

tion of the Australian coast and continental margin, complements the background information in the first chapter and together they provide a useful framework for the rest of the book. The remaining twelve chapters are essentially independent studies, and no effort has been made to provide links between them.

A.D. Short and L.D. Wright provide an overview of their work on the morphodynamics of high energy beaches on the east and south coasts, including their morphodynamic model of beach stages. The other strictly process paper is by P.A. Hesp who examines processes controlling foredune growth and the genesis of sand beach ridges. There are two chapters focussing on estuaries: the first by P.S. Roy reviews the origin and evolution of estuaries in New South Wales, focussing on the impact of conditions at the estuary entrance on sedimentation, salinity and the nature of the biotic communities; the second by J. Grindrod and E.G. Rhodes, reconstructs sea level changes in Northern Queensland from a detailed study of sedimentary facies and pollen analysis in a tropical estuary, Missionary Bay. Two other papers deal with the Great Barrier Reef. J.F. Marshall and P.J. Davies examine the distribution of reef facies and vertical accretion rates based on cores drilled on four reefs at the southern end of the Great Barrier Reef. David Hopley's paper examines the concept of the occurrence of a period of higher wave energy on the central Great Barrier Reef during the mid-Holocene (8,000 BP to 6,500 BP) when rising sea level overtopped the old Pleistocene reefs and the rate of sea level rise still exceeded upward growth of the Holocene reefs. This is followed by a short chapter by K. Pye and G.M. Bowman which uses radio carbon dates on ancient coastal dunes in Queensland and New South Wales to date periods of instability during the Holocene and to emphasize the link between rising sea level, coastal erosion, and the supply of sediment to transgressive dunes. A later paper by C.H. Thompson and Bowman examines some of the processes acting to bring about secondary changes in the morphology and sedimentological characteristics of ancient Quaternary and Holocene dunes, focussing particularly on the effects of weathering and running water. There are three "mainstream" morphostratigraphic papers dealing with large depositional systems. J. Chappell and J. Grindrod report on a detailed study of a chenier plain on the north-east coast of Queensland using morphological, sedimentological, and palynological data together with ^{14}C dating and sea-level curves to

examine the processes which have controlled progradation and episodic chenier building. B.G. Thom uses a similar approach to examine the evolution of several types of sandy barriers along the Gippsland coast of eastern Victoria. A similar detailed stratigraphic analysis of Quaternary coastal barriers in southeast South Australia is used by D.A. Schwebel to reconstruct sea-level changes in the area over the past 400,000 years. Finally, a paper by A.R. Bowden and E.A. Colhoun focusses on raised beach deposits in Tasmania to determine the history of sea-level changes and uplift rates in the area.

The success of any collection of papers such as this depends to a large extent on the quality of the individual papers themselves. In this case the overall quality is high and, while there is obviously some variation in the scope of individual papers, there are no really weak ones. My own preference would have been to see a couple more papers focussing primarily on process studies, but the papers do cover a wide range of coastal environments and research interests. The first two chapters do provide some background, albeit brief, for the rest of the book. However, because so many of these involve stratigraphic studies and sea-level changes during the Quaternary and Holocene, a short chapter reviewing sea-level change in Australia could have provided some useful additional background. One can also quibble over the ordering of chapters, which appears to be largely random — for example, the three chapters on dunes could have been grouped together and the same done for the papers on the Great Barrier Reef and on estuaries. These are all relatively minor points and do not really detract from my overall favorable impression of the book.

The quality of production of the book itself is high. It is printed on glossy paper, and the reproduction of diagrams and photographs is excellent. Curiously, in this age of the word processor, there is no right margin justification.

Overall I think that this is a useful collection of papers, and the book should be of interest to coastal geomorphologists and sedimentologists not only in Australia but world wide. I would certainly recommend ordering a copy for the library, and many readers will probably wish to add it to their personal collection.

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Les Côtes de la Tunisie: Variations du Niveau Marin Depuis le Tyrrhénien, by Roland Paskoff and Paul Sanlaville, 1983, Maison de l'Orient

Méditerranéen (Univ. Lyon, France), No. 14 (Ser. Géogr. et Préhist. 2), 192p. ISBN 2-903264-04X, ISSN 0243-2439.

This is a very important publication for specialists in coastal processes and evolution but, being in French and published by a regional institute of social studies, it is not likely to catch the eye of the average library browser. The coast of Tunisia is very favorably placed for observing a continuous coastal transition from the stable northern borders of the African craton (in the south) to the tectonically active Atlas orogenic belt (in the north). This traverse was the site of an important field excursion organized by the Shorelines Commission of INQUA (Mediterranean and Black Sea subcommission) in 1979, and work of the authors has thus been inspected and reviewed by an international group of specialists.

The book is divided into three parts: the northern sector (N of Cape Bon), the central and southern sector, and an overview of the history of sea-level changes through the last 125,000 years. In the opinion of the reviewer this traverse contains the clearest sequences and interrelations of the last interglacial sea levels to be seen anywhere in the world, although they have become better known from the more tectonically disturbed sections in Barbados and New Guinea. The three Tyrrhenian shoreline formations are here chronologically, stratigraphically and paleontologically defined: *Douira* (125,000 BP), 10-15 m above present MSL; *Rejiche* (105,000 BP), 8-10 m; and *Chebba* (85,000 BP). As elsewhere in the more stable low-latitudes there are also mid-Holocene shore formations, up to about 2 m, that can be easily confused with the *Chebba* unless one is forewarned.

Interrelations are also well established with archeological material, from paleolithic to historic times, with classic sections around Carthage. The marine facies are interbedded with eolian wedges and red paleosols, and locally with salt marsh, lagoon and fluvial members. Most of the marine and eolian sediments include carbonate material so that the formations are mostly well-lithified calcarenites and thus nicely displayed in cliff sections and in numerous building-stone quarries.

From the paleoclimatic point of view, it is interesting that the interglacial climax conditions are not seen until the second stage (105,000 BP), although the elevations confirm the evidence from Barbados and New Guinea. This formation was originally defined as the *Monastirian*, but unfor-

tunately in an area of remarkable and active neotectonics, and so the name has been dropped.

The work is well-illustrated, with five pages of references and a long English summary.

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Eddies in Marine Science, edited by Allan R. Robinson, 1985, Springer-Verlag, 609p. US\$45.00, ISBN 0-387-12253-2.

The study of ocean eddies, on space scales of 10 to 100 kilometers, and time scales of weeks to months, has grown in scientific importance, from a peripheral interest in physical oceanography, to one which has come to dominate our thinking on the nature of ocean circulation. These quasi-geostrophic eddies are the most energetic scale of motion in the ocean, and as such are one of the most significant mechanisms for the transport and mixing of matter in the ocean.

This volume presents a synthesis of a decade of mainly physical and dynamical studies on the mid-ocean eddy. The reader is given an excellent overview of the subject, which goes to the heart of the problem without burdening the reader with mathematical detail. Robinson's view is that the physics of ocean eddies is too important a subject to be the single preserve of the dynamical oceanographer, and should be communicated to other branches of marine science, including geochemists, engineers and environmental managers. Some of the important applications of this science are the dispersal of toxic substances, including radio-nuclides, the mixing of nutrients and dissolved substances, such as carbon dioxide and tritium, and the transport of heat and salt in the ocean. After reading this overview one begins to be aware that there are few areas, in the world's ocean, which are not affected, directly or indirectly, by eddies.

The overview is followed by a plethora of regional and mainly descriptive studies of eddies, which occupy over half the book. These contributions give a useful insight into the variety of current systems which are included under the generic name of "eddies." These range from the large loops and meanders of intense current systems, such as the Gulf Stream, to small, intense, isolated eddies, such as the "Meddy." These latter eddies are remarkably resilient to mixing and can preserve their identity for up to 3 years. We are told of one Meddy enclos-