

forthcoming). For a large atlas the advantages of this method of production are clear. Firstly, the cartographic and editorial workload involved in a production of this type is inevitably time-consuming. By sending out sub-collections of maps as and when they are ready, the publishers can ensure that the finished maps reach the customers relatively soon after completion. For the publisher there is also the advantage that collection of subscriptions to the atlas at an early stage in production provides a financial safety-net and assists in funding the complete work. This latter benefit is, presumably, of particular value in a developing country such as Brazil, where cash flow has to be particularly carefully planned and monitored.

The quality of the Atlas, if these maps are truly representative of the whole, is impressive. The cartographic design, the quality of the data presented, and the quality of the overall production are all high, and match anything produced by, for example, either the British or the U.S. Geological Surveys. If any complaints have to be made then these are slight and, to a certain degree, reflect the personal preferences of the reviewer.

The lack of a contents page has already been mentioned. Also lacking is any bathymetric information: it is possible that the necessary data have not yet been obtained, but in a series of maps depicting an area so strongly influenced by the sea, and riddled with both tidal and fresh-water lagoons, this omission is regrettable.

In terms of cartographic design, one quite serious criticism concerns the selection of patterned screens for different facies. Most readers would, presumably, expect a pattern of coarse circles on the map (or in the sections) to represent coarse sediments, and finer dots and dashed lines represent finer sands and silts respectively. However, on these maps this is not the case: a screen of open circles, for example, is used to depict aeolian and littoral dune formations, while deltaic formations are shown by a pattern of dashed horizontal lines. Similarly, while the crestlines of principal gravel ridges and sand dunes are shown in many places and add substantially to the information content of the maps - these are frequently obscured or confused by the use of uniformly-spaced horizontal lines as part of the symbolism for certain lithologies.

Lastly, although, presumably, the Atlas is directed mainly at readers familiar with the

region and hence with the Portuguese language, a brief translation into English of the sedimentological and technical terms used in the key might have been useful for a more international readership. The ultimate test of any map or atlas is, of course, its efficiency as a means of communicating information. In this respect, the Geological Atlas performs extremely well. The reviewer approached the maps knowing nothing about the coast of Southern Brazil, and came away with the satisfying feeling of having learned a considerable amount. Since the start of the Caenozoic this area of coastline has been prograding in a complex series of shingle ridges, longshore bars, sand dunes and lagoons. The generally intelligent use of colours and symbols on the maps (notwithstanding the above remarks) enables the story of this evolution to be elucidated easily and painlessly.

There was no indication, in the package received for review, of the selling price of the Atlas. This is a pity, since in the absence of this information it is difficult to make any recommendations regarding purchase. Both as an example of good cartography and as a record of the coastal evolution of this part of the world, the Atlas performs excellently. It would be a valuable asset on the library shelves of any university department or similar institution where a significant level of research and teaching on coastal matters is conducted, or with specific research interests in southern Brazil. However, at the price level suggested by the printing and paper quality, it is difficult to see the Atlas being bought by many individual subscribers unless they, too, had strong research interests in the area covered.

Darius Bartlett,  
University of Edinburgh  
Edinburgh, Scotland

**Living with the Shore of Puget Sound and the Georgia Strait**, by Thomas A. Terich, 1987, Duke University Press, Durham, North Carolina, 165p. ISBN 0-8223-0689-1 (hardcover), \$30. ISBN 0-8223-7745-6 (softcover) \$12.95.

This book is intended as a guide to selection of building sites along the shorelines of Puget Sound and Georgia Strait in Washington state. Directed primarily at prospective coastal homeowners, it provides information for a first cut

evaluation of Puget Sound shoreline building sites. The book reflects no bias against coastal zone development. Rather, the tone is one of genuine desire to help the prospective buyer in site selection and use but within limits set by the natural environment and public sensibilities for these limited resources.

The book is in the "Living with the Shore" series sponsored by the National Audubon Society. Aimed at the lay public, it assumes little knowledge on the part of its intended audience other than that the coastal zone is a desirable place to live. The first three chapters, about one-fourth the book, contain a brief introduction to Puget Sound, a short course on coastal processes relevant to building in the coastal zone, and a short course on coastal zone planning and man's role in the coastal zone. These chapters suffice to introduce these subjects to the lay person but add nothing of interest to the specialist.

Chapter 4 briefly covers site selection factors for Puget Sound shorelines; Chapter 5, about half the book, presents a fairly detailed classification of the Puget Sound shoreline according to development risks; institutional arrangements for managing the Puget Sound shoreline are summarized in the sixth and final chapter.

The risk assessment presented in Chapter 5 may be of interest to coastal specialists who are not familiar with Puget Sound but would like a description of its shorelines. Narrative and maps are used to describe the shoreline segment by segment as to shore type and risk. Risk zones are classified as high, medium, and low according to erosion, flood, and landslide hazards. The assessment is qualitative but appears to be based on thorough documentary research and field observation. The maps are not always correlated precisely with the text, but both are easily read and should prove helpful to anyone doing a first cut appraisal of potential home sites on the shoreline. Coastal zone specialists wishing to become more familiar with Puget Sound's coastal zone may also find useful detail here that is not readily available elsewhere. Chapter 6 is recommended as a concise but comprehensive introduction to laws and regulations governing management of the Puget Sound coastal zone. A caveat is in order, however, to anyone interested Georgia Strait. That small part of the Strait's shoreline within the United States is treated in detail; the Canadian portion gets less than a page of text and no map treatment.

E.A. Keer  
University of California

**Climate: History, Periodicity, and Predictability**, by M.R. Rampino, J.E. Sanders, W.S. Newman, and L.K. Knigsson, (Eds.), Van Nostrand Reinhold, New York, 588p. ISBN 0-442-27866-7.

This book contains a collection of papers that were presented at a meeting held 21-23 May 1984 at Barnard College, Columbia University, New York. The festschrift volume honors Professor Emeritus Rhodes W. Fairbridge on his seventieth birthday. Organized in seven parts, the book deals with history and climate change (Part I), proxy climate indicators (Part II), sea-level change and climate (Part III), short-term climate ( $10^1$ - $10^2$  yr) and periodicity (Part IV), long-term climate ( $10^3$ - $10^7$  yr) and periodicity (Part V), solar variations, cycles, and possible causes (Part VI), and finally an appendix (Part VII).

Coastal researchers will find Part III to be of especial interest with selected papers dealing with the spectra of sea level in a Holocene time frame (R.W. Fairbridge), new evidence for eustatic components in Late Holocene sea levels (D.J. Colquhoun and M. J. Brooks), aminostratigraphy of coastal U.S. Quaternary marine deposits (J.F. Wehmler and D.F. Belknap), prediction of effects of sea-level change from paralic and inner shelf stratigraphic sequences (J.C. Kraft, D.F. Belknap, and J.M. Demarest), the Quaternary coastal record in the Aegean (C. Vita-Finzi), and variations in Holocene sea level on the French Atlantic coast and their climatic significance (M. Ters). Although this is an eclectic collection, the various papers provide useful perspectives on the changing concepts of sea-level change through different time frames. In addition to these papers that specifically deal with sea-level variation, other chapter reports contain much information that is relevant to aspects of coastal research.

The book is handsomely produced, remarkably error free, well-illustrated, and thoroughly indexed by author citation and subject. Because the connection between global climatic systems and sea-level variation is not a casual one, those interested in the development of contemporary coasts and prior shorelines will find much of interest in this book. An extended appreciation in the front of the book highlights significant events in the professional career of