

BOOK REVIEWS

OGG, J. G., OGG, G. & GRADSTEIN, F. M. 2008. *The Concise Geologic Time Scale*. vi + 177 pp. Cambridge, New York, Melbourne: Cambridge University Press. Price £20.00, US \$40.00 (hard covers). ISBN 9780 521 89849 2.
doi:10.1017/S0016756809006207

Deep time is the dimension that marks out Geology from other sciences. The geological time scale is therefore fundamental to the subject, underpinning estimates of the ages of geological events and of the rates of Earth processes. The time scale is rightly regarded as the communal property of all geologists, but its stewardship has, in recent years, been entrusted to the International Commission on Stratigraphy (ICS). Four years ago, they were responsible for the major revision embodied in *A Geologic Time Scale 2004* by Gradstein, Ogg & Smith. However, this comprehensive treatment was targeted at libraries and was beyond the needs and budgets of the average geoscientist. The new short version is aimed at this more general readership.

The Concise Geologic Time Scale embodies only a few well advertised modifications to the ages of stage boundaries since the 2004 version, and the main contrast is in the brevity of its presentation. The book comprises a chapter for each period of Phanerozoic time, preceded by an introduction and chapters on the planetary time scale and the Precambrian. Most of the Phanerozoic chapters have a standard format. First, there is a discussion of the international subdivisions of that system and a table of the relevant Global Boundary Stratotype Sections and Points (GSSPs). There is a photograph of the GSSP marking the base of the system. Then follows a graphic time scale for the period, with selected biostratigraphic schemes and sea-level curves. Some periods have a table of regional subdivisions correlated against the global chronostratigraphy. There is a brief discussion of selected aspects of the period's stratigraphy and a list of further reading and online references. Each chapter has one of Christopher Scotese's palaeogeographic maps as a frontispiece. The book concludes with a chart of the RGB colour codes for the whole time scale, and references for all the ratified GSSPs.

The 2004 time scale was such a weighty volume that it required some effort to ferry from bookshelf to desk, and more free desk space to consult than many of us can create. The 2008 volume is smaller and much thinner, and is a much more practical reference source, along with the enclosed pocket-sized laminated card of the time scale. Soft rather than hard covers would have been even more convenient. However, the book can be reliably recommended for any geologist who regularly refers to the time scale.

If *The Concise Geologic Time Scale* is not a best seller, then it will be because of another excellent recent product from the International Commission on Stratigraphy, well promoted in the book. This innovation is the online 'TimeScale Creator' database and chart-making package. The package is available free at www.stratigraphy.org, and probably points the way forward to the future updating and use of the time scale. It offers the exceptional convenience of being able to create chronostratigraphic charts for any selected time interval, with the choice of biostratigraphic and regional schemes, and of a wide range of sea-level and chemostratigraphic curves and the like. The charts can be exported as SVG files for use or

modification in a graphics program. This self-service access to a constantly updated time scale will undoubtedly become the stratigraphic medium of choice for most geologists.

Nigel Woodcock

Reference

GRADSTEIN, F. M., OGG, J. G. & SMITH, A. G. 2005. *A Geologic Time Scale 2004*. Cambridge: Cambridge University Press, 589 pp.

BULL, W. B. 2008. *Tectonic Geomorphology of Mountains: A New Approach to Paleoseismology*. x + 316 pp. Oxford: Blackwell Publishing. Price £42.50 (hard covers). ISBN 9781 4051 5479 6.
doi:10.1017/S0016756809006086

Over the last decade or so tectonic geomorphology has grown in popularity to become an integral part of the Earth Science curriculum. The widely adopted introductory textbook *Tectonic Geomorphology* by Burbank & Anderson provides an excellent overview of the diverse range of topics that encompass the subject but little else has been published that adequately builds on this foundation. *Tectonic Geomorphology of Mountains: A New Approach to Paleoseismology* is a welcome arrival providing substantive and in-depth exploration of mountain geomorphology over short timescales (Holocene to Present) that relate to the earthquake cycle, the latter aspect rather naughtily downplayed by use of small print on the book cover.

Few can match William Bull's extensive experience working on mountain fluvial geomorphology and his new book provides the ideal repository for over forty years' work as an applied geologist. The style of writing conveys a clear sense of enthusiasm for the subject although in places the book is replete with superfluous information that can make some sections disjointed and hard to follow. The first two chapters (of six), which provide introductions to core processes and concepts, suffer from considerable overlap and could have been better organized; for example, tectonic geomorphology is not defined until Chapter 2. Of more concern are the vague and occasionally misleading descriptions on the roles of isostasy (including flexural isostasy) and tectonic uplift, particularly in Chapter 2 where, in relation to isostatic response times to unloading, isostatic uplift is discounted on the basis of 50 ka being too short a time span. Despite these weaknesses subsequent chapters are on the whole more confidently written, and better structured. Chapter 3 considers fault segmentation in mountain fronts, Chapter 4 tectonic activity of mountain fronts, Chapter 5 fault scarps and Chapter 6 analysis of prehistoric seismic shaking. Each of these themes is investigated using qualitative and quantitative approaches centred on ground-based field studies supported by well-illustrated field sketches and photographs, and plots of key data. Remote sensing techniques and DEM analysis are touched upon but not utilized to any great extent. This could be seen as a weakness but it is worth remembering that Bull's work over the last forty years or so laid the foundation for many of the DEM analytical approaches now used in mountain geomorphology.

If the style of writing is ignored the underlying strength of this book is in the wealth of detail conveyed through use of

examples from field-based studies (albeit strongly biased to North America). With the growth of desktop processing of remote sensing data and DEM interpretive strategies this work provides an important reminder that basic fieldwork skills remain an essential part of the geomorphologist's/geologist's toolbox. As background reading this book will provide a valuable (library) resource for research geologists and upper-level undergraduate students who want to extend their geomorphic knowledge and learn field-based techniques for deciphering tectonically-driven mountain landscape change.

Andy Carter

Reference

BURBANK, D. W. & ANDERSON, R. S. 2000. *Tectonic Geomorphology*. Oxford: Blackwell Science, 274 pp.

BUREK, C. V. & HIGGS, B. (eds) 2007. *The Role of Women in the History of Geology*. Geological Society Special Publication no. 281. viii + 342 pp. London, Bath: Geological Society of London. Price £85.00, US \$170.00; GSL members' price £42.50, US \$85.00; AAPG/SEPM/GSA/RAS/EFG/PESGB members' price £51.00, US \$102.00 (hard covers). ISBN 9781 86239 227 4.
doi:10.1017/S0016756809006116

This book is the 281st Special Publication of the Geological Society and has been produced to the usual high standard. The women discussed in this book are too numerous to mention but individual accounts are given for Florence Bascom (Clary & Wandersee), Marie Stopes (Falcon-Lang & Miller), Etheldred Benett (Laming & Laming), Grace Anne Milne (Lady Prestwich) (Mather & Campbell), Anne Phillips (Morgan), Clémentine Cuvier and Sophie Duvaucel (Cuvier's daughters; Orr), Muriel Arber (Robinson), Dorothea Bate (Shindler), Maria Matilda Ogilvie Gordon (Wachtler & Burek), Annie Greenly (Williams) and Nancy Kirk (Wyatt).

I settled down to read this book thinking it would be something of a revelation, introducing me to several female geologists I had not been previously aware of. But I have to say that the book proved to be rather a disappointment. The book is cram packed with 21 papers covering a variety of aspects of the history of women in geology, including their input into specific subject areas (papers by Fraser & Cleal; Hart; Creese; Burek & Malpas), specific roles (papers by Burek; Wyse Jackson & Spencer Jones; Higgs & Wyse Jackson; Kölbl-Ebert; Turner), travel (paper by Burek & Kölbl-Ebert) and the contributions of individual women. There is, however, no logical progression to the book overall, and repetition of some information on the careers of prominent individuals suggests that there is a lack of data available.

I found the quality of the papers very mixed, with some excellent examples (e.g. Wachtler & Burek; Falcon-Lang & Miller) providing a lot of detail on their subject and great insights into the lives of individuals. However, other papers lacked any real data at all, leaving me wondering why they had been included and what their relevance was. In at least one paper some of the women discussed are not geologists but zoologists and entomologists, and in others the role of the woman seems to have been a device for discussion of a male relative. This latter point may have arisen due to the lack of information on the women being available; if that is the case why were they included? The editing also leaves a little to be desired in places with figures included but not cited in the text, figures mislabelled and several spelling mistakes.

Although the title of the book suggests it is concerned with the history of women in geology, the introduction (Burek & Higgs) appears to put emphasis on women as role models, but most of the papers deal with women from the 1700s to early 1900s, very different times from those of today. If it was intended for this book to provide role models for young women then I feel it would have been useful to have provided at least one in-depth profile of a living/working female geologist to show the modern situation and how things continue to change.

With few other resources available, the book will provide a useful reference for teachers/lecturers of the history of geology, science and social history in general. However, the definitive book remains to be written.

Melise Harland

MCCABE, M. 2007. *Glacial Geology and Geomorphology. The Landscapes of Ireland*. xiv + 274 pp. Edinburgh: Dunedin Academic Press. Price £85.00 (hard covers). ISBN 9781 903765 87 6.
doi:10.1017/S001675680900613X

Marshall McCabe has dedicated many years to researching Quaternary geomorphology and, in particular, the Quaternary geomorphology of Ireland. *Glacial Geology and Geomorphology: The Landscapes of Ireland* brings this broad and deep expertise together into one comprehensive (and very well produced) volume, focusing, according to the publisher's note, on 'the dynamic interactions between ice, atmosphere and sea levels during the last major glacial cycle'. The author (p. 12) provides a more succinct, and probably accurate, summary, describing the book as '... an exercise in historical geology, focusing on description and explanation of glacial landscapes and deposits in Ireland'.

The book's ten chapters run to 274 pages and begin with Introduction and Themes which present cursory overviews of the main issues that run through the remainder of the book. The main body of the book follows, with detailed chapters on: Interglacials and Biostratigraphy (Ch. 3); The Last Major Glacial Cycle (Ch. 4); Glacial Bedforms (Ch. 5); The Irish Sea Glacier (Ch. 5); Terrestrial Deglaciation (Ch. 6); The Eskers of Ireland (Ch. 8); Ice Sheet Readvances around the North Irish Sea Basin (Ch. 9), and Late-glacial Sea Levels and Ice Sheet History (Ch. 10). Each chapter contains comprehensive site descriptions that borrow heavily from the author's own published (and unpublished) work. Each chapter is very well illustrated with numerous, good quality colour photographs and detailed stratigraphic logs. *Glacial Geology and Geomorphology* consequently contains a great deal of detailed, site-specific information.

As is evident from the chapter titles, the book is not classified solely by landform or area. It is not therefore designed as a field guide, which has already been adequately covered by the series published by the Quaternary Research Association (many of which McCabe has written or contributed to). However, neither is *Glacial Geology and Geomorphology* structured as one would expect a student text to be: classified by, for example, key glacial time periods or processes. Instead, the book is structured around important themes. While this does result in the text revisiting certain processes, places, landforms, and events, it also allows the author to present a full and detailed coverage of each chosen theme. Consequently, if one wished to obtain information on, for example, the Irish Sea Glacier (as I have myself as background to a field trip) *Glacial Geology and Geomorphology* provides all the necessary information in one chapter: the reader does not have to skip between