

IS THERE AN EXPLANATION FOR THE GRAVITY ANOMALIES
ASSOCIATED WITH REEFS?

By

P. E. GRETENER

Comments by S. H. Yungul¹ and L. P. Stephenson¹

The essential part of Gretener's note consists of a speculative type of criticism of other authors' speculative type of conclusions. In this situation, his use of expressions such as "incorrect," "correct," "in error," and "unacceptable" seems rather inappropriate.

Gretener apparently wishes to refute the possible existence of a density contrast resulting from a sand concentration above the reef mass. To do this, he attempts to deny the probable existence of any depositional bottom topography above the reef, thereby eliminating the winnowing action that could give rise to the sand concentration. However, he does not explain how bottom topography can be avoided above a differential compaction structure. Furthermore, he agrees that the reef will move upward relative to the basal shale, but does not explain how this can fail to produce bottom topography. Thus, it does not appear that Gretener has ruled out the possibility that gravity anomalies over reefs may result from overlying sand concentrations and their associated density contrasts.

We believe that to make significant progress in our understanding of reef gravity, the mechanism of compaction, and their structural implications, we must acquire more "three-dimensional" rock property data — density, chemistry, and sedimentology — pertaining to the large volumes that enclose near-reef and off-reef sediments.

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