

## BOOK REVIEWS

BULL, W. B. 2009. *Tectonically Active Landscapes*. 326 pp. Wiley-Blackwell. Price £39.95, US\$84.95, €48.00 (HB). ISBN 978 1 40519 012 1 (HB); 978 1 44431 200 3 (online), doi: 10.1002/9781444312003. doi:10.1017/S0016756810000762

Drawing on over 40 years of experience, this is the second geomorphology and neotectonics textbook that Bull has written in the last three years. Both books are well written and have a highly personal style. The older book is entitled *Tectonic Geomorphology of Mountains: A New Approach to Paleoseismology* (Bull, 2007). This newer book focuses on the evolution of hills and streams.

One of the appealing aspects of the book is that Bull uses a limited suite of landscapes with an array of climatic, lithologic and tectonic characteristics to highlight case studies. The majority of case studies focus on the tectonic geomorphology of southwestern North America, supplemented by examples from young landscapes in New Zealand and Greece, and the longer-duration setting of the Himalaya. The tectonic history of these areas is introduced in the first chapter and then the regions reappear in case studies involving examples of specific characteristics. For students, this approach is clearly beneficial, as they can learn about an area in detail and thereby more readily link the scientific concepts in subsequent chapters. Of course, this set of examples is best suited to a North American audience, which is more likely to be familiar with the geology and geography.

The remaining seven chapters cover *Drainage Basins, Hillslopes, Sediment Yield and Landslides, A Debate About Steady State, Erosion and Tectonics, Fault-Propagation Landscapes*, and *Tectonic Geomorphology of a Plate Boundary*. In general, the chapters first examine how rock uplift and fluvial incision influence hillslope processes before moving onto more regional, landscape-scale topics. The text contains numerous examples illustrating methods of quantitative analysis of geomorphic features. Equations are introduced in a simple, direct way. Figures are abundant and well drawn. This work is well-suited for use as an upper-level undergraduate textbook or as a resource for graduate students. Interestingly, it is possible to purchase individual chapters from both books as pdf files. Certainly a digital version would be helpful for teachers who wish to use the abundant illustrations in their lectures.

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## Reference

BULL, W. B. 2007. *Tectonic Geomorphology of Mountains: A New Approach to Paleoseismology*. Wiley-Blackwell, 328 pp.

RAGAN, D. L. 2009. *Structural Geology. An Introduction to Geometrical Techniques*, 4th ed. xvii + 602 pp. Cambridge University Press. Price £80.00, US\$155.00 (HB), £35.00, US\$70.00 (PB). ISBN 978 0 52189 758 7 (HB), 978 0 52174 583 3 (PB). doi:10.1017/S0016756810000774

1968 – the summer of revolution: Parisian youth at the barricades, loons, Hendrix's version of *All along the watchtower* and... the appearance of Don Ragan's *Structural Geology*. Those students who bought the book, and many did, perhaps experienced another great cultural experience of that year – 2001: *A Space Odyssey*. But how many of them could have imagined that Ragan's book would reappear in a 4th edition, almost a decade after Stanley Kubrick's fictitious dateline?

Like the earlier editions, Ragan's book addresses a number of core methods in structural geology, from essential elements such as the trigonometry for devising true stratigraphic thicknesses to more challenging concepts such as manipulating strain data. Along the way readers are introduced to structure contours and stereographic projection. Rigorous methods of creating block diagrams, documenting variations in 3D structure and calculating the true attitude of planes using drill hole data are also covered. There are lots of careful diagrams and the mathematics, methods and procedures are laid out stepwise. There are worked problems and a comprehensive, if rather last-century, reference list. In many regards then, this is exactly what is required of a structural geology manual.

As so much of the content is timeless it is perhaps not so surprising to find the *Structural Geology: An Introduction to the Geometric Techniques* re-appearing in bookshops. Although many methods can now be performed on commercial software, including i-phone apps, working through the exercises here should be *de rigueur* for graduating geologists. The ability to deal with outcrop structural data is a basic requirement in engineering and mining industries. The methods are readily applicable to other subsurface datasets, including seismic. The catch is of course that students commonly find the three dimensional aspects especially difficult to grasp, perhaps increasingly so as the world is increasingly experienced through a two-dimensional screen. Does a textbook like this help the Playstation generation? More pertinently, how many university courses now credit these abilities and skills?

I fear that this book will not be popular with students: it's a bit like asking *A Space Odyssey's* HAL9000 to compete with the latest i-pad. The style is very old-school. The basic lay-out and feel of Ragan's manual hasn't changed through the four editions. But as a reference book, a source for clearly laid out methods – it serves a very useful purpose. It's up to the class lecturer to provide the inspiration and rationale for all this structural rigour. And to fight against current trends to down-grade fundamental aspects of subsurface earth science from the curriculum.

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