mian rocks. The facies of the Delaware basin (black shaly limestone in the Bone Spring, sandstone in the Delaware Mountain formation) gives place up the flexures to thick bedded limestones, and to massive reefs such as the Capitan limestone. It is believed that movements on the flexures aided in creating physical-chemical and ecological conditions on the sea bottom which were more favorable for lime deposition on the upper part of the flexures than the lower. Such conditions include shallower, warmer, and more agitated water, in which the solubility of calcium carbonate was reduced, and in which reef-dwelling organisms could thrive.

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15. E. RUSSELL LLOYD, consulting geologist, Midland: Theory of Reef Barriers.

Studies of the organic reefs of the Permian basin and their relationships to rocks of contemporaneous age show a pronounced threefold facies, which the writer proposes to call the reef facies, the lagoonal facies and the "pontic" facies, the latter being a new name proposed for the facies group of which the Delaware Mountain formation, the black shales of the Black Shale basin, the Bone Spring formation of the Delaware basin, and the type Leonard formation (not including the Hess facies) of the Glass Mountains are good examples. The reefs form natural barriers, separating the rocks of pontic facies from the sharply contrasted lagoonal facies which, in the Permian basin, consist of dolomitic limestones grading laterally into anhydrite and rock salt.

By analogy, the reef barriers may serve as adequate explanation of the origin of all thick salt and anhydrite (or gypsum) deposits such as the New York salt and gypsum deposits, the thick salt deposits of western Colorado, the Stassfurt salt deposits of Germany, and many others. In each case we should expect a lateral gradation from the salt and gypsum (or anhydrite) into dolomitic limestone.

Likewise, reef barriers may be the explanation for such contrasts as the early Paleozoic Ouachita facies (pontic facies) of the Ouachita Mountains with the contemporaneous, dominantly limestone facies (lagoonal) of the Arbuckle Mountains. In like manner, the Ordovician Marathon facies (pontic) may be separated by a reef barrier from the contemporaneous foreland (lagoonal) facies.

Similarly, a reef barrier rather than a permanent land barrier may account for the contrast between deposits of the Chazy trough (lagoonal facies) and the Levis trough (pontic facies) of the Appalachian geosyncline.

16. LINCOLN R. PAGE, associate professor, Department of Geology, University of Colorado, Boulder, Colorado, and JOHN EMERY ADAMS, geologist, Standard Oil Company of Texas, Midland: Stratigraphy, Eastern Midland Basin, Texas.

The thick series of Red-beds along the eastern edge of the Southern Permian basin is divided into groups and formations that can be recognized both on the outcrops and in the subsurface. Gradations between near-shore, marine and restricted sea deposits are recognized and described, and unconformities in the section are traced out into the basin. The Triassic-Permian boundary line is redefined as occurring between the top of the newly defined Dewey Lake Red-beds and the base of the overlying Tecovas silts.