lineage with pyriform thecas have flat to convex ambulacra from the late Meramec to the early Chester; nearly flat or concave ambulacra occur in middle and late Chester specimens. The number of hydrospire folds per hydrospire group is four to five in early Chester pyriform species; five to seven in the middle Chester, and four to five in some late Chester forms.

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Late Cretaceous Biostratigraphy in Los Baños Creek Area, California

Facies studies present a narrowing of the continental shelf during the Cretaceous-Paleocene transition in central California. Response to this changing environment was attended by accelerated evolution and proliferation of individuals prior to the extinction of many previous well adapted animal stocks, especially the ammonoids and the larger reptiles.

Evidence is lacking for the presumed unconformity between the Cretaceous and Tertiary sediments, and the often quoted Paleocene transgression is actually more regressive in character, with a considerable increase in red oxidized sandstones and associated tidal marsh leaf-bearing clastics.

The Late Cretaceous stratigraphic nomenclature is compromised with the increasingly continental trend of the Late Cretaceous deposits north of Los Baños Creek. For example, the Volta Member of the Garzas Formation northward grades from the medium-depth neritic foraminiferal marl of the Marca shale through the littoral calcareous sandstones of the "Mercy" Sandstone lentil to the brackish-water anauxitic sandstone member of the lower "Martinez" Formation.

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Permian Fusulinids in Eastern Nevada—Paleoecologic Implications

Field and laboratory studies of fusulinids from exposed Permian strata in no fewer than 15 mountain ranges in eastern Nevada, and six similar sections in western Utah have progressed to the point that the following conclusions can be drawn concerning paleoecology of these Foraminifera: (1) they were most abundant in the infraneritic to epineritic benthos; (2) areas of optima were below wave-base for many schwagerinids, although some of these along with numerous parafusulinids seemingly thrived in areas of high energy; (3) most species of all fusulinids occur in areas where clean calcarenitic limestones and clean carbonate muds accumulated; (4) pseudoschwagerinids and paraschwagerinids lived in environments of agitation as well as under circumstances of slightly foul bottoms; (5) triticitids and pseudofusulinids occurred where silty, sandy, and calcarenitic materials were accumulating under moderate- to high-energy conditions; (6) most species of fusulinids can be found in the reef-tract; some in fact contributed notably to this biotope.

Throughout most places in eastern Nevada (and western Utah) strata of Wolfcampian age are limestones of criquinitic, calcarenitic, and high-energy patch-reef types. These contain pseudofusulinellids, schwagerinids, and pseudoschwagerinids in abundance. Strata of Leonardian age consist of silty, sandy, calcarenitic and reef materials, all more or less rich in robust to elongated schwagerinids and parafusulinids; pseudoschwagerinids occur abundantly in reef-rocks. Strata of late Leonardian, and Wordian to early Capitanian age locally are gritty, sandy, conglomeratic, and coarsely bioclastic; diagnostic species of parafusulinids and schwagerinids preferred the environment typifying these sedimentary realms.

It should be emphasized that possibly all these Foraminifera at times and under optimum environmental conditions formed veritable slimes and oozes of protoplasm. Some of this material may have contributed to oil source beds for strong hydrocarbon odors now characterize most fusulinid-bearing strata of the Permian of eastern Nevada and western Utah.

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Late Devonian—Early Mississippian Correlations Central Wasatch Mountains, Utah

Strata of Late Devonian age have been recognized west of the Wasatch Front (Pinyon Peak Limestone and "City Creek Limestone") and a few miles east of the Wasatch Mountains in the western Uinta Mountains (Pinyon Peak Limestone?). These consist commonly of a basal sandstone or shale a few feet thick which grades upward to a dolomite sequence that ranges in thickness from 50 to 300 feet. This succession is in turn overlain by the Madison Limestone (Mississippian). On the west this contact is conformable but on the east it is unconformable. In the Wasatch Mountains, sandstone or shale a few feet thick rests on older rocks (mostly of Cambrian age) and changes upward through about a 3-foot interval into medium to dark gray dolomite about 50-150 feet thick, which in turn is overlain conformably by the Madison Limestone. These pre-Madison rocks were tentatively correlated with the Jefferson Formation (Devonian) by earlier workers on the basis of stratigraphic position and lithologic character. Subsequent workers of the U. S. Geological Survey have reported corals of Mississippian affinity from the exposures in American Fork Canyon and have thus assigned a Mississippian age to these strata.

Restudy of several of the Wasatch Front exposures disclosed well preserved molds of the brachiopod *Cyrtospirifer whitneyi* (?) in the basal sandstone in the Big Cottonwood Canyon area. This fossil is generally considered to be of Late Devonian age and has been collected from the Pinyon Peak Limestone in the western Uintas and in the areas west of the Wasatch. Thus the Mississippian age assigned to these rocks on the basis of corals is questionable. Moreover, a Late Devonian age is more consistent with a regional stratigraphic correlation on the basis of physical evidence. Therefore the "Jefferson (?)" of the Wasatch is here correlated with the Pinyon Peak Limestone of the areas east and west.

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The Exploration Team

Advancements in petroleum technology during the past 40 years have been so extensive that the science of finding oil has rendered obsolete dependence on one man or one method. Exploration success must now rely on the close cooperation of many people and utilization of all applicable methods.

Since the surface and seismic refraction programs of the 1920s and 1930s, new and highly specialized tools have contributed substantially to the complexity of the oil explorer's task in the 1960s.

It is no longer sufficient for the geologist, as the