

## BOOK REVIEW

**Continental Red Beds**, by P. Turner. *Developments in Sedimentology* 29, Elsevier Publishing Company, Amsterdam and New York, 1980. xii + 562 pp., Cloth, \$70.75.

Good papers were written on red beds 140 years ago. These colorful rocks are still studied extensively, and author Turner has gathered and interpreted a huge body of published work. This reviewer has been particularly interested in red beds ever since he was a kid in Wyoming. He was born a few feet above red beds and learned to read in a sheep wagon whose wheels rested on siltstone of the Triassic Red Peak Formation.

*Continental Red Beds* is a large book that contains too much detail; considerable material is only peripherally related to continental red beds. However, the advantages in having a large, if somewhat shaggy, reference volume on the subject may well outweigh the looseness of treatment. Turner groups the material under eight major headings: (1) geological framework; (2–4) desert, delta plain, and alluvial red beds; (5) diagenesis; (6) mineralogy and geochemistry of iron oxides; (7) magnetization of continental red beds; and (8) paleomagnetism. This arrangement coincides with Turner's classification of continental red beds into three groups—alluvial, desert, and delta plain—and his research interest in their paleomagnetism. The inclusion of delta-plain red beds as a major subdivision is a departure from the normal classification of continental environments. Geologists assign deltaic deposits to transitional environments and stress the marine influences on the depositional area. Turner, however, emphasizes river-dominated deltas and the development of a pronounced delta plain.

Information is presented on many red bed sequences that are not primarily or wholly continental in origin; for example, the Moenkopi Formation of Triassic age is dominantly a shallow marine interval; the Triassic Chugwater Formation—actually a Group—is a complex sequence of beds that were deposited in several environments; and the Jurassic

Entrada Sandstone is partly marine in origin. Strengths of the work are the large number of European examples and Turner's willingness to assess other studies. He presents his own interpretations; some of them are speculative, but worthy of consideration. Geologists—myself among them—are generally conservative and, on occasion, will go a long way to avoid drawing conclusions.

Misspellings mar the book; some term papers in geology display fewer bloopers, e.g., "Mioola," "epiengesyndines," "peridolite." In the *Developments in Sedimentology* series, the publisher isn't responsible for the author's mistakes—he just prints the results. The lack of stops—commas, semicolons, colons—gives a stream of consciousness style resembling *Finnegan's Wake*, and the two books are about the same length. In addition, the tense frequently does not agree with the subject. Turner also uses terms such as "coarsening-upwards" and "fining-upwards," and refers to "sediments" when he means "rocks." Surprisingly, the scanning electron micrographs are not always of high quality, partly because some are printed too small.

The book closes with several paragraphs about Type-C magnetization in ancient continental red beds. This is an appropriate ending for the chapter on paleomagnetism, but I wish that Turner had drawn his many separate conclusions together in a short last chapter. He has done too much work just to trail off into the gloaming. Warts and all, *Continental Red Beds* is a useful reference. The author has compiled the results of a tremendous amount of research, and we now have an up to date book on an important subject.

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