to me — I dislike stats, but I am strangely addicted to tree–building) stands out as the least 'mathematical' section of the book, with only a few equations. Most of the details of searches, consensus methods and support values were explained in a qualitative way, leaving out their mathematical (and philosophical) justifications. As might be expected, the chapter was not as detailed as the standard primers on phylogenetics (*e.g.* Smith, 1994; Kitching *et al*., 1998; Schuh, 2000), but all–in–all it made quite a decent job of introducing various concepts, and highlighting the advantages and pitfalls of different procedures. Certainly enough to give a novice the confidence to get started on his or her own phylogenetic analysis.

Overall, it was the modularity of the book that impressed me the most — it allows anyone to extract the particular methods they need, or to dip–in to the whole subject at the level which suits them. It is reasonably priced for an academic book, and would be a useful addition to any palaeontologist's collection. Especially those of us who hate stats.

Hammer, Ø. & D. Harper. 2006. Paleontological Data Analysis. – Blackwell Publishing, Oxford. 351pp. ISBN 1–4051–1544–0. Price € 66.90/£ 39.99/$ 89.95 (paperback).

Cited literature

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