

Modern and Ancient Géosynclinal Sedimentation

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Volume 2, Number 1, February 1975

URI: https://id.erudit.org/iderudit/geocan2_1br01

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Publisher(s)

The Geological Association of Canada

ISSN

0315-0941 (print)

1911-4850 (digital)

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Cite this review

Dimroth, E. (1975). Review of [Modern and Ancient Géosynclinal Sedimentation]. *Geoscience Canada*, 2(1), 68–68.

Book Reviews

Modern and Ancient Geosynclinal Sedimentation

Edited by R. H. Dott, Jr. and Robert H. Shaver
Society of Economic Paleontologists and Mineralogists
Special Publication No. 19,
256 p., 1974.
SEPM and AAPG Members \$11.00,
Others \$13.00.

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These are the proceedings of a symposium held in Madison, Wisconsin, Nov. 10-11, 1972, and dedicated to Marshall Kay. Purpose of the symposium was to further understanding of geosynclinal processes, by actualistic comparison of ancient geosynclinal rock assemblages with their modern counterparts. This purpose has been admirably achieved; the volume strikes a nice balance between discussion of the ancient and the recent. It is a fitting tribute to Marshall Kay, one of the first to propose that ancient geosynclinal assemblages had modern counterparts, at a time when this idea was quite controversial.

The stage is set with a discussion of the geosynclinal concept by R. H. Dott, and an outline of the plate-tectonic paradigm by R. S. Dietz and J. C. Holden. The main body of the volume (23 articles and 4 abstracts) is organized in six topical chapters, on continental terraces, submarine canyons and fans, deposits of the deep sea, deposits of arc-trench systems, successor basins, and

problems of palinspastic reconstruction, with some miscellanea thrown in the last chapter. Modern and ancient examples are discussed in all but the last two chapters, often in the same paper. Reflections on geosynclines, flysch and melange, by Marshall Kay close the volume.

I was fascinated by the detailed comparison of the facies organization of a modern deep-sea fan off Oregon with Eocene deep-sea fan deposits in California, by G. H. Nelson and T. H. Nilson, and by their discussion of the setting of fans and of fan-forming processes. The similarities between both units are very well documented indeed. D. Bernoulli and H. C. Jenkyns demonstrate that foundering of extensive reef platforms to oceanic depth took place in the Mediterranean tethys during Mesozoic; this is based on comparison of Jurassic deep-sea deposits in Mediterranean orogens with sediments of the Atlantic. They compare the tectonic process to the subsidence of the pre-middle Cretaceous carbonate banks off eastern North America during the late Cretaceous and Tertiary. D. J. Stanley, describing the ponded sediments of small, steep-sloped, fault-bounded troughs in the Hellenic arc, demonstrates a basin model that has been little used, although it is clearly significant for ancient rocks. It is particularly interesting that some flysch-type turbidites of this region are being deposited in basins not deeper than 200-300 metres. I believe that much of the Archean sediment has been deposited in such "pauciclinal" (= short-sloped) basins. There are many other noteworthy papers.

Articles, although at a high level of specialization, are clearly written. This makes the book unusually attractive to the non-sedimentologist. It is of interest to all geologists, geophysicists and geographers who want to gain an understanding of geosynclinal processes. The price is remarkably low and the printing is excellent.

MS received, September 30, 1974.