
Der Meeresboden, Ergebnisse und Probleme der Meeresgeologie (The Seafloor, Results and Problems in Marine Geology)

By E. Seibold
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The field of marine geology is wide and diversified. This fact was already realized in 1950 when Kuenen published his *Marine Geology*, not long after the first edition of Shepard's *Submarine Geology* (1948). Marine geology has since fanned out considerably with the general acceptance of the "new global tectonics", a theory that is largely founded on marine geological and geophysical observations. Topics in marine geology have been published extensively in books, articles, and technical reports. The flood of information appearing is such that I found myself opening *Der Meeresboden* with some reluctance, expecting to find a twice-told tale. After reading the book my expectation is only partially fulfilled.

The Germans have been accused of living with their backs to the sea, Seibold states in his introduction. His book rightfully challenges that charge and shows that German marine research does not lean exclusively on foreign, notably North American achievements. Most of W. Germany's oceanographic research institutes are concentrated within easy access to the Baltic and, via the gates of the German Bight and the North Sea, to the oceans beyond. In Kiel, Seibold is close to colleagues and shipmates in Wilhelmshaven, Hamburg, and Hannover with whom he has plied the oceans in the last 20 years. Over those years he has acquired enviable experience in marine geology as a leader and participant in German and international oceanographic expeditions. The German research fleet (*Meteor*, *Komet*, *Valdivia*, to name the larger vessels) has worked extensively

in the Indian Ocean, in the Red Sea, in the Mediterranean, off the west coast of Africa, in the western and northern Atlantic, and, of course, in the Baltic and North Sea. *Der Meeresboden* is illustrated with many examples of these productive research efforts.

Apart from Chapter 8 on plate tectonics, the book focuses on the processes that take place near the sediment-water interface. Both in Kiel and in Wilhelmshaven there has been a concentrated research effort in "Aktuogeologie", the study of current geological processes. Chapter 4, "Seafloor and water movement" and Chapter 5, "Seafloor and organisms", together more than a third of the text, deal rather exclusively with these experiences. As an introduction to "Aktuogeologie" these chapters are the most important and exclusive contributions of the book. For a more comprehensive treatment of the subject, however, the reader should consult Reineck and Singh's *Depositional Sedimentary Environments* (Springer-Verlag, 1973), which is based largely on German experience in that field.

Chapter 6 deals with the marine ecology in various climates and highlights the significance of plankton and benthos as climatic indicators.

Chapter 7 discusses the origin and concentration of mineral resources and again Germany has made a contribution in this field, notably as a result of the work carried out by their research vessel *Valdivia*.

Chapter 3 treats the origin and composition of marine sediments in a tight and orderly fashion, without losing the readers' interest.

The chapter on morphology (2), illustrated again mostly with the results of German research, completes the text.

The style of the book is excellent. Often when a particular problem is introduced the text becomes a narrative of scientific discovery. The way questions arise and suggestions are made towards solutions must at times give the reader the satisfaction of making discoveries himself. In many instances Seibold quotes the colourful observations and interpretations of early naturalists.

The book is costly. A little extra effort, variation in type style and a better layout, would have produced a more attractive issue. The quality of the illustrations is adequate, not excellent. At times, it is

disturbing that text and figure captions are only separated by an inconspicuous figure number. The "selected" bibliography at the end is very restricted. If it was considered worthwhile within the text to identify a source of information by author and year, then it should be properly referenced. Another imperfection, the omission of a reference to Figure 8-8 would imply, according to a remark on page 174, that the famous Bullard fit of continents is a Seibold original. Other figures appear to have been modified from unmentioned sources. It is suspect how figures 8-10 and 8-11 could be so similar in style and scale to those in Beck (1972).

Nevertheless, the book's qualities outweigh its shortcomings, and both the layman and specialist will find in it valuable instruction and distraction.

References

- Beck, R. H., 1972. The oceans, the new frontier in exploration: Aust. Petr. Explor. Assoc. Jour., v. 12, pt. 2, (reprint) 20 p.
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- Reineck, H. E. and I. B. Singh, 1973. *Depositional Sedimentary environments: Heidelberg, Springer-Verlag*, 439 p.
- Shepard, F. P., 1973. *Submarine Geology*, 3rd Edition: New York, Harper and Row, 517 p.

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