

## Reviews

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**Heezen, B. C., Tharpe, M., & M. Ewing.** "The Floors of the Oceans. I. The North Atlantic". Geological Society of America, Special Paper 65, pp. 1-122, 49 Figs., 30 Pl. 1959.

A necessary stage in scientific progress is to fit together the available information into as coherent a picture as possible and to make the account easily available to other workers. It is fitting that a geological review of the North Atlantic (17°N to 50°N) should have been made by members of the team at the Lamont Geological Observatory, which has done so much to inform us of its structure, and that the paper should have been published by the Geological Society of America. The authors propose treating the other oceans in a like manner at a later date.

For the North Atlantic, they summarize evidence on the shape and composition of the floor, derived from soundings, samples, photographs, and by geophysical techniques and suggest its probable significance. The account is lavishly illustrated and there is a large physiographical diagram to give a first impression of the relief.

In view of the still small amount of information which is available it is not surprising that some of the authors' syntheses may not be completely acceptable. The brave suggestion that there are morphological steps on the sides of the Mid-Atlantic Ridge calls for further investigation. Likewise, many more intermediate sounding lines are required to define adequately the real extent of the deep valley, recognized at some places near the crest of the ridge. The presence of a number of valleys in many places and even of a blind ending valley, leads one to be chary of accepting too readily the continuity of any single valley. The authors recognize benches on the eastern continental slope of the United States, correlate these with major rock groups of different hardness and conclude that the features are erosional in origin. It will certainly be of great interest to establish this correlation firmly, both for American and other continental slopes. The signs of erosion on the continental slopes are now rather clearer but the relative importance of the agents suggested has still not been worked out, and it is not known whether they are still in operation. It may be that the effect was largely produced during the Pleistocene, for if it were of any importance before that time it is not clear how the observed thick pile of Cretaceous and Tertiary marine sediments could have accumulated at the edge of the continent.

The paper is a stimulating and attractive account of fact and interpretation which will probably be the basis of future geological work in the Atlantic and elsewhere for some time to come.

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