

N° 31

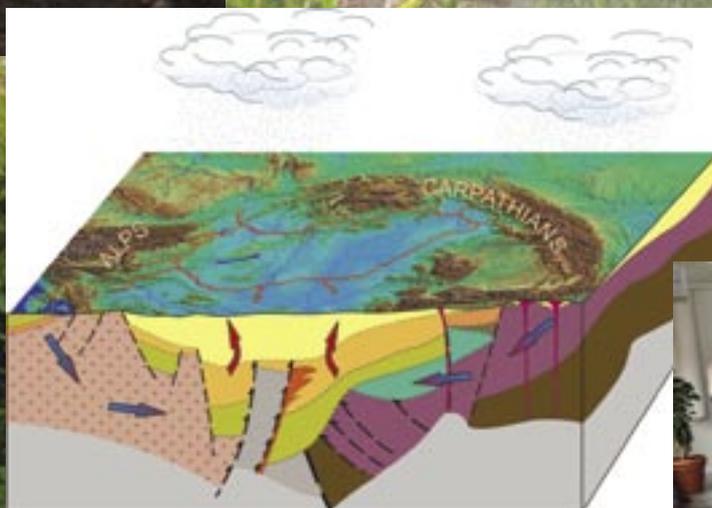
May 2011

European Geologist

Revue de la Fédération Européenne des Géologues
Journal of the European Federation of Geologists
Revista de la Federación Europea de Geólogos

EU Projects

EFG Workshop abstracts



Soil and Rock Description in Engineering Practice

Book review by Kevin Privett¹

Soil and Rock Description in Engineering Practice

by David Norbury

Published by: Whittles Publishing [www.whittlespublishing.com]

ISBN: 978-1904445-65-4

Date: April, 2010, 301 pages

Price: £80 (stg), hardback

There is not much point in being an engineering geologist if you cannot describe soils and rocks in such a way that your readers can visualise them for themselves, as if they had actually been there. A key skill of the engineering geologist is the development of the conceptual ground model, because this feeds into the rest of the engineering design process. As Norbury writes, the logger may be the only person ever to see the samples.

He has drawn on 20 years experience of presenting training courses on the subject, derived from a life's work getting his hands dirty and helping to draft the standards we use. This is a very thorough book and is well presented and printed, with clear tables, helpful thumbnail photographs and figures and text boxes containing tips and example descriptions. It is aimed at the doers and the reviewers.

It does not just tell the reader what is required, but how to do it. For example, there is a series of photographs of samples ranging from slightly sandy GRAVEL to slightly gravelly SAND, showing the total sample and its component sand and gravel fractions. A little diagram helps users convert the volume proportions they see to the mass proportions needed to define the boundaries that make up terms such as 'slightly'. Did you know, for example, that 40% gravel by mass is only 28% by volume?

There are photographs of dirty hands to help differentiate between silt and clay, plus some interesting historic background on topics such as the much-debated silty CLAY, SILT CLAY, SILT/CLAY issue. The book covers all the new requirements linked to Eurocode 7. It even lists some descriptions through the ages to show how things have changed - useful if referring to old reports.

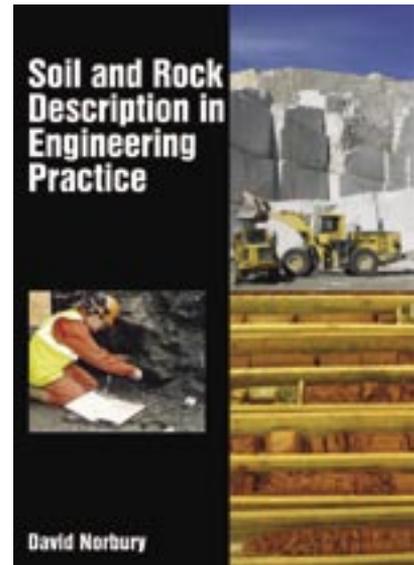
Less common materials are also covered, such as concrete and blacktop. Do

you know the difference between tarmac and asphalt? Do you know what orange mottled grey looks like? Have you actually seen gleying; or is it just something you put on your logs because it sounds good? Do you know how to mark out fractures on the core box to aid the measurement of fracture spacing? Would you be able to estimate the strength of a rock by hitting it with a hammer and listening for a whop, thwack, plink, plink or dink?

Buy this book.

¹Hydrock, Bristol, UK

Reprinted from *Geoscientist*, September 2010



Mineral Exploration and Mining Essentials

Book review by EurGeol. John A. Clifford¹

Mineral Exploration and Mining Essentials

by Robert Stevens

Published by: Pakawau GeoManagement Inc.

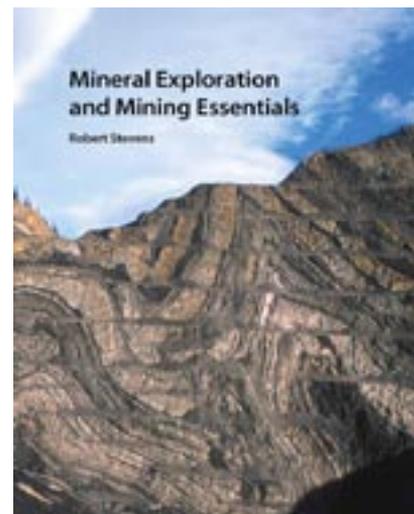
ISBN: 978-0-9867221-0-3

Date: 2010, 322 pages

Price: CAD\$99.95 + \$10 shipping to Europe, paperback

Mineral Exploration and Mining Essentials is aimed primarily at non-technical professionals working in the mineral exploration and mining industry, but is equally useful to students entering a career in those industries. The author, Robert Stevens, is a professional geologist with a background in exploration and academia.

The organization of the book begins with an industry overview and then proceeds with a brief review of geology and mineral deposits with an emphasis on those aspects that relate to exploration and mining. The chapter on mineral deposits includes a synopsis of ten major deposit types describing their significance and distribution; grade and tonnage characteristics; notable exploration drill intersections; typical mining methods; size, shape and form of mineralization; rock types;



economic minerals; formation and typical examples. This chapter also includes a section on terminology that might have been better placed in the very useful Glossary. Chapter 4 discusses the technical aspects of mineral exploration in a very concise, but yet comprehensive manner. In addition, it includes a section on how exploration projects are financed. Chapter 5 describes the essentials of mineral resource project technical studies, with pertinent discussion of mineral resources estimation, and a short section on Canadian reporting and disclosure standards. Chapter 6 discusses

underground and open pit mining methods, touching on critical components of the operations. In Chapter 7 the recovery of minerals and metals during mineral processing is described, with brief, yet adequate, description of leaching and flotation techniques. The critical issue of the environment is addressed in Chapter 8, including discussion of mine closure plans and reclamation. The final chapter presents some of the factors that should be taken into consideration in evaluating exploration companies and how to read between the lines in technical press releases.

Each chapter includes a list of references. This is one area where more detail would have been welcomed. For example, the single reference for a Dictionary of Geological Terms in Chapter One does little to add to the reader's understanding of the industry.

There are two very useful appendices. One with common conversion factors, and the second with grade-tonnage tables for 12 major deposit types. The book also includes a short Glossary of Terms.

As might be expected from the author's background the book is North American centric with example projects predominantly taken from the Canadian and American resource sectors. This however in no way detracts from the value of the book to the target audience as the examples are pertinent and well chosen.

Illustrations are in colour and, in conjunction with high quality photographs, provide good explanatory back-up to the technical text, as well as making the book attractive.

A particular feature of the book is the way it combines discussion of technical and economic issues. This reflects the author's view, correctly in my opinion, that exploration and mining is a business.

This book very successfully meets the objective of presenting an overview of the exploration and mining industry and I can highly recommend it to those in the business community dealing with the resource sector and to those students considering a career in the industry.

The book can be obtained from some associations in Canada (Geological Association of Canada, the Geological Survey of Canada and the Association for Mineral Exploration BC) and the US (Society of Mining, Metallurgy and Exploration) as well as on the website: www.miningessentials.com

¹PGeo
Athlone, Ireland

Diversity's big bang: or impacts and the ordovician biodiversification

Book review by David Harper¹

Incoming or, why we should stop worrying and learn to love the meteorite
by Ted Nield

Published by: Granta Books [www.granta.com]

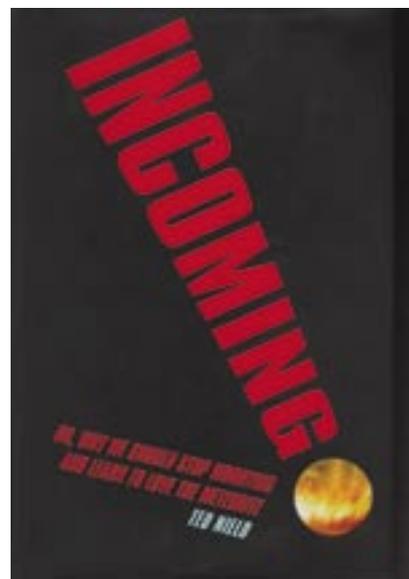
ISBN: 978-1-84708-241-1

Date: 2010, 271 pages

Price: £20 (stg), hardback

The early 1980s witnessed a renaissance in palaeontology. Not necessarily because any new major fossil discoveries or investigative techniques had suddenly emerged but rather the end-Cretaceous extinction event and subsequently the putative 26 million year cycle of post-Palaeozoic extinctions could be explained by meteorite impacts. This attracted the very considerable attention of serious scientists such as astronomers and physicists and the mid-1980s saw a significant number of papers in *Nature* and other high-impact journals exposing the extra-terrestrial importance of such biological events. Palaeontologists' record of the history of life on our planet might after all be of some use. Ted Nield, in this engaging and well-researched book, has delved into the history of our perception of these heavenly messengers: in three sections, rich in scientific detail and appropriate anecdotes, he has targeted our early conception of the meteorite (Dreamtimes), its association with catastrophe (Demons) and some recent research on the positive effects of meteorite showers, back in the Ordovician (Deliverance).

Nield has developed the exciting plot based on his own experiences as a palaeontologist together with careful research based on the literature but also through contact with some of the colourful, key players in the story. The narrative has been skilfully used to illustrate their trenchant views and their polemic stance on any opposing models and theories. An enormous volume of research has been devoted to the possible destructive power of meteorite impacts; it is the stuff of cartoon films and comic books readily consumed by the general public and the media. But what if meteorite impacts were actually beneficial to life on Earth? In a climax to 'Incoming' Nield focuses on the recently-documented coincidence between meteorite showers



and the early stages of the Great Ordovician Biodiversification Event (GOBE).

The GOBE is a relatively new topic (see Harper, 2006) but there has already been a proliferation of reasons for this burst in diversity, the largest ever in marine life, ranging from those associated with the unique palaeogeography of the Ordovician Period (widely dispersed continents, microcontinents and volcanic arcs), its climate (extended greenhouse conditions) and sea level (the highest in the Phanerozoic) to biological or palaeoecological processes (e.g. a revolution in food chains) within the Ordovician biotas themselves (Servais *et al.*, 2009). But there have been a number of other explanations for the event. An extraterrestrial cause ties in the increased flux of asteroids hitting the surface of the Earth, resulting from the breakup of a giant body in the asteroid belt some 470 million years ago, to the biodiversification (Schmitz *et al.*, 2009). Detailed research on the biodiversity of brachiopods and trilobites through the key interval in the shallow-water platform carbonates of western Russia by the Palaeozoic Research Group in Copenhagen had demonstrated a significant hike in diversity (Rasmussen *et al.*, 2007) during the early Mid-Ordovician. This radiation is coincident with a spike in meteorite and meteorite-related material. The increased frequency of impact craters, asteroid fragments and extraterrestrial chromite in Scandinavia match precisely that