

BOOK REVIEWS

Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



Small Hydroelectric Projects for Rural Development

Editors Louis J. Goodman, John N. Hawkins, and Ralph N. Love

Publisher Pergamon Press, Inc., Elmsford, New York (1981)

Pages 200

Price \$20.00

Reviewer Efstathios E. Michaelides

This short monograph presents the history of development, planning, and management experience of small hydroelectric plants. It concentrates on case studies in four areas (China, the Philippines, New Zealand, and Hawaii) and presents a great deal of data on the management of the projects, the organizational structure, and the economic background associated with each installation. However, the small number of areas chosen and the limited number of cases presented detracts from the general nature of the work and the conclusions.

The book neither addresses any technical issues or design problems nor exposes in detail the technical experience of the cases covered. It seems to be addressed to energy planners and managers rather than design engineers. The information provided could be of some value to the engineer who wants to have a broad idea of energy alternatives or of the status, development, costs, and benefits of hydroelectric power.

The editors must be commended for presenting their material in an unfragmented and integrated way. The literary presentation would have been excellent if some unnecessary details on the history and the development of many cases had been deleted.

Efstathios E. Michaelides studied at the University of Oxford, England (BA, engineering science and economics, 1977) and Brown University (MS, 1979, and PhD, 1980, engineering science). Since the summer of 1980, he has been an assistant professor at the University of Delaware, Department of Mechanical and Aerospace Engineering. His research interests are multiphase flow, energy conversion, geothermal energy applications, and irreversible thermodynamics. He has contributed about 25 papers to scientific and technical literature.

The Politics of Uranium

Author Norman Moss

Publisher Universe Books, New York (1982)

Pages 239

Price \$13.95

Reviewer Geoffrey G. Eichholz

and

The Atom Besieged

(Antinuclear Movements in France and Germany)

Author Dorothy Nelkin and Michael Pollak

Publisher The MIT Press, Cambridge (1982)

Pages 235

Price \$7.95 paperbound

Reviewer Geoffrey G. Eichholz

No person active in the beleaguered nuclear industry can have any doubts that the future of that industry will be decided as much or more by political considerations as by technological accomplishment or economic factors. Many are only dimly aware of the forces that shape those political decisions and of the many, often countervailing philosophies and motivations that fuel them. Sometimes it is easy to blame Luddite tendencies or anticapitalist movements for the troubles the nuclear power industry finds itself in, and it is useful and certainly educational to view some of the issues from a different perspective.

The books under review both attempt to do this, though they differ markedly in approach and emphasis. Dorothy Nelkin is a distinguished political scientist, and her book, with M. Pollak, attempts to analyze the "nuclear opposition" in France and Germany more in terms of what they tell us about the political and social movements in those countries than about the merits or otherwise of the nuclear power issues as such. Nelkin and Pollak declare their political criterion from the start: that governmental capacity to tolerate radical protest and social conflict is a criterion for public freedom. It is with this interest in

mind that they recount the history of antinuclear protests in the two countries and view the nuclear opposition primarily as a social movement. Given the divergence in the history and the development of governmental organizations of France and the Federal Republic of Germany, it is interesting to see the difference in the role of the courts and in the government response to this conflict in the two countries. To the American reader, the authors' analysis of the role of scientific expertise in this struggle and the significance of extraparliamentary dissent should be of interest and contain some lessons.

Moss's book takes a more journalistic approach to his subject. He tends to overdramatize his statements but presents a fair attempt to explain the history of nuclear power development and to present technical material to a nontechnical audience. Moss seems to feel that nuclear power has been oversold, that nonproliferation of weapons is a valid issue in fuel cycle policy decisions, and, in the process of maintaining an evenhanded approach, tends to leave the reader with his worst fears unresolved. The slightly breezy style may offend some and it is easy to spot some technically dubious statements. Nevertheless, the book can be recommended to any reader who would like a readable review of atomic power and of the political problems surrounding it.

Editor's Note: These two books are being presented in a combined review because of the reviewer's desire to compare two different approaches to political considerations in the development of the nuclear industry.

Geoffrey G. Eichholz is Regents' Professor of Nuclear Engineering at the Georgia Institute of Technology, which he joined in 1963. He obtained his PhD in physics at the University of Leeds, England, and was awarded the DSc degree in 1979. He has edited the book Radioisotopes Engineering and is the author of Environmental Aspects of Nuclear Power and Principles of Nuclear Radiation Detection, both published by Ann Arbor Science Publishers. His research interests include the migration of radioactive wastes, environmental surveillance problems, radiation detector development, industrial radiation application, nuclear materials technology, and the health physics of nonionizing radiations.

Handbook of Multiphase Systems

<i>Editor</i>	G. Hetsroni
<i>Publisher</i>	Hemisphere Publishing Corporation, New York (1981)
<i>Pages</i>	1536
<i>Price</i>	\$64.50
<i>Reviewer</i>	Efstathios E. Michaelides

The *Handbook of Multiphase Systems* has been long awaited by the engineering community. It thoroughly presents all aspects of two-phase flows of current interest

for research or design purposes. Starting from the basic equations for the modeling of flows, the book individually examines gas-liquid, solid-liquid, and solid-gas flows. Special topics of engineering interest such as boiling, condensation, pneumatic conveying, fluidization, and measurement techniques are examined separately.

The authors have provided a scholarly presentation of the material with all chapters in the form of review articles. The articles contain most of the data and theories published to date and the bibliography is adequate.

The book is likely to be used by engineers in both design and research areas. The amount of information contained in the book is enormous, and it certainly will find a place in every technical library as a reference text. The only shortcoming of the otherwise excellent work is the great number of typographical errors in it.

Efstathios E. Michaelides studied at the University of Oxford, England (BA, engineering science and economics, 1977) and Brown University (MS, 1979, and PhD, 1980, engineering science). Since the summer of 1980 he has been an assistant professor at the University of Delaware, Department of Mechanical and Aerospace Engineering. His research interests are multiphase flow, energy conversion, geothermal energy applications, and irreversible thermodynamics. He has contributed about 25 papers to scientific and technical literature.

Light Water Reactor Nuclear Fuel Cycle

<i>Editors</i>	Raymond G. Wymer and Benedict L. Vondra, Jr.
<i>Publisher</i>	CRC Press, Inc., Boca Raton, Florida (1981)
<i>Pages</i>	259
<i>Price</i>	\$74.50
<i>Reviewer</i>	Bernard L. Cohen

This book is basically a compendium of five articles by staff members of the Oak Ridge National Laboratory dealing largely with the chemical aspects of the light water reactor (LWR) fuel cycle. After a brief introductory chapter, there is a 55-page overview of the fuel cycle by R. E. Leuze with special emphasis on the front end—mining, milling, refining, conversion, enrichment, and fuel fabrication. The remaining four chapters are on the back end of the fuel cycle, with three of them on reprocessing—chemical aspects of reprocessing (42 pages) by D. O. Campbell, Purex chemistry (60 pages) by W. D. Bond, and chemistry of volatile fission products (28 pages) by J. C. Mailen and L. M. Toth. The final chapter is on radioactive waste management (52 pages) by A. G. Croff. The first and last of these five articles give very extensive coverage with minimal detail; whereas, the three articles on reprocessing seem, to a nonchemist at least, to be more detailed. A considerable fraction of the discussion is about future and proposed technologies like hold-back of tritium in