of normal open shelf and slope deposits from other regions. Early results suggest that basin plains are underlain predominantly by ponded turbidites with internal reflecting horizons of near horizontal initial attitude which conform to their flat featureless surface. Lateral continuity of these reflectors appears to be large compared to those within the gently sloping aprons and sea fans of the basins. Reflection profiles of the peripheral regions of the Tyrrhenian Sea show horizontally-bedded, probably ponded turbidites in closed slope-basins and hemipelagic sediments blanketing and conforming to underlying topography in open-slope areas. Similar features are recorded in profiles from the continental terrace and marginal basin of the East China Sea and other regions. Filled marginal basins are believed to be quantitatively important in retaining terrigenous sediments within the continental framework.

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MUDLUMPS: DIAPIRIC STRUCTURES IN MISSISSIPPI DELTA SEDIMENTS

Mudlump islands are surface manifestations of intrusive clay masses that result from depositional processes at the mouths of major Mississippi River distributaries. The stratigraphy and structure of mudlumps at the South Pass mouth have recently been studied through a drilling and coring program which included holes to depths of 700 feet. Subsurface information obtained establishes the interrelationship between older shelf and prodeltaic river deposits and younger, progradational delta front and river mouth bar sediments.

Mudlumps are interpreted as being near-surface expressions of older shelf and prodelta clays diapirically intruded into and through overlying bar deposits. The intrusion culminates in shallow-angle thrust faulting which has resulted in vertical displacement of older clays as much as 350 to 400 feet. New mudlumps, revealed during the period of study, display surface exposures of shelf deposits uplifted and thrust from depths in excess of 350 feet. Between diapiric clay masses are synclinal troughs filled with as much as 400 feet of rapidly accumulated, near-strandline bar sands, silts, clays, and organic material.

Rapid deposition of thick, localized masses of heavier bar sediments directly upon lighter, plastic clays leads to an unstable situation which is relieved by diapiric intrusion of the clays with the resulting formation of mudlumps.

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A DEPOSITIONAL MODEL FOR THE JACKFORK (MISSISSIPPIAN) GROUP OF ARKANSAS

Two linear, isolated belts of Jackfork clastics in the Arkansas Ouachita Mountains exhibit differences in sand-shale percentages, sedimentary structures, composition, and thickness, permitting one to make assumptions concerning the depositional model. Along the Frontals, the 5,400-foot-thick section is 70 per cent shale, generally lacking fissility and siliceous marker beds and is often contorted, containing irregular sandstone blocks. Medium bedded, fine grained arenites contain laminations, cross-stratification, ripple marks, and scattered tool marks oriented 255°, whereas massive, ridge-forming arenites are almost structureless. The 6,000-foot-thick southern section is approximately 70 per cent fine grained, poorly sorted arenites, containing schist fragments and feldspar. The remaining wackes, siltstones, and mudstones show little evidence of strong currents or steep slopes.

Petrographic and paleocurrent studies suggest the derivation of the clastics from a large, well-drained provenance to the east, consisting predominantly of quartzites and mature sandstones. Some clastics may have bypassed the Illinois Basin, the resulting laminated and cross-stratified arenites having formed from southwest flowing traction currents. Rubble bedding, possibly initiated by faulting, resulted when subaqueous mudflows disrupted the non-lithified arenites to form rounded exotic blocks. Structureless, generally massive arenites may have entered the basin by mass sediment flow from a more eastern or southeastern direction, possibly being swept off the Appalachian land mass by westward flowing currents.

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CONODONTS FROM THE WABAMUN GROUP (UPPER DEVONIAN) FROM THE CANADIAN SUBSURFACE

The Upper Devonian Wabamun Formation was named for 562 feet of limestone and dolomite in Anglo-Canadian's Wabamun Lake well, south of Edmonton, Alberta. Subsequently, the formation was elevated to group status in the Stettler area where it was divided into the upper, thin, Big Valley Limestone and the lower, predominantly evaporitic and dolomitic, Stettler Formation. These latter units are not generally recognizable outside the Stettler area, where these strata are termed "Wabamun Group undivided" or simply "Wabamun Formation."

According to previous studies (Wonfor and Andrichuk, 1956), Wabamun rocks in the Stettler area attained a pre-Mississippian thickness, ranging from less than 500 feet in the east to over 800 feet in the west. The general structural setting is on the regional southwesterly dip of the Alberta basin. The Wabamun strata are part of the basin's lower Paleozoic sequence of carbonates, shales, siltstones, and evaporites of Cambrian through Mississippian ages, overlying a crystalline Precambrian basement.

Wabamun conodonts have been recovered from cores from three wells near the towns of Edmonton, Westerose, and Calgary. The conodont fauna thus far revealed has been abundant and diverse. Named and unnamed species of the platform genera *Palmatolepis* and especially *Polygnathus* are abundant, as are the bars and blades of the species representing the genera *Spathognathodus, Apatognathus, Hindeodella, Pelekysgnathus, Trichonodella,* and *Angulodus;* the cones of *Acodina* and *Drepanodus* also characterize the Wabamun fauna. Two species are believed to represent a genus of bar-type conodont never before described; another species of a cone-type unit represents a hitherto unnamed genus.

Previously published studies of conodont faunas have not, with a very few exceptions, generally included the conodonts from subsurface or exposed rocks in western Canada. For this reason, comparison of new material with similar Canadian conodonts is impossible or impractical for the most part. Comparison of the Wabamun conodonts is therefore made with the better-known Devonian faunas of the United States and western Europe.

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INTERNAL STRUCTURE AND GROWTH OF SALT DOMES