

AB type. The adjacent overbank sections are composed dominantly of shale but contain thin sandstones and siltstones that are massive to laminated and rippled, and form more complete turbidites of the ABC type. All sandstones have graded texture and are volcanic-chert arenites of moderate quartz content.

The channels appear to be of constructional origin, and log correlations above and below the channel facies suggest that they are inserted in the sedimentary section rather than filling eroded channels. The several facies illustrated by cores have characteristic responses on borehole logs which permit recognition of channels and overbank sections by logs alone. These distinctive log characteristics may permit the prediction of channels in exploratory and development drilling.

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Calpionellids and Nannoconids of Taraises Formation (Early Cretaceous), Santa Rosa Canyon, Sierra de Santa Rosa, Nuevo León, Mexico

Santa Rosa Canyon dissects the Sierra de Santa Rosa at the western end of an arcuate range in south-central Nuevo León, Mexico, about 40 km west of Linares. About 2,000 m of Late Jurassic (Tithonian) to Late Cretaceous (Maestrichtian) rocks are exposed. The Taraises Formation is composed mainly of dark gray to black, well-indurated lime wackestones and mudstones 132 m thick. The upper part of the formation includes 31 m of dark calcareous shale which contains a few thin beds of moderately indurated lime wackestone which bear ammonites of Valanginian age. Other megafossils are rare throughout the formation. Microfossils are common to abundant in about one third of the samples collected at 2-m intervals. Induration and recrystallization allowed micropaleontologic study by thin section only. The microfossils include radiolarians, ostracods, echinoderm debris, and unidentified biogenic grains as well as calpionellids and nannoconids, but only the last two are persistently common.

Calpionellid taxa include *Amphorellina subacuta* Colom, *Calpionella alpina* Lorenz, *Calpionella elliptica* Cadisch, *Calpionellites darderi* (Colom), *Calpionellopsis oblonga* (Cadisch), *Calpionellopsis simplex* (Colom), *Remaniella cadischiana* Catalano, *Salpingellina levantina* Colom, *Stenosemellopsis hispanica* (Colom), *Tintinnopsella carpathica* Colom, and *Tintinnopsella longa* (Colom). The distribution of these taxa indicates that the Taraises ranges in age from middle Berriasian to the Hauteriviian-Valanginian boundary. No calpionellids were found in the overlying Tamalipas (= La Pena and Cupido of many workers).

Although abundant in some thin sections, nannoconids were less useful than calpionellids. *Nannocomus steinmanni* Kamptner appears intermittently throughout the Taraises Formation. It has been reported to range throughout the Berriasian and Valanginian. Other species of nannoconids were tentatively identified but they are comparable in form and range and their occurrence was plotted with *N. steinmanni*.

CASEY, RICHARD, Rice Univ., Houston, Tex., et al Preliminary Report on Microplankton and Microbenthon Responses to 1979 Gulf of Mexico Oil Spills (Ixtoc I and Burmah Agate), with Comments on Avenues of Oil to Sediments and Fate of Oil in Column and on Bottom

During 1979 the Gulf of Mexico was the scene of the world's largest oil spill (Ixtoc I in the Bay of Campeche) and a major oil tanker spill near a metropolitan area and an estuarine system (Burmah Agate spill off Galveston). Pre-spill sampling provided base-line data on the microplankton and microbenthon. Post-spill sampling (after the oil came ashore in each area, the south Texas and Galveston beaches) illustrated immediate responses to oil in the water column (death of meroplanktonic and holoplanktonic forms, but an apparent congregation of copepods feeding on the oil) and perhaps rapid (increase in nematode standing stock) and longer term (increase in nematodes and benthonic foraminiferans) responses to the oil as it reached the bottom. Four pelagic avenues of oil to the bottom were recognized (tar balls and perhaps on the bodies of dead plankton near the Burmah Agate, flocculation or adhering of clay-sized particles to sheen or mousse, fecal pellet transport, and aerosol transport to the turbid nearshore zone with the adhering of silt-sized particles). Impact was noticeable near the Burmah Agate, in nearshore regions, and under open ocean areas covered by extensive mousse and tar balls; however, most of the open ocean continental shelf appeared to be unaffected.

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Depositional Systems and Lignite Prospecting Models—Wilcox Group and Meridian Sandstone (Eocene), Northern Mississippi

The first year of a three-year Mississippi Mineral Resources Institute project to map the surface and subsurface terrigenous clastic depositional systems and lignite units of Mississippi has been completed. Data from 620 oil- and water-well electric logs, 65 sample logs, and 35 surface exposures have been used to determine the distribution of the principal sandstone bodies in the northern third of the state. Evidence from eight regional cross sections indicates that the Wilcox-Meridian vertical stratigraphic interval can be subdivided into a minimum of four distinct units: (1) a basal Wilcox progradational interval, (2) a lower Wilcox fluvial-deltaic unit; (3) an upper Wilcox fine-grained fluvial unit; and (4) a Meridian coarse-grained fluvial unit. In extreme northwestern Mississippi the highest 200 ft (61 m) of the Wilcox is composed of massive sandstone and is genetically related to the overlying Meridian Sandstone (Claiborne Group). This is the Meridian—upper Wilcox aquifer system (basal part of the Memphis aquifer) of hydrologists. Hence, a fourth Wilcox subdivision, a massive upper Wilcox coarse-grained fluvial unit, can be delineated for the northernmost counties of the study area.

Sandstone-body geometry and lignite distribution in the Wilcox-Meridian systems are indicated by net sandstone isolith, net sandstone percent, thickness of most