a very valuable exposition of loose boundary hydraulics and is unparalleled in its scope and depth of coverage. I am sure that anybody working in the subject will find it a valuable book on his or her bookshelf.

My one quibble is that this is written in what I describe as the cookery book style of sediment transport books. Each theory of, for example, sediment transport or alluvial friction is carefully described but with no comment that sometimes different theories conflict. Little attempt is made to compare or contrast the theories or to try to understand or resolve conflicts and no guidance is given to the selection of which theory to use when and under what circumstances. The book is essentially a list of recipes and the reader must select the menu. As such a book its nearest rival is probably that by Garde and Ranga Raju. This latter is less comprehensive, being devoted to rivers, but where the two overlap they are very similar. The latter also probably includes more exotic recipes but not ones that I would be tempted to try.

Raudkivi's book is an excellent summary of current knowledge on loose boundary hydraulics, particularly on scour and coastal processes. I cannot help, however, looking back to the first edition with regret, as it formed a simple, lucid introduction to the subject and was always my recommendation to anyone new to the field. The new edition is excellent but it is a book for specialists.

The figures are excellent but the text has the look of a camera-ready copy paper. The few photographs are well chosen but it would have been nice to see more.

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Karl Imhoff's Handbook of Urban Drainage and Wastewater Disposal edited by
Vladimir Novotny, Klaus R. Imhoff, Meint Olthof & Peter A. Krenkel
Published 1989 as a Wiley-Interscience Publication by John Wiley & Sons Ltd., Baffins Lane, Chichester, West Sussex, PO19 1UD, UK; 390 + xv pp; price £43.65; ISBN 0-471-81037-1

The antecedents of this book can be traced back to 1906 when a manual on urban sewerage and the treatment of waste water was published in Germany by the pioneering public health engineer, Karl Imhoff. In 1926, the 5th edition of the manual was translated into English by Professor Gordon Fair, later of Harvard University. Imhoff and Fair subsequently collaborated on a text on sewage treatment published in 1940, sections of which were incorporated into the German version. By 1985 the latter had gone into no less than 26 editions. The authors of this handbook began work in 1983 with the object of producing what the Preface describes as a practical reference pocketbook reflecting as closely as possible the tradition established by Imhoff and Fair.

The book is divided into three parts, dealing respectively with urban
drainage; sewage and waste water treatment; and protection of receiving waters. Part I has three chapters which discuss: fundamentals; drainage system calculations; and management issues. There are nine chapters in Part II, which comprises some 60% of the handbook. Following a general introduction, Part II covers: the characterization of waste water; mechanical and chemical, biological and tertiary treatment; sludge handling; the treatment and pretreatment of industrial waste water; household waste disposal in unsewered areas; and treatment works planning and design. Part III has two chapters that address the discharge of waste water into surface waters and the self-purification of surface waters respectively. Chapters 15 and 16 summarize conversion factors for SI and US units, and give some guidance on information retrieval. The Appendix contains nomograms for hydraulic calculations, and both author and subject indices are provided.

Almost by definition, a handbook must be judged by criteria that differ from those applied in reviewing a textbook. Perhaps the two most important points to explore are the "user-friendliness" and the solidity of the material as a basis for further study. With regard to the former, the user will not normally begin reading a handbook at page one and continue until the end of the last chapter, but dip into the text for occasional information on specific topics. Comprehensive indices are, therefore, a prerequisite, along with a sufficiently economical writing style that will permit the maximum of information to be conveyed with the minimum of verbiage. Here, this handbook succeeds admirably. Great restraint appears to have been exercised by the authors in applying a uniform coverage without too many enthusiastic excursions!

The success of the handbook as a starting point for more in-depth study inevitably depends upon the care and attention to references and further bibliography. Here, the authors have included references to individual chapters and a bibliography to each Part. There are in excess of 550 citations, reflecting both US and European work, with a useful proportion of textbooks included. Journal references do not include the titles of papers, but perhaps this reviewer is in the minority in finding this form of citation a little irritating.

The authors have deliberately chosen to place their emphasis on simple graphical and computational procedures; to some readers the inclusion of, for example, a nomogram for full-bore flow in a circular pipe using the Manning equation might be regarded as something of an anachronism. Nevertheless, with modern engineering design depending increasingly on software, there is an ever-present danger of losing the "feel" for the correctness of a derived solution. As the authors rightly point out, the short-cut methods are eminently suitable for performing a quick check on a computer-based design. If this handbook ends up on the shelves of a goodly number of our up-and-coming environmental engineers, as it deserves to do, then the authors should be well satisfied that they have accomplished their objectives.

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