

notably driven by American geomorphologists. Chapter 6 examines the contributions of Gilbert and Powell through their expeditions and research into the fluvial landscapes of the American Southwest. The 'geographical' cycle of erosion by William Morris Davis is examined in Chapter 7, highlighting the influences of Darwinism for ascribing evolutionary stages of landscape development, although alternative landscape development models could have received a little more attention (Penck, King, etc.).

The last part of the book gives a 20th Century perspective on geomorphological advances, focussing upon Anglo-American fluvial geomorphology and hydrology, with only brief acknowledgements of other major paradigm shifts within the Earth Sciences such as absolute dating techniques, plate tectonics, climate changes and planetary geomorphology. Emphasis is given to the work of Horton and Strahler, who made significant advances in understanding slope and fluvial catchment processes and forms using a 'reductionist' approach, much of which is perceived to be a reaction to the work of W. M. Davis. However, these latter parts of the book slightly disappoint and one could question whether some of the individuals and subjects tackled are truly responsible (or even could be) for driving contemporary geomorphological paradigm shifts. Only time will tell. That said, I feel there are some omissions from the late 20th Century. Geomorphological research seems to be revisiting the tenets of long term and large scale landscape development, with Earth scientists grappling with the relationships between the tectonic forcing of climate change and vice-versa, with the routine application of cosmogenic isotopes to quantify rates of erosion and surface exposure.

Overall though, this is an excellent book and is recommended to all geosciences students, academics and researchers. It is well written with a dry English sense of humour that makes an accessible and sometimes amusing read. The book made me want to read more about the history of geosciences and anything that does that must be good!

Martin Stokes

PEDLEY, H. M. & CARANNANTE, G. (eds) 2006. *Cool-Water Carbonates. Depositional Systems and Palaeo-environmental Controls*. Geological Society Special Publication no. 255. vi+373 pp. London, Bath: Geological Society of London. Price £90.00, US \$162.00; GSL members' price £45.00, US \$81.00; AAPG/SEPM/GSA/RAS/EFG/PESGB members' price £54.00, US \$98.00 (hard covers). ISBN 1 86239 193 9. doi:10.1017/S0016756807003767

As a student my first experience of a modern carbonate environment was the red algal sediments of Mannin Bay in western Ireland, on a cold, blustery, wet late March morning. My second experience was in the Coorong in South Australia, on a rather cool, blustery, wet September morning. As a result the idea that not all carbonates form in balmy tropical seas was not new to me, and the interest in cool-water carbonates, especially through the mid-late 1990s and since, has confirmed my early experiences. Now more of us are aware that carbonate-rich sediments can form in many different climatic regimes without having to experience the discomfort of 'cool' waters.

This book contains 19 papers and an introductory review, and the editors inform us that it 'presents a large body of new research on Mediterranean-based cool-water carbonates'. Many of the papers were originally presented at the 2004 International Geological Congress in Florence. The editors

emphasize in their review that consideration of microtidal, enclosed systems is a key aspect of the papers. It is important to differentiate carbonates deposited in microtidal, epicontinental seas from those formed in open-oceanic settings such as those of the Bahamas, and tidality is crucial. However, there are some ambiguous statements in the editors' review where they state 'It is now becoming clear that a distinction must be made between those deposits associated with macrotidal regimes (i.e. the world ocean sites) and those associated with land-locked water bodies such as the Mediterranean Sea'. The world ocean is not macrotidal, and the open ocean tidal bulge is as little as 0.5 m in amplitude, and not all ocean-facing coasts are macrotidal. The editors stress that microtidal seas have minimal fair-weather reworking, but of course that is a consequence of wind regimes, orientation to prevailing winds, and fetch and is not directly a consequence of tidal regimes. They do not discuss the role of tidality and stratification, and it seems likely that one of the most critical effects of microtidality or even atidality in epeiric seas was to prevent mixing, triggering shallow stratification. In their review the editors seem to imply on pages 2 and 7 that the Caspian Sea is a modern microtidal, cool-water marine system. It is a lake and has been for several million years.

The book contains eleven papers on present-day and Neogene carbonates in the Mediterranean, including examples of tectonic controls on sedimentation. The importance of red algae is clearly a theme in several of these papers. As a set these Mediterranean papers provide an insight into a very different depositional style from that of the southern Australian cool-water system and elsewhere. It would have been useful to have seen all this synthesized in a general model or models for the Mediterranean carbonate province. There are also papers on the Gulf of California, southern Australia, northeast Australia and New Zealand. The final three chapters focus on diagenesis and chemostratigraphy, including epitaxial cements and cement stratigraphy.

The key issues identified in the introduction by the editors are not always developed in the chapters and it could be argued that what we have are two books, one on the Mediterranean and the other a collection of cool-water carbonate papers. I think having case studies from other regions complements the Mediterranean papers and serves to emphasize the differences in depositional systems.

It seems that we have a possible paradox now emerging, contributed to by this book. We are getting a much better understanding of the processes, especially the physical ones, controlling cool-water carbonate systems than we have for many tropical ones. The paradox is that cool-water carbonates are not representative of the Phanerozoic carbonate record. Our often decades-old models for modern tropical carbonates are in need of such attention as cool-water ones have been receiving.

Who should read this book? If you are not interested in cool-water carbonates do not dismiss this book as there is much in here, with many alternative models to those limited and limiting ones we have from tropical systems. The papers in this book, especially the range of studies, have made me want to go through the book again to broaden my perspectives, and I thank the editors. Would I have bought a copy had I not received my review copy? Yes. Will I be recommending our library obtain a copy? Yes. It is a must for university libraries and many sedimentologists will want to have their own copies. I look forward, seriously, to reading the complementary volume on what might be very relevant to understanding ancient carbonates: Hot-Water Carbonates.

Paul Wright