# REVIEWS

THE LAND OUR FUTURE. ESSAYS ON LAND USE AND CONSERVATION IN NEW ZEALAND IN HONOUR OF KENNETH CUMBERLAND, edited by A. Grant Anderson, published by Longman Paul Ltd, Auckland, 1980, 324 p. (Price $24.95 ($19.95 paperback)).

The list of authors of the sixteen essays contained in this volume contains some very eminent names, and all the authors are well qualified to write authoritatively on their allotted topics. Although, as the sub-title implies, the subject matter of the book is wide ranging—from the application of remote sensing for resource evaluation to the use of ecological principles in land use allocation—much of its content will be of interest to the hydrologist, particularly as "weekend reading". Several of the chapters are specifically on hydrological topics: "Problems of regional water resources estimation" (Ian Simmers); "The Clutha Valley: multiple use and the problems of choice" (Ron G. Lister); "From forest to suburb: the hydrological impact of man in New Zealand" (Paul W. Williams); and others are on topics of immediate interest to practising (and practical) hydrologists and land managers: "Soils: our productive and renewable resource" (Leamy and Leslie); "The use of mountains: a review of New Zealand experience" (Kevin O'Connor); and "Conservation and management of coastal resources: the earth science basis" (Terry Healy). The remaining ten chapters are on a variety of topics related to land use options, such as "Economic principles in land use allocation" (Brian Murphy) and "Efficiency in New Zealand agriculture" (Pearson and Corbet). The approaches adopted and the subject matter presented in these latter chapters will be unfamiliar to many hydrologists, and they are therefore all the more valuable. As debate rages over development of river systems such as the Clutha, Motu and Rakaia, it becomes increasingly clear that technical competence in the field of hydrology cannot suffice as a basis upon which the hydrologist can make or understand management decisions. Although several chapters lay emphasis upon economic analysis and notions of efficiency or optimum use patterns, other chapters making clear that such factors as changing preferences for home location or the need to preserve rare ecosystems are increasingly significant.

A major benefit of this volume to the hydrologist is, then, that it very neatly places hydrological considerations in a wider context, and provides an introduction to those other considerations of which he must increasingly be aware. Inevitably, in a collection of essays by a variety of authors, there is some unevenness, although the volume is remarkably well structured and coherent. Since the individual chapters are essays, one might expect a certain amount of personal bias or opinion to be present. In fact, while the volume could hardly be accepted as a textbook, treatment is predominantly factual, and the author's views are strongly apparent only in one or two chapters, notably those by Mark and Lister. One may certainly identify points of disagreement—I would for example take issue with Cochrane's claims for the utility of LANDSAT imagery in New

Zealand land management, particularly for "monitoring silvicultural practices such as clearing, regrowth progress, and thinning; and for management of activities such as felling, logging, and road construction". Nevertheless, the volume as a whole is excellent, and cannot be recommended too highly. The editor and individual authors have done a fine job, and the volume is certainly a fitting tribute to Kenneth Cumberland.

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EROSION AND SEDIMENT TRANSPORT MEASUREMENT. PROCEEDINGS OF THE FLORENCE SYMPOSIUM, June 1981. 527+xiii p; published June 1981 by the International Association of Hydrological Sciences as IAHS Publication No. 133. (Price $US54).

These symposium proceedings contain 36 papers on the measurement of sediment transport in Part 1, and 19 papers on the measurement of erosion in Part 2. Papers in both parts of the volume present a range of techniques for design, sampling or monitoring, and computation, from 19 countries covering a broad range of climatic and topographic environments.

Part 1 should be required reading for anyone involved in the design, operation or analysis of a sediment transport measurement programme. There are six papers on bedload transport and sampling; five papers on continuous suspended-sediment monitoring by nuclear and turbidity methods; four papers on suspended-sediment sampling equipment and four on sampling techniques; five papers on the reliability of sediment load calculations and computation techniques; six papers on observation and measurement techniques for debris flow and mass movement processes; and six papers on the design of data collection programmes (one on general design requirements, one each from China, India and Japan, and two from the U.S.A.). Of likely particular interest to New Zealand hydrologists and engineers are the papers by Emmett and Beschta on the Helley-Smith sampler and a modified version of the sampler, by Cavazza on the initiation of motion of gravel bed material, the five papers on reliability of sediment loads calculated from sample concentration data and the influence of various computation schemes, the papers by Hirano and Iwamoto, Okuda *et al.*, Watanabe and Ikeya, and Hiura *et al.* on observation and measurement techniques in Japanese studies of mass movements and debris flows, and the papers on design of data collection programmes.

Part 2 concentrates almost exclusively on soil erosion by rain splash, overland flow and rilling, and this part of the volume will probably be of more interest to New Zealand agricultural engineers and those working in on-farm soil conservation than to most workers involved in the sediment transport behaviour of streams and rivers in New Zealand. The papers here are probably timely in the sense that some of them may provoke a re-assessment of the problem of soil loss from high-quality New

Zealand agricultural lands in the light of intensified cropping, horticulture and the use of spray irrigation. The review paper by Chisci, and two papers on source areas of sediment, spatial variations in soil erosion and the influence of measurement scale by Yair and Lavee and Millington are perhaps of the widest interest in Part 2.

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## ANNUAL SYMPOSIUM 1982

The Society's 1982 Symposium will be held in Auckland on 23–26 November. The theme will be "Practical Catchment Management". Topics to be considered are:

—multiple use of catchments
—relationship between land use and water resources
—water resources management, including quality and quantity
—effects of flow regime changes on channel characteristics
—catchment condition and groundwater resources
—water allocation, waste assimilation and residual streamflow requirements
—stream habitat management

On Friday 26 November there will be a field trip, by launch, to view the Upper Waitemata Harbour Study area.

Papers and poster displays are sought and offers should be sent to the symposium address. Further details and costs are in the Second Circular which is available from:

The Secretary, NZHS Symposium,
Centre for Continuing Education,
University of Auckland,
Private Bag,
Auckland.