

# Journal of Sedimentary Research

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Colin P. North and Kitty L. Milliken, Editors

A.J. (Tom) van Loon, Associate Editor for Book Reviews

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***Mud & Mudstones***, by Paul E. Potter, J. Barry Maynard & Pedro J. Depetris, 2005. Springer-Verlag, Tiergartenstrasse 17, 69121 Heidelberg, Germany. Hardcover, xi + 297 pages, 261 figures, 48 tables. Price USD 89.95; GBP 61.50; EUR 79.95. ISBN 3-540-22157-3.



Fine-grained sediments are the most common type of deposits. In spite of this, hardly any books are focused on this sediment. This is remarkable because of the great impact that this material has on society, for instance in urban planning and development, but also in petroleum geology. The publisher even claims that this book “provides the first elementary overview of mud and mudstone written for a broad spectrum of professionals, teachers and students”.

The book covers, indeed, a broad spectrum. It can, according to the authors, “be thought of as our answer to eight sequential questions,

- How are mud and silt produced?
- How are they transported and deposited?
- What is the role of oxygen at the site of deposition?
- What is known about mud in modern environments?
- What are the controlling processes and changes that occur with burial?
- How do we determine the provenance of mud and mudstone?
- How do we study ancient mud-rich basins?
- What are the practical aspects of mud and mudstones?”

The three authors, of whom particularly Paul Edwin Potter has built up a great reputation in about half a century of research, are fairly successful in answering these questions. They do so, after an introductory chapter, in eight chapters that are in line with the questions asked above. These are followed by 7 appendices, a glossary and a subject index.

The individual chapters have been written according to a fixed scheme. After the main text, a summary is included, followed by a section headed ‘Challenges’ (mentioning some of the numerous still existing problems and enigmatic aspects of these fine-grained sediments), a reference list, and a section headed ‘Digging deeper’ (in which more specific literature is provided with some annotations).

The text is written in an easily accessible form, and the numerous illustrations are well chosen. It is a pity, however, that the publisher’s choice of paper - which is excellent for the text part - prevents high-quality reproduction of photos: many of them show little detail, and this is particularly unfortunate because mud and mudstones are in themselves not truly photogenetic. Another critical remark with respect to the illustrations is their size. Many of them, particularly line drawings, are printed in a too large size (see for instance p. 60), which does not only take space (resulting in a higher price for the book), but which also results in the unnecessary printing of composite figures on two pages (e.g., p. 195-196).

The authors should have protested when they corrected the proofs, but it is particularly the publisher who has to be blamed for such shortcomings. And there are many more publisher's shortcomings. These are partly of no real importance (typically editorial shortcomings such as the abbreviation of 'Before Christ' as 'bp' in lower case, where capitals are prescribed: p. 17), but they are sometimes really annoying. A good example is the explanation to the cover photograph. In this small (but important) piece of text the upper rocks are indicated as Albion in age (should be Albian), the lower rocks are indicated as "lower Cenomanian in age" (should be: early Cenomanian), and the explanation ends with 'References' although no literature is referred to in the text. The index is not flawless either, with, as an example, a duplicate mentioning of "Silt, definition".

This brings us to another interesting point: definitions and terminology. A question that I asked myself immediately when I saw the book, was: Why 'Mud & Mudstones' rather than 'Mud & Mudstone' or 'Muds & Mudstones'? Was this another mistake of the publisher? It looks like it, because the authors state in the Preface: "We wrote Mud and Mudstone ...." and "To make Mud and Mudstone more readable ...". It seems that the title was changed at the very last moment, by the cover designer?

And what are mud and mudstones in fact? The index refers for "Mudstone, definition of" to pages 1 and 256. On page 1, the authors state: "Here we emphasize the terrigenous components of this broad spectrum and use the term mud as define above [= a field term for a fine-grained deposit of any composition] and the term *mudstone* for their lithified equivalents." On p. 256, they state "... we propose that *mudstone* be the generic term for all fine-grained argillaceous rocks and that shale be restricted to laminated fine-grained argillaceous rocks ..." This usage is in fairly strong contrast to more commonly applied terminology, as worded by, among others, Gerald Friedman (2003), who states in his 'Classification of sedimentary rocks': "Probably the most-satisfactory definition of shale is according to particle size. In terms of size, the name shale is the lithified equivalent of mud."

It would be unfair to judge the book by Potter, Maynard & Depretis on such aspects only. But I found several more shortcomings in the text. Robert Folk has already for several years emphasized the possible role of nannobacteria in the genesis of clay minerals (see, for instance, Folk & Lynch, 1997), and this (well documented) hypothesis is not even mentioned, although clay minerals and weathering are dealt with in a box (p. 9). The information about loess (p. 90-91), a very important type of mud in the sense of this book is very limited, partly incorrect and outdated. So numerous shortcomings can be found.

This does not imply, however, that the contents of the book are, as a rule, sub-standard with respect to scientific quality. In general it is a good, instructive book with a high didactical value, and with a wealth of information. It brings together most of the relevant data about this abundantly occurring type of sediment which is now spread over such a large number of publications (the authors mention that GEOREF lists 61,219 reference to clay, 34,841 to shale, 8908 to mudstone, 6355 to mud, 3802 to bentonite, 118 to underclay and 14 to mudrocks). It is therefore a book that all 'siliciclastic sedimentologists' should at least have access to. Whether it is worth its price, depends large on how important one judges the nuisance of shortcomings. If the book would ever have a second edition, and if the unnecessary shortcoming, particularly those from the publisher (who in general puts much effort in publishing books without unnecessary flaws), it would certainly be worth more than its present price.

### *References*

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A.J. (Tom) van Loon  
Faculty of Earth Sciences  
University of Silesia  
Bedzinska 60  
41-200 Sosnowiec  
Poland  
email: tvanloon@ultra.cto.us.edu.pl



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