

REVIEWS

Perturbation Methods in Fluid Mechanics. By M. VAN DYKE. Annotated edition. The Parabolic Press, 1975. 271 pp. \$7.00.

This book appeared originally in 1964, and was reviewed extensively in 1964 by L. E. Fraenkel in vol. 23, p. 822. Since then it has become extremely well known to readers of this *Journal*. Its reappearance in print will be welcomed by numerous readers and librarians, if only to replace their tattered (and ‘borrowed’) copies.

Since the book is so widely known, I need comment here only on two aspects of its reissue. The first is that the main text is unaltered except for minor corrections. New material is collected in the form of supplementary ‘Notes’, running to 34 pages, at the end; the bibliography is also much enlarged. The new ‘Notes’ include one on the use of the computer to obtain higher terms in the perturbation series itself, and one giving help and further references to some of the harder examples. A series of several notes deals in greater depth with the validity of the asymptotic matching principle, with advice on the handling of logarithmic forms, and other aspects of composite expansions. This was an area in which the original edition of the book was felt by the reviewer cited above to be somewhat weak. Further notes summarize some of the more important advances in the last decade in a variety of specific problems. Clearly this provides only a minute selection from the material available, but many readers will be glad that the author resisted the temptation to recast the book completely; we would have had to wait longer, and would have lost an old friend.

The second aspect concerns the manner of publication of this new edition. It appears that the author has set up his own company to do it rather than allow the price to increase dramatically. Readers will thus feel they are in Professor Van Dyke’s debt commercially as well as scientifically. He deserves our best thanks.

J. P. DOUGHERTY

Loose Boundary Hydraulics, 2nd edition. By A. J. RAUDKIVI. Pergamon Press, 1976. 397 pp. \$20.00 (hardback) or \$12.50 (paperback).

The first edition of this book appeared in 1967 and was reviewed in 1969 by H. K. Moffatt in vol. 37, p. 207. It seems to have been the first extensive book completely devoted to the title subject. Since it appeared several similar texts have been published and the number of publications on the subject has developed rapidly.

This explains why the content of this second edition is rather different from the first, although the general organization is essentially unchanged. Many of the older contributions have now been dropped or occupy less space, so that it has been possible to introduce many of the more important theories that have been published since 1967.

The sections on sand waves, flow resistance and transport formulae are considerably extended, and occupy now nearly half of the book, which is probably

well justified because of the basic importance of these subjects and the large amount of new information available. In the preface the author states that "I have tried to weave a coherent fabric from it and to present an overall picture of the state of knowledge in this subject, as I see it". The reviewer finds that this aim has been successfully achieved, but this does not imply that he agrees completely with all the author's statements.

The second edition contains a section on the movement of sediment by water waves, an extended section on erosion, deposition and scour and a completely new section on cohesive soils.

It is obvious that the author has tried to present the best part of the overwhelming literature in a condensed and comprehensible form, but that he has purposely avoided projecting his own opinion and criticism into the text. This attitude may be justified by the immature stage of development of the subject, but possibly means a certain drawback for inexperienced readers.

The book can be recommended to scientists and to civil engineers and geologists working in the field of sedimentation and river morphology.

F. ENGELUND