expertise; if I had a criticism it would be that the tectonic applications chapter occupies only a modest 20 pages of the whole book while most people involved in the subject will find themselves involved with this part of the subject at some time or another. Overall this is an extremely useful, up to date and well thought out introduction to the subject of palaeomagnetism and should be on every student's booklist if they undertake a project in the subject at undergraduate or postgraduate level. Indeed, in my opinion, it should be on the bookshelf of anyone who calls themselves a palaeomagnetist.

Graeme K. Taylor

PICCARDI, L. & MASSE, W. B. (eds) 2007. *Myth and Geology*. Geological Society Special Publication no. 273. 350 pp. Geological Society, London. Price £90.00, US $180.00; GSL members £45.00, US $90.00; other qualifying societies £54.00, US $108.00 (hard covers). ISBN 978 1 86239 216 8.
doi:10.1017/S0016756810000531

The unpredictable and sometimes catastrophic natural phenomena of earthquakes, volcanic eruptions, tsunamis, megafloods and storms along with comets and other extraterrestrial events have all been disturbing and sometimes lethal for our ancestors. Understandably our ancestors have dealt with such phenomena by producing explanations from within their specific cultures, which we now call myths and legends, that is until the advent of science and its methods of investigation provided a more universal understanding with predictive power.

Over several decades now geologists have realized that such myths and legends often recount specific details of events and locations, which are not fanciful creations of the imagination, but can have a 'ring' of geological veracity. As a result, geologists have led the scientific investigation of such myths, whilst other academic disciplines have been jumping through all manner of theoretical hoops derived from philosophy, psychology and sociology in their attempts to explain these ancient and powerful 'stories'. W. Bruce Masse and his co-authors provide a perceptive and well-informed introduction, in which they set the scientific effort in its wider intellectual context. They show just how complex myths can be with their wonderful multi-layered mixtures of naturalism and psychological insight, which can also carry universal truths, despite being set in localized geographical and temporal frameworks.

Masse's essay is just one of 25 contained within this fascinating collection, which describes the search for the underlying geological truths behind a global array of myths. Within the western world we are mostly familiar with the mythology of the classical world of the Mediterranean, although this collection reflects the increasing attention given by geologists to other world-views such as those of the numerous Asian ethnic and religious groups, Native Americans, Australians and Pacific Islanders. These reveal a remarkable amount of information derived from different cultures of corroborative evidence between geological and legendary or mythological events, especially earthquakes in tectonically active regions such as the western 'Cascadian' seaboard of North America and the Japanese islands, tsunami in the Australo-Pacific regions, and volcanism in South America as well as the somewhat better known phenomena of the Mediterranean region. The latter is particularly well served by the innovative CLEMENS database which documents environment and natural hazards in Roman and medieval texts.

Apart from the intrinsic value of the individual contributions, the volume also serves as a useful introduction to the scope of the subject and its literature, which otherwise can be difficult to source as it is scattered through journals in a variety of disciplines.

Douglas Palmer

BENNETT, M. R. & GLASSER, N. F. 2009. *Glacial Geology. Ice Sheets and Landforms*, 2nd ed. xii + 385 pp. Wiley-Blackwell. Price £85.00, €97.80, US $129.95 (hard covers); £29.95, €34.50, US$ 54.95 (paperback). ISBN 978 0 470 51690 4; 978 0 470 51691 1 (pb).
doi:10.1017/S0016756810000543

It has been thirteen years since the first edition, which has always been popular with undergraduate students, was published. Considerable progress has since been made in the field of glacial geology, and it would thus seem timely that this second edition has come out. The book contains a logical progression of topics; an introduction to glacial geology sets the scene quite nicely, especially for first-year students. Individual overview chapters on glacierized regions and key concepts (mass balance and glacier hydrology) precede chapters on processes of glacial erosion, entrainment and deposition. Chapters on deposition are split into terrestrial and subaqueous environments. The book is richly illustrated with photographs and diagrams in full colour. An approach that will make this a popular textbook for revision with undergraduates, especially those starting out on the subject or those wanting information at-a-glance, is the use of boxes within the main text. These boxes are self-contained case studies or relevant additional information that would have interrupted the flow of the main text too much. For example, there are useful boxes with brief descriptions of the basics and the use of numerical dating techniques such as optically-stimulated luminescence and cosmogenic nuclide surface exposure dating, but also case studies on direct observations of subglacial processes such as quarrying or sediment deformation. The text is written in an easily-accessible style and contains between one and three pages of references to some key papers, arranged as separate bibliographies after each chapter, which again would help a targeted reading and revision style.

There are, however, a few negative points from both a lecturer's, but also student's perspective. Firstly, the focus of this book is somewhat selective: some new sections, for example on palaeoglaciology, are focused on only one aspect of that field, in this case ice sheet reconstruction. Glacier and palaeoclimate reconstruction is surprisingly omitted, despite the rapid development of these fields in the last *c*. 15–20 years. Secondly, the book rarely provides clear and up-to-date definitions: the different types of glaciers (e.g. cirque, valley, ice cap etc.) are not introduced with clear conceptual diagrams and photographs, but are covered in a section on global glacier distribution (chapter 2); a case-study approach attempts to introduce fairly complex relationships between altitude, latitude and climate fairly early on to explain this distribution, but this does not seem to work too well. In other cases, for example the section on direct glacial sedimentation (8.1) or the ice-marginal moraine section (9.1), the authors introduce rather ambivalent and/or perpetuate dated terms (e.g. lodgement till, supraglacial till, glaciotectonic moraines), which are not usually used in the literature and thus bound to lead to confusion amongst undergraduates when matching this to the current literature.

Those criticisms aside, the book is written in an accessible manner and well-illustrated; undergraduate students will thus

embrace it as a first resource, but my impression is that this book may not be used quite so much beyond introductory modules.

Sven Lukas

DAVIDSON-ARNOTT, R. 2009. *Introduction to Coastal Processes and Geomorphology*. xiv + 442pp. Cambridge University Press. £29.99, US$55.00 (paperback). ISBN 978 0 521 69671 5.
doi:10.1017/S0016756810000658

Introduction to Coastal Processes and Geomorphology has been developed out of an advanced undergraduate course taught for many years by its author at the University of Guelph. Coastal geomorphology texts have seen relatively little by way of pedagogic innovation since the appearance of Pethick's *An Introduction to Coastal Geomorphology* 25 years ago, although recent offerings have varied in the degree of rigour applied to the coverage of process mechanics and in their scholarly ambition. This new text competes most directly with Masselink & Hughes' identically titled text (published in 2003) and Haslett's *Coastal Systems* (2000, 2008). But it also approaches Woodroffe's *Coasts* (2002) in the depth of its scholarship.

The material is organised into 13 chapters, grouped under a brief Introduction that scopes coastal geomorphology in terms of its scientific heritage and contemporary relevance; a longer treatment of Coastal Processes; and a sampling of Coastal Systems in which scientific understanding of key environments is considered alongside topical management issues. From the outset, the style is authoritative yet eminently readable. Davidson-Arnott draws on personal experiences from around the globe in a way that modern undergraduates, who seem increasingly unwilling to engage with concepts presented in the abstract, will surely find appealing. This works well, and by eschewing a lengthy introduction to more general geomorphological concepts, the reader is quickly engaged with some extremely well presented material on coastal processes and their investigation in the field. Although it would be nice to see more complete mathematical treatments in a few places (e.g. in relation to tidal harmonics), the balance struck here is generally about right. The emphasis is very much on field studies rather than modelling, and although numerical models get the occasional mention, it is a pity that such a fundamental tool of modern coastal science does not yet get the coverage it deserves at undergraduate textbook level.

In contrast to Masselink & Hughes (2003), selected coastal systems are not forced into a fluvial-, tide-, and wave-dominated process framework, but receive a more balanced treatment that recognises that many important coastal environments are jointly shaped by wave and tide. The coverage of barrier island and inlets is particularly good, and all chapters are exceptionally well illustrated with much re-drafting of older material from less accessible 'classic' papers. The omission of estuaries is unfortunate, since so many of our current management problems involve estuarine shores and the interaction of estuarine with open coastal systems.

Presentation and page design suffers some of the idiocy of modern publishing; whoever thought it was a good idea to put boxes around figure captions and to further highlight the figure numbers? These irritations aside, Cambridge University Press have otherwise done a fair packaging job and figure quality is good. The author has also provided online resources, including high quality figures, rather lower quality video clips and datasets, that will be invaluable to those designing their own courses on the back of this text.

For those in search of an up-to-date undergraduate text that offers a fresh perspective on contemporary coastal geomorphology, this new offering has much to commend it. It combines an accessible yet scholarly treatment of the underlying processes with a broad range of interesting case studies.

All things considered, *Introduction to Coastal Processes and Geomorphology* would certainly be my current choice for a course text in this field.

Jon French

HASLETT, S. 2008. *Coastal Systems*, 2nd ed. Routledge. 240pp. ISBN 978 0 41544 060 8.
MASSELINK, G. & HUGHES, M. 2003. *An Introduction to Coastal Processes and Geomorphology*. Hodder Education. 368pp. ISBN 978 0 34076 411 4.
PETHICK, J. 1984. *An Introduction to Coastal Geomorphology*. Hodder Arnold. 272pp. ISBN 978 0 71316 391 9.
WOODROFFE, C. D. 2002. *Coasts: Form, Process and Evolution*. Cambridge University Press. 640pp. ISBN 978 0 52101 183 9.

GILL, R. 2010. *Igneous Rocks and Processes: A Practical Guide*. x + 428pp. Wiley-Blackwell. Price £34.95, US$80.95 (paperback). ISBN 978 1 4443 3065 6.
doi:10.1017/S001675681000066X

Second year igneous petrology is taught, in my department and many others, with a very strong emphasis on practical work. The undergraduates spend several hours every week developing their microscope skills, making observations of rocks and thin sections, and identifying minerals, describing textures and attempting to infer how the rock was formed and in what kind of setting. This should and does form the basis for teaching igneous petrology. And here is a textbook that reflects this logical order! The chapters are laid out largely in terms of rock types, including chapters headed basalts, gabbros, ultramafic rocks, andesites, dacites and rhyolites, granites, and the alkali rocks, with a couple of extra chapters on magma differentiation and physical volcanology. The petrological 'tools of the trade' are introduced when needed, inserted into boxes separate from the main text. This layout will make sense to an undergraduate, who should make observation of rocks first and foremost, then start thinking about where the rock comes from and how it was formed.

What I really like about this book is that the relatively 'dry' topics (from an undergraduate's point of view) such as phase equilibria and isotope geochemistry, are introduced when they are needed in order to interpret a rock. In this way, the student will see their practical use very easily and will understand why it is important to know, for example, the phase rule and how eutectics and resorptional points differ and how these essential tools can be used to interpret the petrological history of a magma. The book assumes a certain amount of prior knowledge of basic microscope skills and mineral identification, as is appropriate for a second year text. The book does not pretend to be a 'one-stop shop' for the second year course. There are areas that it does not cover in great detail and for these the students must be referred to other sources. Phase diagrams are introduced and used throughout the book to interpret petrological features of rocks but some of the fundamental thermodynamics must be found elsewhere. The optical indicatrix and other practical microscopy tools are covered in detail in an appendix (again, assuming a basic prior knowledge).

As an example of how this book works, the andesites, dacites and rhyolites chapter starts with a description of mineralogy and texture, then classification. It introduces the alkali feldspar solid solution series with reference to a