Book Reviews

The Permian Reef Complex of the Guadalupe Mountains Region, Texas and New Mexico. A study in paleoecology. Norman D. Newell *et al.* W. H. Freeman, San Francisco, 1953. 236 pp. Illus. + plates. $7.50.

This is a comprehensive and profusely illustrated technical sourcebook on the classic Permian reef complex of West Texas and New Mexico. It emphasizes paleoecologic analysis, with background chapters on regional geologic setting, general stratigraphic features, sedimentary phases, biotal associations, and diagenesis. Its farsighted sponsors and publishers spared no pains to produce a landmark in paleoecology.

The book begins with an excellent summary, which effectively presents the essence of the study. This will encourage many readers through the essential but tedious account of the stratigraphy and on to the more interesting sections that follow. The stratigraphic discussions are hampered by the casual stratigraphic nomenclature and the absence of a clear graphic summation.

The brief chapter on paleontology sticks to biotal distribution. It is supplemented by check lists of fossils in the appendix. The authors postpone critical discussion of problematica, such as *Gymnocodium* and the so-called hydrocorallines (?) as well as the "sycon" sponges.

The chapters on sedimentary phases, diagenesis, and paleoecology are outstanding. That on diagenesis is particularly good, despite some repetition necessitated by the systematic treatment of sedimentary provinces. The treatment of sedimentary phases is second only to this, although of uneven quality. A well-reasoned discussion on pisolites, for instance, contrasts with a rather diffuse section on reef channels. The chapter on paleoecology is lucid and satisfying. Geologists who have followed West Texas Permian stratigraphy will be prepared for many of the conclusions reached, but they will find new interest in the exposition of the stagnant-basin hypothesis, which maintains that the development of organic reefs is encouraged by the marginal upwelling of nutrient-rich waters controlled by a restricted outlet of the Mediterranean type.

A commendable feature of this work is the careful distinction it makes between the organic reef facies proper, the reef complex, and lenticular or otherwise reeflike masses of clastic materials that have nothing to do with organic reefs. These distinctions are important to the oil hunter. Another point of economic interest is the emphasis that the authors place on anaerobic conditions as a prerequisite for the primary accumulation of organic matter in oil-forming quantities. The discussions of fluid migration and silica-calcite replacement are clear and substantial.

Like most books that deal vigorously with current problems, the one under review has not settled all questions of fact and interpretation. A principal conclusion here reached is that aphanitic texture in limestone commonly originates through recrystallization of rocks of originally coarser fabric. Although the evidence is convincing for specific instances considered, the extent to which the interpretation applies remains unsettled. The question of origin of shelf dolomites associated with evaporites is also discussed with inconclusive results, although the authors favor diagenetic alteration from a primary calcium carbonate precipitate. The erroneous record of exclusively algal reefs in the Gilbert Islands (p. 201) should be corrected. Turbidity currents seem overworked in this book as a mechanism for the emplacement of sediments—perhaps because distinction is not consistently maintained between the submarine slide, the turbidity current to which it may lead, and ordinary sediment-bearing currents. Certainly the importance of slumping and density currents in reef-complex sedimentation and erosion deserve emphasis, however, and they have received it here.

The format of the book is good. To be sure, there are some inconsistencies in the bibliography, and some inexplicable omissions in the index. Also Fig. 73 is one-twentieth natural size, not twenty times enlarged. These minor defects, however, are far outweighed by the excellent photographic plates, the many clear and well-executed line drawings, and the large, plain print, so welcome in these times of ultra-economy in publication.

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Fields and Waves in Modern Radio. ed. 2. Simon Ramo and John R. Whinnery. Wiley, New York; Chapman & Hall, London, 1953. 576 pp. Illus. $8.75.

This new edition of an excellent textbook has been enlarged, and extensively revised. Wide use of the original text by the authors and others in courses and in engineering practice has resulted in a number of improvements. These include the use of the mks system of units throughout the text, the inclusion of many more problems and examples, the use of the Smith Chart for transmission line calculations, a new chapter on microwave networks, and some significant additions to the chapters on wave guides and on radiation. Almost every section has been rewritten with the objective of clarifying the presentation. This has been accomplished without loss of the lucid, readable style that was characteristic of the first edition.

The organization of material and method of presentation are essentially unchanged in the new edition. A review of lumped constant networks and transmission lines is followed by a discussion of static fields and the solution of static field problems; then the differential and integral forms of Maxwell's equations are introduced, boundary conditions are discussed, and