

in detail. Through investigations of Recent sediments in the Gulf of Mexico and elsewhere, it has been possible to define the major types of potential reservoir facies, including alluvial, deltaic, shoreline, shelf, and turbidite deposits in the deeper parts of modern basins. Each of these facies can be distinguished readily by a combination of features, including composition and lithologic character, sedimentary textures and structures, fauna and flora, lateral and vertical facies relations, and geometric form.

Knowledge of these characteristics, applied to ancient rocks, provides information of value not only in recognizing facies but also in locating porous facies and in predicting their probable trends, shapes, and dimensions.

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EARLY TERTIARY FORAMINIFERA FROM JASPER RIDGE, SAN MATEO COUNTY, CALIFORNIA

Thin-section and washed-residue examination of a well-indurated pebble conglomerate from the base of the Butano (?) Sandstone of Dibblee and about 15 feet stratigraphically above depositional contact of the conglomerate with a sill-like serpentine intrusion on Jasper Ridge, San Mateo County, California, reveals an extraordinary assemblage of plant and animal microfossils that date the stratum as the oldest marine Tertiary unit thus far recognized in the structurally complex southwestern part of the Palo Alto quadrangle.

Conspicuous in the microfauna which was isolated from the calcareous matrix are *Alabama wilcoxensis* Toulmin of Mallory and *Discorbis baintoni* Mallory, both early Tertiary index foraminifers in California. These, together with several other rotalines and a few miliolids, cibicidids, anomalinids, textulariids, and globigerinids, suggest that the Jasper Ridge conglomerate was laid down in neritic waters that had a limited access to the open sea in late Paleocene (Bulitian) or early Eocene (Penutian) time, according to Mallory's tabulation of these protozoans in Paleogene strata of the California Coast Ranges.

The conglomerate crops out about midway between the San Andreas fault zone and the distorted sedimentary section exposed in the trench for the Stanford linear accelerator. Therefore, the early Tertiary segment is in an area that has been profoundly affected by numerous diastrophic events. The lithologic character itself furnishes significant paleogeologic and paleogeographic data, because the pebbles appear to have been derived mainly from a Franciscan terrane. The dominant pebble type is greenstone, with relic basaltic and andesitic textures, and characterized by albite, chlorite, pumpellyite, and other low-grade metamorphic minerals. Pebbles in small amounts include chert, graywacke, limestone, felsite, quartzite, semi-schist, and metagabbro. About 95 per cent of the pebbles are well-sorted basalt and 3 per cent red radiolarian chert.

It could not be ascertained whether the serpentine layer was intruded during Cretaceous time into the Franciscan on Jasper Ridge as Dibblee reported in 1966. However, the fact that the serpentine was exposed at least during the early Tertiary is confirmed by its juxtaposition with the fossiliferous conglomerate. Correlation with the large, plug-like serpentine mass described in 1951 by Thomas from exposures 2-3 miles toward the northwest is postulated, although the Redwood City area ultrabasic body was

considered by Thomas to be a cold re-intrusion into Eocene strata, emplacement having occurred between late Eocene and early Miocene.

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THE PLAY THAT DID NOT SELL

The play that did not sell is the play undrilled, the oil not found, the idea untested—an economic waste. The three factors governing the salability of prospects are miscellaneous exterior causes, attitudes and reactions of buyers, and the capabilities of the seller.

Miscellaneous exterior causes include economics, weather, location, land, and others. They can not be controlled by the geologist-salesman but awareness of these factors is essential in order that he may time his submittal so that the factors help rather than hinder.

The second factor, attitudes and reactions of buyers, suggests an abiding rule: KNOW YOUR BUYER! This means knowing his attitudes and prejudices, geological and personal, individual and corporate. These factors may not be controlled by the seller but proper timing and presentation may maximize the chances of a favorable reaction. If the seller, rightfully, can not control the buyer, he may in the long run influence buyers as a group. This educational job, done by individuals and organizations, makes these potential buyers aware of the capabilities, limitations, and professional stature of geologists.

The third factor, capabilities of the seller, includes his reputation, skill at presentation, and persistence. Reputation is the outward sum of scientific competence, personal integrity, and exploration ability, and is included in submittal evaluation consciously or subconsciously by any buyer. The proved oil-finder commonly need only draw on his reputation to sell, but the neophyte or dry-holer must keep working on his image and his presentation skill.

This skill at presentation is the one over which the geologist has the most control. Principal ingredients of this skill include good geology, logical presentation, brevity, clarity, use of graphic media, consideration of the buyers' needs, and a realistic evaluation of all facets of the proposal before submittal.

Persistence might be better labeled educated stubbornness. The play that might not sell today or this year might sell 10 years from now as a result of some change in any of the preceding factors. Geologists have a responsibility to be stubborn when they think a play has merit.

Finally persistence through time also allows for improvement of reputation and improvement of presentational skills. This professional association provides one of the most useful training grounds for developing these facets of the geologist's character. If one wishes to sell his plays, he must *practice*. He should practice by presenting good geologic papers and by defending those ideas in his forum of geologic thinking, the A.A.P.G.

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QUANTITATIVE ENVIRONMENTAL ANALYSIS OF LOWER CRETACEOUS REEF COMPLEX

Lower Cretaceous rudist reefs control facies distribution in the subsurface Edwards and Stuart City Formations in South Texas. An outcropping rudist reef of nearly equivalent age in Mexico, and the Florida reef tract-Florida Bay Recent model, facilitate definition of the subsurface facies. Dominant facies in