Book Reviews

The Field Guide to Water Wells and Boreholes by L. Clark

(Geological Society of London Professional Handbook Series) Open University Press, Milton Keynes; and Halstead Press, John Wiley and Sons, New York & Toronto, 1988. £15.95 paperback, 155 pp. ISBN 0-335-15203-1.

Fellows of the Geological Society may order this book from: Book sales department, The Geological Society Publishing House, Brassmill Enterprise Centre, Brassmill Lane, Bath, Avon BA1 3JN

The book is concise and clearly written. It addresses one of the most important topics in hydrogeology which relates to both data collection and the abstraction of groundwater. Ten chapters are included with five data appendices and an index. The photographs are not particularly clear and some of the illustrations have been over-reduced.

In Chapter 1 the inevitable task of defining terms is covered with the usual variable success. The approach to starting a hydrogeological study is considered and a flow diagram proposed for planning such a study. The structures of wells and boreholes are described in Chapter 2 which is very brief for such a broad subject area. Charts of aquifer classifications and design procedures are included together with simplistic structures for a variety of hydrogeological environments.

Chapters 3 and 4 cover the materials used in construction and the methods of construction. The order of the discussion is unusual. In the materials, steel casing, which is most commonly used in groundwater work, appears to be relegated in preference to non-ferrous materials. BSI standards for the latter, however, are not quoted. Although the standard construction techniques are all discussed, the length of the book does not permit a comprehensive appraisal and innovative constructions such as angled and horizontal wells are omitted.

Formation and groundwater sampling are considered in Chapters 5 and 6. In the former both disturbed and undisturbed sampling are described with the value of a range of core barrels and samplers reviewed. The groundwater sampling covers the basic requirements with the exception of organics. Logging is discussed very briefly in Chapter 7 and a summary sheet of the applicability of various geophysical techniques in hydrogeology is included.

Water well development and well testing are covered in Chapters 8 and 9. Again the brevity detracts from the text particularly with respect to pumping tests. Although basic procedures are described in pumping tests the problems of observations well spacing, discharge selections for testing and testing of unconfined aquifers are not adequately addressed. Finally, in Chapter 10, the problems of determining reasons for well yield deterioration, and maintenance solutions, are discussed.

The purpose of the book is as a guide for practising geologists and water engineers but because of its brevity it fails to deal with any of the topics in the detail that is readily required. The author is to be complimented for covering as much as he has, but it is fair to note that all of the topics are already extensively covered in standard texts in general use in the industry.

J. W. Lloyd

Planning and Engineering Geology edited by M. G. Culshaw, F. G. Bell, J. C. Cripps & M. O'Hara

(Geological Society Engineering Geology Special Publications No. 4) Geological Society, London, 1987. £90.00 cloth; 653 pp. ISBN 0-903317-38-9.

Order from: Book sales department, The Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath, Avon BA1 3JN

This book on planning and engineering geology resulted from a conference by the same name which was the 22nd Annual Conference of the Engineering Group of the Geological Society held at Plymouth Polytechnic from September 1–12, 1986. The stated aim of the conference, and presumably the book, was to bring together geologists, engineers and planners to discuss topics of mutual interest. The book is a written replica of the conference that includes not only the papers that were presented but also their discussion. The 70 chapters are written by 128 authors and organized under 12 central themes. There are 547 pages of texts and references, thus averaging about 8 pages per paper. The shortest paper is 4 pages, whereas the excellent introductory overview (which was my favourite) was 39 pages. This very appropriately set the stage and flavour of the book.

The 12 central themes are: planning and engineering geology; opportunities for development and constraints on development; data acquisition; land evaluation and site assessment (mapping); land evaluation and site assessment (hazard and risk);
development of resources; the infrastructure, its development and redevelopment; waste disposal and pollution control; conservation, restoration and protection of land; environmental impact and strategic planning; planning and engineering geology, opportunities and responsibilities; engineering geology and the legal aspects of planning. Equal space was not given to each of the themes. Thus some themes such as data acquisition had 12 papers, whereas those on opportunities and legal aspects only had single contributions.

In such a massive tome it is difficult to provide specialized comments, so an overview of the work along with some generalizations may prove the most helpful. Much credit must go to the organizers and editors because the book is superbly cast, covers a very wide range of topics, and was meticulously edited. Indeed there is the barest minimum of typos or printing distractions. The manuscripts obviously followed a very carefully designed plan and showed much uniformity in style and format. There was also a fine blend of case histories with descriptive and strategy-oriented pronouncements. The typography and illustrations are top-rate, with excellent reproduction of photographs and diagrams. These along with many tables provide a good data base on the subject matter that is presented.

The greatest appeal for the book will be for those living in Britain because with only a few exceptions all chapters deal with the United Kingdom and the authors were British. As an American it is somewhat humbling to note the sparse reference to the United States, and the fact that none of my brethen were involved. However, the same can be said for most other countries as well with omissions of most of western Europe, eastern Europe, Africa, Asia, South America etc. Thus the book is very British in perspective and potential use.

Because the fields of planning and engineering geology are so very broad it would be impossible for a 653 page book to include all topics and facets of these disciplines. The book does an admirable job in discussing a host of significant problems and subjects. But a reviewer can always find material that was not covered, or was mentioned too briefly, and Planning and Engineering Geology is no exception. Perhaps the field that was most neglected was the one we term ‘landscape architects’. Thus I was disappointed to discover the absence of a person and a topic in the form of an Ian McHarg and a ‘design with nature’ approach. Such items as aesthetics, parks and recreation, open space and subdivision developments received little or no mention. Engineering structures was another area of scant attention. Only 17 pages were devoted to roads and lanes; and dams, foundations, tunnels and underground space received only a total of eight pages. A reader might reach the incorrect conclusion that engineering geologists do not play an important role on such construction projects.

The poorest area of editing and writing was in the preparation of abstracts. I am a firm believer that abstracts should be informative and not declarative. Typical of the abstracts that would not pass that test are the chapters written by A. Fulton & M. O’Hara; G. J. Hearn; R. W. McCrae & A. F. Al-Ammouri; and D. H. Worth. This minor criticism is much overshadowed by the end result of this book. It can be ruled a success and it is largely faithful to the purpose of showing the importance of a multidisciplinary approach in uniting separate fields on problems and projects that cross-cut areas of specialization.

The greatest utility of Planning and Engineering Geology will be as a reference because it is not geared for the usual types of classroom teaching. It is highly recommended as an important information source to those professionals already in the field, and who desire a generalized understanding of these fields in the United Kingdom.

D. R. Coates

Quarterly Journal of Engineering Geology, London, 1989, Vol. 22