



BOOK REVIEWS

Sea Surface Studies, A Global View, edited by R.J.N. Devoy, 1987, Croom Helm, London, New York and Sydney, 649 p., index, ISBN 0-7099-0871-7.

This volume includes probably the most comprehensive discussion on that manifold subject, on which so many books and papers have been printed during the last century and before. Dr. Devoy, University of Cork, has himself written two long chapters and a substantial introduction, but his main role, which could have seemed to exceed the possibilities of a single man, will have been to gather and coordinate the efforts of fourteen other scientists of the United Kingdom, Ireland, the United States, Australia, New Zealand, Canada and Japan to synthesize the multiple problems involved in sea surface changes in the past, present and near future. A little more than six hundred pages will have not been too much to discuss the ocean volume change and its mechanisms since the origin of the sea water, the impact of glaciations and tectonic processes and the techniques in use in these investigations; to review the changes which actually occurred in each of the large regions of the seas; to examine in which way the coastal processes are influenced by sea level variations, how man can influence these processes and counteract their negative effects, which rise in sea level can be expected in the foregoing century from the changes in the atmosphere composition (the greenhouse effect) related to modern industries; the application of biostratigraphy to these studies; and finally, in two chapters a little beside the general scope of the book, the coastal placer deposits and the use by man of tidal and wave power (that is, the use of sea level changes of very short periods).

In such an interdisciplinary research on sea level problems, long bibliographies have been, of course, necessary, and it will not be one of the least merits of the book to include such extensive lists of papers at the end of each chapter. These lists will make easier and stimulate further research. yet, as it happens too often, the bibliographies are, in spite of a few exceptions (e.g. on the Australasian and Southern Pacific

shores), too much confined to the English literature. French papers are scarce; West and East German ones are almost absent, in spite of so many contributions in that language on the Baltic and North Seas; such quotations often restricted to historical authors as Suess (1906), Penck (1882), Leplace (1799); what is even worse, Russian papers or books never appear, except in two places (p. 263 and 588), with the sad consequences that the Soviet sector of the Arctic is left out while the Canadian one is widely included, and that the Primorje, the Sea of Okhotsk and the Kamchatka are absent in the chapter on the Northwest Pacific. A second edition could be somewhat improved in this way with the help of data found in publications of the Inqua Commission on Quaternary Shorelines, of the IGCP 200 carried to its end in 1987, and of the 14th Pacific Science Congress held in Khabarovsk in 1979. Anyhow, a second edition would be useful shortly, since research is going on very quickly, results such as those on Spitsbergen shorelines, as shown on p. 314, need already some revision, and more detailed data on Chinese coasts are now available.

This is certainly not an academic book in the bad sense of the term, since its implications on coastal management and planning, as described in the three chapters of part four, deserve the widest interest. The general rise in sea level which has been observed during the past century (in spite of the difficulties in unified global estimates), and is expected to continue as a result of thermal expansion and its consequences on Antarctic and Greenland icecaps, has led to one of the most valuable chapters of the volume. It is excellent that this chapter was written by Dr. Titus, an American author, since the United States is the country where this problem has been most carefully investigated so far, with a Committee especially appointed and in which Titus was included. The moderate and prudent conclusions to which the American Committee has arrived have found a good counterpart in this chapter, which could influence adequately the society's responses to these events in all countries.

Sea Surface Studies will be very useful in its discussions (Chapter 13) on the relationship

between beach profile and sea level changes and on the so-called Bruun Rule; to remind us that such connections are not accepted by all geomorphologists (chapter 14, p. 469); and that the responses to sea level rise in different environments are quite varied. One of its merits will have been to show how complex the problems are and how difficult and often controversial the decisions (p. 475: "the response of some engineers to coastal problems has been to increase the complexity and the cost of the solutions").

Another excellent aspect of the book is the way in which the convener (*e.g.* p. 263) has wisely tried to keep the balance between the different opinions and statements expressed by the contributors. In a review of such controversial topics, it was necessary to give a set of interpretations as complete as possible without supporting anyone unreservedly. This has been done well, and Dr. Devoy is to be congratulated for his "ponderation" in his huge enterprise.

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Sea-level Changes, edited by Michael J. Tooley and Ian Shennan 1987. Basil Blackwell, Oxford. 397p. £39.95. ISBN 0-971-154404-7 (Special Publication No. 20, Institute of British Geographers.)

AD 1987 must have been 'The year of the Sea-level Book', as to my knowledge this is the seventh volume on this subject to be published within 12 months. There are two obvious reasons for this activity; first sea-level rise has become an 'issue', generating column inches and research funds, and second, the year marked the culmination of a highly successful IGCP project (No. 200) on sea-level, directed by Paolo Pirazzoli. This and several other of the recent volumes form part of the IGCP effort.

'Sea-level Changes' arises largely from the work of the 'Durham School' of sea-level research, founded by Michael Tooley in the 1970s. Indeed almost half the book is given over to reports from Durham workers. Tooley is following a long, if somewhat sporadic tradition of British interest in sea-level studies, dating back to the 1930s. However, Tooley must take much of the credit not only for the advancement of palaeoenvironmental sea-level research in British since the 1960s, but also for the 'behind

the scenes' boosting of sea-level interests through the two IGCP Sea-Level Projects (Nos. 61 and 200).

To return to 'Sea-level Changes'; the book comprises 13 chapters, all but four of which are regional accounts (as befits a volume published under the aegis of a geographical society). Chapters 2, 3 and 4 are the 'Durham' contribution. In retrospect I feel that two of these, by Stephen Ireland and Andrew Haggart would have benefitted from being published elsewhere, as they are basically reports of relatively local doctoral studies. Of the two, Ireland's is a curious affair, in which he tries to place his work (in Brazil) into a more general frame. I feel sure he would have been more uninhibited had he not been aware that he was writing for a book, designed for an 'international audience.' The third 'Durham' contribution, that by Ian Shennan, is much more successful. Shennan tries, and largely succeeds, to pull together a broad spectrum of data, integrating and synthesizing them into a coherent picture of Holocene sea-levels around the North Sea basin. This type of approach is going to prove increasingly fruitful as more basic data become available.

Chapters 5 to 10 are an assorted collection of regional studies, covering the Mediterranean, Japan, eastern USA, west and east Africa and Australasia. Each author resorts to a selective review. The Australasia chapter (by John Chappell) is perhaps the most up-to-date, the African essays, as might be expected, the least substantial. Nonetheless all the contributions are well-written and informative, although the US review (by Thomas Cronin) suffers from being simply too broad, covering all the Quaternary along an extensive and variable coastline. The last three chapters consider sea-level models for predicting rheological deformation, predictions of world sea-level rise in the next century, and a 'conspectus' by the Editors. The most interesting is the attempt to predict sea-level rise due to global warming across the oceans taking ice-sheet and glacier melting, ocean expansion and isostatic delevelling into account through the use of Farrell's and Clark's equations.

Overall a useful book, well-produced and edited. It may suffer a little in comparison to other recent volumes, but still contains much useful information.

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