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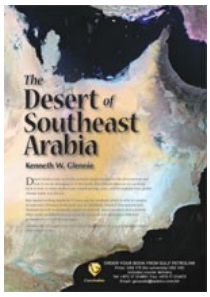
The Desert of Southeast Arabia - *Desert Environments and Sediments*, by Kenneth W. Glennie, 2005.Gulf PetroLink, PO. Box 20393, Manama, Bahrain. Hardcover, 215 pp. Price USD 125.00 (university), USD 175.00 (non-university). ISBN 99901-04-89-1



Preceding the 2006 encyclopedic *Arabian Deserts: Nature, Origin, Evolution* by H.S. Edgell (recently also reviewed in JSR) by one year, Glennie's book—restricted to the desert of the southeastern part of the peninsula, with emphasis on the Rub' al Khali and Wahayba Sands—is of a totally different nature: partly textbook, partly a summary of research done by the author and co-workers in the region since the mid-1960s, partly personal recollections. Thanks to eight sponsors from the oil industry, plus the European Association of Geoscientists & Engineers, the book could be printed in full colour with about 140 satellite, aerial and terrestrial images as well as about 40 maps, some of them redrawn in colour from earlier publications. Some very interesting photographs by the author date back to the 1960's, depicting features that have since been destroyed by the rapid oil-boom development of the region.

As stated in the preface, the book was partly written to give some idea to Arab citizens (and thus to laymen) on how the various landscapes of their region were formed and how they are related to climatic history, and partly as an introductory book for students on deserts in general; hence a glossary with in some cases questionable definitions as well as "occasionally elementary treatment." This is reflected by the chapter headings, the first of which are typical of a textbook on deserts. Beginning with Chapter 7 (Water in Deserts), however, the character increasingly changes towards a scientific analysis of mostly geomorphological aspects of the region, based on 40 years of field research by the author and others.

It is this latter part of the book that will certainly attract most readers, as will the mostly excellent photographs and the Landsat imagery. These photos are so full of information that—despite just the standard false colour processing—the captions often become almost book chapters on their own. Reading the various elements in the textbook was occasionally a painful experience, however, for the me as a geographer and desert geomorphologist. The model of planetary circulation, for instance, can at best be described as oversimplified; there is an unbroken belief in the force and common presence of insolation weathering; even desert pavements are explained by thermoclastic disintegration of boulders - and thus as an extremely slow process. It is also doubtful whether the origin of an erosion surface cutting across Miocene rocks can be explained by deflation solely on the basis of the observation of present-day deflation occurring there; and the bevelling of a cemented barchan should perhaps better not be called "peneplanation."

As is legitimate for a senior scientist, the non-textbook parts of the book are a concise presentation of decades of his work. The emphasis, as in much of Glennie's earlier publications, is on the aeolian processes that shaped the vast dune areas of the region, above all the Rub' al Khali, mainly formed under the influence of the shamal or northeasterly trade wind, and the Wahayba Sands, mainly resulting from the summer monsoon winds blowing from the southwest. The astonishing size of the intricate pattern of megadunes that can be modified only slightly by

the present wind regimes, is explained by higher wind speeds and increased aridity in response to mid-latitude glacial periods, in contrast to lesser aeolian acitivity and relatively semi-arid conditions during the interglacials. Long intervals of major sand supply for the dunes appear to have coincided with low sea-levels stands during the Quaternary, when the shallow Persian Gulf (here, of course, called "Arabian Gulf") fell dry and became a region of unimpeded deflation by the stronger winds of the time. As in his earlier publications, contrarotating helical vortices reacted to "differences in drag at ground level between the relatively firm interdune areas (less drag) and the adjacent soft, unconsolidated sand of the dunes themselves (greater drag);" though one wonders how this system could have started when there were not yet any sand-free interdune corridors. Whatever the true processes may be: based on the often complicated and certainly multi-phase patterns portrayed in the satellite images (and supported by his excellent oblique aerial photographs), Glennie offers interesting, often convincing explanations and suggestions as to their origin.

In recent years, numerous OSL data have been obtained (largely in cooperation with A.K. Singhvi), on the basis of which—in combination with already published papers—at least three phases of growth of carbonate-rich sands preserved as aeolianites are identified for the last 230,000 years. These data are presented in addition to a flood of OSL data in the preceding chapters. The brief one on OSL dating itself, though (p. 196), is more enthusiastic than informative.

In less detail, but equally interesting, is the description and discussion of the currently dissected vast alluvial fans spreading out from the Oman Mts, which unfortunately only show as little differentiated black on the Landsat images, because of their desert varnish. This holds also for the desert and coastal sabkhas. Concerning the former, the emphasis, also in the photographs, is on their salt polygons, whereas the latter are discussed together with desert-coast tidal flats.

In the two final chapters, the textbook-on-deserts approach is fully abandoned and the sedimentary and landform history developed in various facets in the earlier chapters is summarized. One need not agree with every statement and interpretation here, but the chapters show that, apart from the less successful textbook side of it, it contains a vast amount of information, visual and in text, on a fascinating desert region, presented in a very readable way. Even amusingly, chapter 10 ends with a sub-chapter called "Some Oddities," and the final sentence, after summarizing the enormous changes the region has undergone in recent decades, is a dig at neighbouring Saudi Arabia where women are not allowed to drive a car: "Incidently, most Bedouin women are just as capable of driving vehicles as men."

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