stricted settings of the western Hellenic arc, eastern Mediterranean, consist primarily of seven clayey silt and silty clay facies. These sediment types are closely related to specific environment, time, or both.

We propose two depositional models for Hellenic arc fine-grained sediments. The first emphasizes downslope transformations from slump and debris flow, to turbidity current, to low density turbidity current or turbid layer mechanisms. The distal end-member deposits settling from low concentration flows are thick, rapidly emplaced, fine-grained uniform muds closely associated with faintly laminated muds, and were ponded in flat trench basin plains. Planktonic and terrigenous fractions in the turbiditic, finely laminated and uniform muds record mixing of materials of gravitative and suspension origin. This sequence prevails under conditions of minimal stratification of water masses, as characterized by the present Mediterranean.

A second depositional model is developed for conditions of well-developed water mass stratification, which temporarily occurred over large parts of the basin. In this example, well-laminated rather than uniform mud prevails as the end-product of low concentration flows. These more slowly deposited, very finely laminated and graded units record particle-by-particle settling from detached turbid layers concentrated along density interfaces. Well-laminated layers thus include material from turbid layers complemented by the normal "rain" of pelagic material settling through the water column. Stratification barriers resulted in region-wide distribution of such deposits, in both slope and trench environments. The applicability of both depositional schemes to other regions of the Mediterranean and to other small ocean basins can be tested.

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Forms and Associations of Pyrite in Upper Freeport Coal Bed, Homer City, Pennsylvania

Five genetically different forms of microscopic pyrite occur in samples of the upper Freeport coal obtained near Homer City, Pennsylvania. At least two facies of pyrite forms and associations can be observed throughout the study area.

The five forms of pyrite are: (1) maceral encapsulated crystals which formed in cell cavities of plants shortly after death of the plants; (2) framboids, which form early in peat accumulation; (3) maceral cell fillings, which form before compaction of the plant material and in association with calcite and kaolinite; (4) replacement of pre-macerals before compaction; and (5) cleat and fracture filling during or after compaction and the formation of cleat.

Facies of pyrite forms and associations may include the five pyrite forms in differing concentrations. Facies 1 is dominantly composed of framboids associated with vitrinite and clay; facies 2 is dominantly composed of massive pyrite that replaced vitrinite pre-macerals. Facies 1 is in the lowermost coal type, which was believed to have been deposited on previously (subaerially) exposed freshwater lime muds and argillaceous sediments.

Microscopic analyses of the pyrite forms, associations, and grain size of the iron disulfide minerals may be used as tools for estimating the washability of a coal bed before mining.

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What's New in U.S. Industry Activity

U.S. drilling and production highlights in the first half of 1980 are reviewed, featuring recent drilling activity, important exploration plays, and significant production trends. Industry results in the 1970s are summarized to provide a basis to forecast industry trends in regard to political and economic restraints that are anticipated in the 1980s.

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Cementation of Lime-Mud and Pellet Mud Beneath Tidal Flats of Southwest Andros Island, Bahamas

Scanning electron microscopy delineates several diagenetic products currently forming beneath the prograding Holocene wedge of carbonate sediments along southwest Andros Island. Various diagenetic reactions are associated with distinct chemical pore-water environments in the affected sediments.

Pore fluids of near normal marine concentrations occur in sediments over widespread areas of the tidal flats and, in these, small amounts of non-lithifying aragonite have been precipitated at isolated locations. Meteoric water infiltrates and is stored beneath topographic high areas (hammocks), while a halo of brackish groundwater surrounds the hammocks. Non-lithifying protodolomite cement occurs in sediments saturated with brackish water beneath the hammocks and adjacent areas. An unusual Mg-calcite (7 to 8 mole % $MgCO_3$) occurs as a beachrock cement where brackish hammock-water mixes with more normal-marine (bank) water. Sediments saturated with fresh water beneath hammocks are being calcitized. Groundwater near the surface of low positive topographic areas with a high exposure index, such as flanks of hammocks, modern beach ridges, and tidal-creek levees, become hypersaline due to evaporation of capillary waters. The well-known protodolomitic crusts form in these environments. Most carbonate precipitation beneath the tidal flats is non-lithifying; some nodule formation, nodular beachrock, and, of course, the crusts of varying mineralogy are exceptions.

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Profile of Unusual Oolite Deposit—Drum Limestone, Pennsylvanian (Missourian), Montgomery County, Kansas

The Upper Pennsylvanian (Missourian) Drum Limestone, cropping out in Montgomery County, Kansas, is characterized by a thick body of cross-bedded oolite formed by filling a paleobathymetric depression. This oolite contains abundant, well-preserved, seemingly delicate fossils, which were protected from breakage and