

in this field needs all the help that he can get. This book is excellent in content and coverage, but does suffer in some detail. This is not the fault of the authors. The first impression of the book, in its nicely presented cover, is reduced when the typeface print is encountered. The impression being that the typescript had come straight from the authors' word processor daisy wheel printer to a photocopier to be printed and bound. Although neat and tidy, the publishers should examine the offerings of current American texts which are easier on the reader.

The second point, this time on content, is that most of the book is aimed at a pretty sophisticated audience. Thus, any reader who finds the introductory chapters useful will probably struggle later. It will probably be better for such readers to be referred to the earlier text of the authors or to one, such as the reviewer's latest book which discusses the formulation and presentation of models to the packages and their output interpretation. Once these details are mastered, the reader will be ready for this excellent text. The reviewer intends to add this to his portfolio of texts as a major tool for discussion in his financial applications courses.

The real meat of the book starts at Chapter 4 and continues as follows:

Degeneracy and its Implications for Pricing & Valuation, Mathematical Programming Models in Management Accounting, Graph Theory & Foreign Exchange Arbitrage Problems, Group Structures & Consolidated Accounts, Programming Models for Multinational Tax Structuring.

In addition, there is an interesting Appendix B which covers the effect of rights issues on consolidated accounts.

In general, the presentation is consistent with both US and UK formulations and will be of interest to the mathematically able executive, in addition to the specialist academic courses for which there is currently great demand.

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A.J. CULYER and Bengt JÖNSSON (eds.)

**Public and Private Health Services: Complementarities and Conflicts**

Basil Blackwell, Oxford, 1986, ix + 242 pages, £25.00

The question of the proper balance between private and public sectors in health care, and the means of financing these sectors, are issues of particular concern in Western industrialized nations. The papers in this book examine a variety of aspects of the relative performance of public and private services drawing on experiences of various countries.

Health economists explore longstanding issues of how best to model the behaviour of institutions like hospitals. They compare the efficiency of public and private dentistry, homes for the elderly, child care and hospitals. They also examine equity issues and explore the problems involved in measuring the economic size of health care sectors in different countries.

The book is the result of a meeting between the UK and Nordic Health Economists' Study Groups which took place in Vadstena, Sweden on 3-5 July 1985.

The missing abstracts of (nearly) each contribution are more than compensated by an excellent introduction of the editors. It is only a pity that abbreviations like OECD or GDP are not always explained. References to or contacts with the World Health Organization are missing.

The book is a good opportunity for other Groups like the European Working Group 'Operational Research Applied to Health Services', see [1], [2] and [3], or the 'European Collaborative Hospital Study', see [4], to get acquainted with the work of Health Economists.

In general, the book can be recommended to researchers and practitioners in Health Services even for those who are not too familiar with model building.

*References*

- [1] Boldy, D., and O'Kane, P.C. (1981), *Operational Research Applied to Health Services*, Croom Helm, London.
- [2] Decision Support in Health Services, Special Issue of the *European Journal of Operational Research*, 29 (2), May, 1987.

- [3] Lagergren, M. (1984), "OR applied to health services", *European Journal of Operational Research* 15, 21–23.
- [4] Sanderson, H.F. et al. (1981), "First step towards value for money: The first report from the European Collaborative Hospital Study", *Community Medicine* 3, 226–234.

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**Model Based Design of Water Distribution and Sewage Systems**

Wiley, Chichester, 1986, x + 191 pages, £16.75

This book is about the problem of applying mathematical optimization to the design of systems for water distribution and sewage collection. The first half of the book is concerned with basic modelling concepts, hydraulics, OR fundamentals and the economic aspects of design models, whilst the second half introduces examples relating to the design of trunk sewers, wastewater collection and management, and the design of water distribution systems.

The expressed aim of the book is to help students, professional engineers and operations researchers who are interested in practical problems to become familiar with modelling techniques. I approached the book with interest to see if it could provide useful material for short courses for middle managers in the industry. For this purpose I found the book disappointing and on reflection I feel that the target audience for the book is probably too wide. Nineteen pages devoted to hydraulics, for example, is not enough for the management scientist but may well be unnecessary for the professional engineer whilst the fundamentals of OR section will say little to the practitioner but be inaccessible to the engineer.

As I see it the typical problem faced by the water industry in the United Kingdom is of extending or modifying their 'underground assets' in the form of pipework systems and their treatment facilities. These modifications may be needed to take account of new developments in industry or changes in population, to cope with decay and damage and to improve the quality of the service

offered. Traditionally the engineers have designed and built, then the operations people have had to cope with what they were given. Recently as progress has been made in applying automatic control and in the use of telemetry to provide better information there has been a move to integrate operational aspects into the design process. Green field situations are rare—almost all new developments are influenced or constrained by existing works.

Against such a background I find Orth's book particularly disappointing. It considers green field situations almost exclusively and optimises at a very basic level such variables as the sizing of pipes. Problems which are skated over include forecasting operating and maintenance costs, the expected lifetime of an installation and the rate of return which is appropriate for utilities. Data acquisition problems are avoided by assuming the existence of a specification that provides the necessary data.

In conclusion therefore I feel that the book will mainly be of use to people working in support services within the industry who want to extend their activities into the design area but that it will appear academic to the practising manager and too narrowly specialised for the OR student.

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**Planning Games: Case Study Simulations in Land Management and Development**

E.&F.N. Spon, London, 1985, ix + 238 pages, £17.50

The book, as it appears, is an outgrowth of the accumulated experience and continuous teaching of the author in the area of urban planning. Although the author is the main contributor, other scientists are participating as well in presenting the game approach in planning.

The major concern in preparing the book is the practical implication of the game procedure for urban planning as a tool for meeting most aspects in urban design. To meet this purpose, different