and Jefferson Counties, Ohio, show large amounts of vitrinite, varying amounts of exinites, and inertinites. The inertinites, consisting mainly of fusinites and semifusinites are normally present in larger amounts than the sporinites and resinites that make up the exinites. Large amounts of mineral matter, composed of pyrite, carbopyrite, and carbargillite, exist within this high sulfur coal. Vitrinite reflectance studies reveal that all seams rank as high volatile bituminous coal.

Macerals within the coal imply that at the time of deposition the predominant facies was forest moor, occasionally interrupted by the mixed forest-and-reed and reed moor facies. The coal seams were in an upper delta-plain fluvial environment on an easterly building deltaic lobe.

The two westerly seams are thinner, with a higher ash content indicating their proximity to the main delta. They were deposited under brackish water conditions due to the distributary's diluting of the marine sea. The southern and northernmost seams have higher pyritic values reflecting deposition under marine conditions. The southernmost seam's higher pyritic values at its extremes indicate inundations of the sea in that area of the deltaic lobe.

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Subsurface Geology of Tertiary Rocks of Northeastern District of Western Desert, Egypt

The lithofacies analysis of the Tertiary rocks reveals two ancient subbasins at the north and southeast of the northeastern district, Western Desert. The southeastern subbasin seems deeper than the northern one as it received relatively thicker Paleocene and early and middle Eocene rocks. The lithofacies of the Paleocene and early and middle Eocene sections are mainly calcareous. The clastic ratio ranges from 0.05 to 1. Shale predominates in the late Eocene rocks. The clastic ratio is more than one everywhere. The Paleocene rocks seem to have accumulated in a lagoonal environment of epineritic depths. Semi-restriction of water circulation at the southeastern subbasin was caused by an elongated ridge, separating the two subbasins. The Paleocene rocks of the northern subbasin indicate accumulation on an unstable shelf, i.e., slow deposition in a rapidly subsiding basin or at least slow deposition in an overall carbonate aerobic environment. Widening of the northern subbasin occurred during the early Eocene. The Paleocene environmental conditions seem to have prevailed during the early and middle Eocene. During the late Eocene, rocks of shallow-water and current-agitated environments accumulated. The lower clastic layers of the Oligocene, having a sand/shale ratio less than one, indicate a clastic shoreline environment-lagoonal subenvironment. The sediments of such an environment are brought down by rivers and reworked by waves and currents. The Oligocene clastics are overlain by a basaltic sheet at the eastern part of the district. The depocenter of the northern middle Miocene subbasin lies farther north. The sand/shale ratio increases to the south, being more than one. The middle Miocene lithofacies indicate rock accumulation in a contemporaneously subsiding basin under lagoonal or delta-front conditions at the southern part of the district. Marine stagnant-bottom-water conditions prevailed during the accumulation of the middle Miocene rocks at the northern parts. The Pliocene shoreline shifted farther northward. The Pliocene rocks seem to have accumulated in lagoons, where the inflow exceeded evaporation and alternating periods of exposure and flooding by either fresh or saline water of poor circulation prevailed. The tectonic instability of the district was initiated by volcancity during the late Oligocene. This volcanic activity was accompanied by uplifting, folding, and faulting of Oligocene and older rocks. The uplifting of the southern part was accompanied with subsidence of the northern one. The subsidence was associated with vertical block movements of the basement rocks. Basaltic magma climbed along faults. The folds are of the brachyanticlinal type, affected by faulting forming a median horst block. This block remained high for a great period of time. The axes of folding are parallel to the fault trends due to their association with the vertical block movements of the basement. The northern flanks of the folds are relatively steeply dipping. The middle Miocene and Pliocene rocks are not affected by faulting. The source lands of those sediments are deduced as nearby low elevated lands affected by the same tectonic events that affected the depositional basin itself during different epochs.

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Storm-Deposited Outer Shelf Facies from Precambrian Ortega Group, New Mexico

The 1,700 million year old Ortega Group in northern New Mexico accumulated in diverse shallow shelf environments under the influence of tidal, wave, and storm processes. Tidal and fair-weather wave reworking dominated the inner shelf but a significant storm overprint is indicated by offshore-directed trough cross-stratification, and winnowed lags and scour channels at the top of tabular units. Storm-surge currents supplied sand to the outer, mud dominated shelf where deposition occurred predominantly under flat-bed conditions. Amalgamated, upward-thickening depositional units of horizontally stratified sandstone comprise 1 to 7 m (3 to 23 ft) thick genetic packages. Based on their position in the progradational shelf sequence, these sandstones are inferred to have accumulated in proximal reaches of the outer shelf. The upper parts of individual 2 to 25 cm (.78 to 9.8 in.) thick depositional units are commonly defined by interlaminated siltstone and mudstone, and the thinner basal sandstones frequently have wave-rippled tops. Scour channels are often present at the top of the sandstone packages. The sandstone:mudstone ratio decreases outward on the shelf with discrete, 2 to 5 cm (.78 to 1.9 in.) thick, horizontally-stratified sandstone beds and rare hummocky cross-stratified beds passing distally into mm-thick horizontally stratified sandstones. Associated lenticular sandstones are exclusively wave rippled. The preponderance of horizontal stratification in outer shelf sandstones coupled with the resemblance of individual depositional units to b-d turbidite beds suggests suspension fallout under conditions of high but waning bed shear. Such conditions may have been related to unidirectional storm surge currents or oscillatory storm waves; the paucity of hummocky cross-stratification may favor the former process. Wave-rippled sandstones developed through fair-weather reworking of the storm-deposited sandstones. In the absence of bioturbation, Precambrian shelf sequences provide an excellent opportunity for studying outer shelf depositional facies and processes.

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Diagenesis in Stevens Sandstone, a Miocene Deep-Water Turbidite in San Joaquin Valley, California, and Probable Interactions with Surrounding Siliceous Shales

The late Miocene Stevens Sandstone deep-water turbidite in