

Overall, the book is well written, as is to be expected from a senior author with a distinguished track record of such publications, and nicely presented with a clearly formatted text and good diagrams. It succeeds in its objective of providing a comprehensive overview of gas-solid flow systems and is to be thoroughly recommended to those just entering the field as well as to those practitioners seeking an up-to-date review of areas that may be peripheral to their specialization.

The Hydraulics of Open Channel Flow – An Introduction

Hubert Chanson

Arnold Publishers, 1999

495pp, £29.99, ISBN 0-3407-4067-1

Reviewed by Alan Ervine (University of Glasgow, UK)

Hubert Chanson's latest book is really designed for a Civil Engineering readership with its emphasis on sediment movement in rivers and also hydraulic structures for rivers and dams. Chemical engineers may also find parts of the text useful, particularly the fundamentals at the beginning. The book is aimed at undergraduates in their final year of study with some overlap into the MSc market in the field of hydraulics. It is well written with numerous worked examples, photographs, clear diagrams and references. The style is almost American with key points highlighted for the student reader. The book is laced with examples of

the Chanson trademark, namely synthesising previous research findings in a particular area, into one page or table. These are presented at regular intervals.

The book opens with a review of the fundamentals of open channel flows applied to rivers, canals and regular channels. The main thrust is an understanding of the basics of continuity, energy concepts and the momentum principle. Part 2 is an impressive and thoughtful review of sediment transport in open channels including the nature of sediments, the initiation of motion by a flow, commonly used bed-load formulae for predicting sediment transport rates and a section on sediment in suspension and total sediment movement. Throughout, Chanson keeps the reader's eye fixed on practical applications of the theory. Part 3 of the book relates to modelling in hydraulics covering mainly physical modelling but also including a little numerical modelling of steady flows in channels. Part 4 of the book is also well presented focusing on the field of hydraulic structures. The range of interest here includes weirs and overflows, drop-structures, culvert design and the Australian minimum energy loss culvert. The book concludes with some examples of some practical hydraulic problems from around the world.

All in all, a well constructed book with many helpful examples and explanations for the student. Chemical engineers may know Chanson through his research work on air entrainment and diffusion of air bubbles in a flow. He has also published books on Roman hydraulics and stepped spillways.

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