dent traps include simple or braided sand sheets in younger anticlines (Ten Section) and more elusive narrow channel sands crossing such structures (Yowlumne). Fault-dependent pools with fault closure in fan sands include downdip block downthrown (English Colony), downdip block upthrown (Strand), possible downthrown rollover (Bellevue), and a postulated permeability barrier caused by strike-slip shearing (Coles Levee). Uplift bathymetry-dependent pools involve sands deposited against contemporary uplifted bathymetric highs, including basin-margin wedging (Saticoy), pinchouts of widespread sands against isolated uplifts (Paloma), and pinchouts of restricted channel sands against surrounding uplifts (26-R Elk Hills).

The scheme is intended to systematize model recognition in exploratory thinking rather than to generate unique pigeonholes. For example, bathymetrically restricted channel sandstones later upfolded to form traps may usefully be considered as anticline-dependent or as uplift bathymetry-dependent, and exploration for them may involve the search for channels in known anticlines (Yowlumne) or the search for anticlines along the postulated course of a channel sandstone (Asphalto).

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Uranium in Orca Basin Sediments

Removal from solution in anoxic environments is one of the major fates of dissolved uranium in the ocean. The mechanism for this phenomenon is thought to be reduction of the carbonate-complex-stabilized U^{VI} found in oxygenated waters to U^{IV}, which is subsequently adsorbed on aluminosilicates or chelated by organic ligands in the solid substrates. Enrichments up to two orders of magnitude have been reported in anoxic sediments relative to sediments deposited in oxygenated environments. However, sediments deposited in Orca Basin, a hypersaline anoxic basin which lies at a depth of from 2,200 to 2,400 m in the northern Gulf of Mexico, show no such uranium enrichment.

Samples analyzed from two piston cores taken in the deepest part of the basin show an average uranium concentration of about 2 ppm, whereas the average uranium concentration in open-marine sediments in the northern Gulf is about 3 ppm on a carbonate-free basis. However, when the samples are corrected for carbonate and salt contents, uranium values approach the average found for sediments deposited in oxic environments.

The lack of uranium enrichment in Orca Basin sediments must be due to the low amounts of uranium in the source of the brines—probably underlying salt domes from which they were dissolved. Diffusion of dissolved uranium from the overlying sea water must be negligible also.

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Computation of Initial Well Productivities in Eolian Sandstone on Basis of Geologic Model, Leman Gas Field, United Kingdom

Realistic well-productivity calculations based on geologic models are an important aid in predicting field performance. For the Leman field in the North Sea, such models have been used to predict production potentials of untested wells and to judge the danger of water coning.

The Leman field reservoir rock in the Permian Rotliegendes Sandstone is 180 to 270 m thick. The major producing unit is composed of giant eolian cross-bed sets with an average thickness of 4.5 m. The orientation of the foreset-lamina dip is remarkably uniform. The variation of the bottomset zones underlying the spoon-shaped cross-bed sets caused a very heterogeneous permeability distribution. The heterogeneity is enhanced by variations in clay content and diagenesis.

No data were available on the length/width/thickness ratio of giant eolian cross-bed sets formed by transverse dunes. Outcrop studies in the Canyon de Chelly (Arizona) have been carried out to gather information on the geometry of this type of cross-bed sets. The large horizontal extent of the cross-bed sets (length approximately 200 times the thickness), combined with the low permeability of the associated bottomsets, indicates that water coning will be minimal. Initial well behavior is probably controlled by the properties of the thickest, more permeable cross-bed sets.

Furthermore, some pairs of wells may be interconnected via continuous, fairly permeable beds because the average well spacing is less than the average cross-bed set length (900 m). Log correlations tend to confirm this conclusion.

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Deformation of Continental Slope Sediments Resulting from Large-Scale Downslope Creep

Recently acquired high-resolution seismic data suggest that a previously undescribed style of deformation may be common in sediments on the continental slope. This deformation is characterized by folds whose axes are oriented roughly parallel with the slope of the seafloor (perpendicular to isobaths). In cross section, the amplitude and wavelength of folds range from 5 to 50 ft (1.5 to 15 m) and from 300 to 2,000 ft (100 to 600 m) respectively. The amplitude generally decreases with depth, and undeformed sediments form the base of the folded sequence. Folded sequences up to 400 ft (120 m) thick have been observed on the continental slope offshore Louisiana. Where not buried beneath younger, undeformed sediments, these folds are expressed at the seafloor as a series of ridges and furrows which are mappable using side-scan sonar. Detailed mapping has shown that individual folds are several hundred to several thousand feet long and the areal extent of folding is tens of square miles. Where the continental slope is irregular, fold axes converge downslope into bathymetric lows forming a fanlike pattern. Folds are rare or absent where the continental slope is planar and on the crest of bathymetric highs.

This style of deformation has been detected in sediments consisting primarily of cohesive clays on the upper continental slope off Louisiana, Texas, and California where seafloor slopes range from 2 to 15%. It is