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Book Review: Macro-Engineering Seawater in Unique Environments. Arid Lowlands and Water Bodies Rehabilitation

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BOOK REVIEW

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Macro-Engineering Seawater in Unique Environments. Arid Lowlands and Water Bodies Rehabilitation. Edited by Viorel Badescu, and Richard B. Cathcart . Springer Verlag, Berlin, Heidelberg, xxviii + 790 p. Hardbound. ISSN: 1863-5520. ISBN: 978-3-642-14778-4. £179, €199.95, $279. Illustrated (some in color) Maps. Index. Foreword by Andrew Goodie (Oxford). 56 contributors. 33 articles.

The editors describe in some detail the contents of each of the 33 "chapters" in a 20 page preface, providing a guide for readers who may otherwise search for a thread in a labyrinth of widespread topics. They themselves contribute four chapters. The authors address many of the dilemmas that not only the scientists but also the common man has to cope with today, and the problems that must be solved by midcentury if life on our planet is to be bearable in some acceptable manner.

I am a bit puzzled by the talk about "chapters" and their numbering—in the preface—since nowhere in either the table of contents or in the book itself is there a mention or indication of "chapters." But this takes nothing away from the value of what is a remarkable assemblage of unique contributions.

Some chapters do address situations that already now have caused dramatic impacts in some parts of the world. The world of the preceding generation has faded, and we are far from ready to remedy a list of problems that continue to be compounded. Thus, although it is not mentioned in a title that is already long, the book covers environmental change and puts the reader face to face with realities that are all but rosy. No geographical area of the planet is spared.

Sea levels have varied historically, long before humans made their appearance on earth some two million years ago. Waters covered areas where mountains and plains are found today, cetaceans thrived where currently large cities spread out. But what has never happened thus far is a change that has dramatically affected large human populations and entailed economic consequences of considerable magnitude. Bailey and King open the book with a chapter illustrated in color stressing the fact that changes occurred repeatedly during the Pleistocene. Even if sea-level variations are only a single facet of the lack of stability of the relationship of sea and land, it is one that causes great concern. The Ike Dike to protect the Houston–Galveston, Texas, region is scrutinized by Merrell and four collaborators. Bailey and King examine human evolution in light of the tectonics of the African Rift zone, then switch to Paleolithic developments in Greece, subsequently examining first the impact upon coastal prehistory of sea-level changes, and second the case of the Red Sea, an area also touched upon by other contributors in this book. For example, a chapter by Closson *et al.* discusses the canal between the Red and the Dead seas, and Schuiling *et al.* examine a project to tap sun and water for power there.

Several chapters deal with power supply and generation. Charlier, labeled by the University of Sussex as "the guru of tidal power," takes 40 pages to summarize and review considerations of tapping the entire range of ocean energies; Cazacu and Nicolaie examine conversion of oceanic and river currents; and wave energy specialist Salter proposes desalination using energy provided by waves. Wave energy is assessed for the Black Sea, a water expanse that rates another three articles. The Aral Sea is the topic of two rehabilitation projects, and Australia's Lake Eyre is viewed in the light of inundation and water supply. The editors of *Macro-engineering* contributed substantially to the volume, sometimes in coauthorship, as they examined the possibility of bringing water to the desiccated Aral Sea—albeit with water from the already low-level Caspian Sea—then discussed the seawater-pipeline for Mauritania; they propose to import seawater to Lake Eyre. They close the book with a description of the Bering Strait seawater deflector.

There are more fascinating projects that found their way into the covers of this volume, and within the papers themselves further projects are brought to the fore. If a reader is in search of a trove of projects and of scientist's dreams, whether they can or cannot be implemented, his or her thirst can be quenched in this publication. Assuredly the audience described by Badescu and Cathcart will be satisfied. Furthermore the index is remarkably detailed—though a Geographical Index would have been a welcome addition—and the contributors provided a goldmine of references for any researcher.

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