

Book reviews

*Proc. Instn
Civ. Engrs
Geotech. Engng,
2000, 143, Apr.,
115–116*

Geotechnical design to Eurocode 7.

T. L. L. Orr and E. R. Farrell. Springer-Verlag, London, 1999. ISBN 1 85233 038 1, 166 pp.

This book uses simple language and numerous worked examples to explain the way in which Eurocode 7 should be applied in geotechnical design. The book's nine chapters closely follow those of Part 1 of the code: 1, introduction; 2, basis of design; 3, geotechnical investigations and geotechnical data; 4, supervision of construction, monitoring and maintenance; 5, fill, dewatering, ground improvement and reinforcement; 6, spread foundations; 7, pile foundations; 8, retaining structures; and 9, embankments and slopes.

The book includes copious cross-references to the clauses of Eurocode 7 without attempting to be a clause-by-clause commentary like Simpson and Driscoll's book.¹ Orr and Farrell present much of the material covered by the code in a complementary fashion, using checklists, flow diagrams and sample calculations.

A difficulty the authors have had to contend with is the transitional nature of Eurocode 7. The prestandard (ENV) version of Part 1, *General Rules*, was published in 1994 but the final (EN) version is not expected before 2001. Parts 2 and 3, covering *Design Assisted by Laboratory Testing* and *Design Assisted by Field Testing* were only recently published as ENVs and will not reach EN status for at least another five years. The authors indicate in the text where there are likely to be differences between the ENV and EN versions of Eurocode 7, but inevitably there will be changes to the code that they have not anticipated and hence the book's shelf life may be limited unless it runs to a second edition.

The book deals mainly with the provisions of ENV 1997-1 (except in Chapter 3, which refers to ENV 1997-2 and ENV 1997-3). It also mentions in passing other European codes—in particular those dealing with the execution of geotechnical works—where relevant and available.

The authors are Ireland's representatives on the committee responsible for preparing Eurocode 7 and have been privy to the lengthy (and sometimes heated) debates that have helped form the first pan-European standard for geotechnical design. Their book should prove to be a welcome reference for practising engineers and university teachers alike.

Reference

1. SIMPSON B. and DRISCOLL R. *Eurocode 7—A Commentary*. Construction Research Communications Ltd, London, 1998

A. BOND

Environmental geology—principles and practice.

F. G. Bell. Blackwell Science, Oxford, 1998. ISBN 0 86542 875 1, £32.50, 592 pp.

Geology has been around for a long time—some 4.5 billion years at the last count. The surface expression of geology is called land, and so geology has influenced mankind down the ages, in terms of materials for his shelter, tools and other mineral resources, and through the soil and food. But what is environmental geology? Isn't all geology, by definition, environmental? In the author's words it is about 'not just the impact of man on the environment, it also involves the impact of the geological environment upon man'. Consequently, it is a much wider subject than merely the scientific principles that a geology student would encounter. Environmental geology is of fundamental importance in relation to man's planning and development of the environment and provides the basic information and resources necessary to develop acceptable conditions in which people can live.

At nearly 600 pages, the book may appear daunting at first sight, but it is lightened considerably by the easygoing style, plain English and use of abundant illustrations, diagrams and summary tables. It is, as a result, very easy to read and it is possible to dip into any chapter at random, pick up the threads of a new topic and find a great deal of interest.

The topics covered in the book include mass movements (e.g. landslips); volcanic, seismic, river and marine activity; arid and glacial terrains; water resources; soil resources and problem soils; the characteristics of rocks; the impact of mining; waste disposal; environmental geology and health; and site investigation. The subject is clearly as broad as civil engineering.

The approach taken is to provide a description of the main characteristics, properties, or origins of a given subject and then to discuss the relevance of these to the engineering community. Of the various natural factors which

affect the design of dams, for example, none is more fundamental than geology. A more subtle example, however, is the subject of dispersive soils which occur in arid lands and contain clay particles which tend to separate (rather than binding together) in clean water. So, earth-filled dams made from dispersive soils are particularly prone to erosion by 'piping' or from rainfall.

By such examples, the book does indeed

cover the principles and practice of environmental geology and, as the saying goes, it does exactly what it says on the label. It is a formula that works well and I am convinced that Fred Bell's book will find a home in the office of all those involved in the planning and construction of infrastructure, urban regeneration and improvement of the built environment.

J. N. BENNETT