

## BOOK REVIEWS

URBAN WATER 88; Proceedings of the conference on 'Hydrological processes and water management in urban areas' held in Duisburg, 24-29 April 1988. Editor J.C. Hooghart. Published by The National Committee for the International Hydrological Programme of UNESCO, Zoetermeer, The Netherlands. ISBN 90-800166-1-6. It is available from CHO-TNO, PO Box 297, 250 1 BD The Hague, The Netherlands, Price Dfl 100, — including postage (approximately NZ\$90 at 5 March 1990).

This collection of 89 papers and 19 posters by 167 authors follows on from the original 1977 symposium held in Amsterdam. The intention of the 1988 conference was to provide a scientific framework for the exchange of information among engineers, architects, town planners and others who deal with urban hydrology. The conference was also intended to transmit state-of-the-art knowledge and to promote efficient and economic use of water as a scarce resource.

Excluding the poster section, there were six main groupings viz. urban hydrological cycle: the functions and uses of water in urbanised areas, concepts of urban drainage and flood protection, the effects of urbanisation on surface waters and ground water, the role of water in urbanised areas and city planning, and integrated water management in urban areas.

The book is pleasant to use. Many conference proceedings appear to be compiled in haste and show little sensitivity to aesthetics. This volume however, is produced on quality paper, the type is largely consistent, and gives the impression of having been edited with some regard for overall appearance. Although diagrams and tables necessarily differ depending on the graphics packages, word processors or manual draughtsmanship used by individual authors, practically all are very clear. Good examples include figure 3 on page 425 and figure 2 on page 440, which would have been disasters had the publishers not obtained a high degree of contrast. The same high contrast on good quality paper also means that the photographs are uniformly clear.

The scope of the papers varies historically, from discussions of the works of the commissioners in 5th century B.C. Greece to stochastic analysis of rainfall in urban drainage, and economically from urban water supply in India to flood protection in Tokyo. One author manages to combine, within the same paper, the sewerage systems of Sydney, Australia and Lyon, France.

Such diversity is the strength of this type of publication. The reader has the opportunity to access a wide information base on urban hydrology, and to avail himself of the experience in urban resource problem solving developed by people in widely different parts of the world. It is a very useful medium for information exchange. In its 885 pages it contains much that will interest those responsible for urban water planning and distribution.

*F. Wilson*

COMPUTATIONAL MODELLING AND EXPERIMENTAL METHODS IN HYDRAULICS, Edited by C. Maksimovic and M. Radojkovic (1989). Elsevier Applied Science, London, 526p. (£Stg 63.00).

This volume comprises selected, edited papers presented at the International

Conference on Computational Methods and Measurements in Hydraulics and Hydrology (HYDROCOMP '89), held in June 1989 in Dubrovnik, Yugoslavia and is the third in a continuing series. The volume describes computation methods and field measurements in investigating physical processes in hydraulics and hydrology.

The 49 papers are grouped into seven sections representing computer-controlled laboratory and field tests, free surface flows, water distribution networks, real-time control of water resources systems, expert systems and artificial intelligence in hydrosience, runoff modelling and miscellaneous topics.

Papers with particular relevance to hydrology include "Streamflow monitoring in the United States and its relation to hydrologic modelling" by E.D. Cobb and W.O. Thomas (a descriptive paper); "Riverine mobile bed modelling under nonequilibrium conditions" by F.M. Holly and J. Rahuel (theoretical with examples); "Flow data in large alluvial channels" by J.J. Peters and A. Goldberg (a practical paper); "Three notes on hydraulics of channels with flood-plains" by N. Rajaratnam and R. Ahmadi (laboratory study); "Robust on-line data validation for real-time monitoring of water distribution networks" by R.S. Powell, M.M. Smith and M.J.H. Sterling (Statistical). "Real-time reservoir system operations at Manitoba Hydro" by K.K. Reznicek and S.P. Simonovic (algorithmic); "Improvement of the updating routine in the Mike II modelling system for real-time flood forecasting" by M. Rungo, J.C. Refsgaard and K. Havno (expert systems); "Spatial analysis of snowpack data" by D.H. Burn and S. Ray (Statistical); and many other tantalising topics, including examples of fuzzy set theory and machine learning.

The papers are concise and informative and the book is recommended to anyone seeking an up-to-the-minute overview of the interface between computers and hydraulics.

*Graeme Smart*

### THIRD INTERNATIONAL CONFERENCE ON HYDROCYCLONES Edited by P.J. Wood, Elsevier (1987), 275pp.

Hydrocyclones are compact devices for separating particulates from a liquid stream, or for classifying particulates suspended in liquid into separate sizes. They are widely used in industry, and therefore there is keen interest by users in: improved understanding of the separating mechanisms within the hydrocyclone, and knowledge of the variety of applications in industry.

This 3rd Conference, organised by BHRA, the UK-based Fluid Engineering Centre, is aimed at these two aspects.

Twenty seven papers were presented, coming in equal numbers from universities, industry and collaborative university/industry sources. European, North American, Japanese, Chinese, South African and Australian interests were represented, with most applications relating to the coal industry, and some to ore processing. Several papers were concerned with liquid-liquid separation. A wide range of particulate concentrations were treated, and some novel geometries investigated, including a double cyclone with intermediate clear liquid feed, particularly suitable for particle classification. A countercurrent washing train, and air-sparged flotation were among the applications.

Experimental investigations of mean velocities and turbulent fluctuations were described, and a number of theoretical models developed, including one using a modified k-e turbulent code, one using a mixing-length model for turbulence, and an analytical approach. A most interesting study was presented of the effect of the strength of the particle gel on grade efficiency. This is a significant advance, effectively dealing with floc strength properties.

The volume has a variety of print fonts, but it is all clearly reproduced on A4 sized pages. The mix of theory and practical application in the volume will mean that most engineers using or contemplating using hydrocyclones will find something of value in the 275 pages, but not many may buy it at £45.

*J. Abrahamson*

DEVELOPMENTS IN HYDRAULIC ENGINEERING — 5 Edited by P. Novak, published in England by Elsevier Applied Science Publishers Ltd. 234 pp.

This is the fifth volume of a continuing series, begun in 1983, with the object of providing "authoritative and comprehensive up-to-date, state-of-the-art reviews of subjects in hydraulic engineering". The separate chapters in this volume are very informative and subscribe well to this objective. Three are very readable — even for those with little or no prior knowledge of the specific subjects, and one is for the specialist. The chapters do not set out to provide explicit design procedures, but to describe mechanisms and current practices.

1. Water Power Development: Low-Head Hydropower Utilization by E. Mosonyi.

This is the major chapter in the book and occupies the first 106 pages. The name of Mosonyi is well known in hydropower and this is an excellent overview. Very brief reference is made to tidal power and wave energy, but the main emphasis is on river sites. He considers the machines and the civil works, and refers to selection and operation and to the economics of low head systems. It is illustrated with many figures and there is an extensive list of references.

2. Intake Design for Ice Conditions by G.D. Ashton.

The subject of ice and river engineering was dealt with by O. Starosolszky in volume 3. This chapter devotes 32 pages to intake design for ice conditions, but its well-prefaced with the essentials of ice formation, to the extent that the chapter stands alone. It deals with the principles and practice of ice control at intakes and includes examples and case studies. There is an extensive list of references.

3. The Interface between Estuaries and Seas by D.M. McDowell.

A chapter (56 pages) for the specialist, it is concerned with the extent to which computer modelling can currently be applied to the dynamics of tidal estuaries, with the complications of fresh and saline interfaces, flow reversal and sediment transport. The subject is introduced with typical examples of three different estuaries, and discusses the modelling of the various mechanisms involved. An extensive list of references is included.

4. Polders by J.M. Luijendijk, E. Schultz and W.A. Segeren.

This final chapter, of 34 pages, provides a clear description of the technical aspects of the protection from the sea of low-lying land and the special problems of its hydrology. There is a useful list of references.

*E.P. Giddens*