ment on oceanic crust are found throughout the province. Other significant findings include: (1) seismic evidence for underthrusting and for deeply buried folded sedimentary rock at the base of the slope, (2) geologic evidence for 2 to 4 km of differential subsidence, and (3) the discovery of uplifted and deformed Mesozoic(?) oceanic crust beneath Umnak Plateau.

The abyssal-basin province lies entirely in water depths greater than 3,000 m and is underlain by (igneous) oceanic crust. This Mesozoic crust may be a piece of trapped oceanic plate that since early Tertiary time has been covered by a 3 to 8 km-thick sedimentary section. Recent observations include the delineation of regionally thick and locally deformed sediment bodies, discovery of numerous velocity-amplitude features (deep-water "bright spots"), and geologic and geophysical evidence for extensive, potential reservoir beds.

COOPER, ALAN K., MICHAEL S. MARLOW, and DAVIS W. SCHOLL, U.S. Geol. Survey, Menlo Park, CA

Multifold Seismic Data Across Outer Bering Sea Continental Margin

Recent U.S. Geological Survey multifold seismic reflection records from the outer edge of the Bering Sea shelf show that a thick sedimentary section underlies the continental slope and rise. The subject segment of the Bering Sea margin extends from Cape Navarin in Siberia south to Pribilof Canyon, a distance of 700 km. This part of the margin is covered by 200 to 3,400 m of water, is incised by several large submarine canyons, and is underlain by up to 10 km of strata. The strata are thickest (7 to 10 km thick) at the base of the slope near Cape Navarin and near Zhemchug Canyon. A maximum thickness of 10 km (5.9 s two-way time) occurs in uplifted rise and slope deposits that lie in 800 m of water near the mouth of Zhemchug Canyon.

Rocks dredged from the continental slope indicate that upper Eocene or lower Oligocene rocks rest unconformably on Mesozoic (Upper Jurassic and Lower and Upper Cretaceous) rocks that form the acoustic basement. The reflection profiles and dredge data obtained from the sediment-draped areas of the margin suggest that the upper half of the thick sedimentary section at the base of the slope is younger than early Oligocene age. The age of deeper rocks may be as old as Mesozoic.

Several aspects of sediment wedges along the Bering Sea margin make them favorable targets for future hydrocarbon exploration: (1) the large total thickness of Cenozoic rocks; (2) the presence of structural and stratigraphic features such as diapirs, faults, crustal warps, onlaps, and pinch-outs; and (3) the possibility that Cenozoic sediment source areas may be rich in organic and coarse-grained detrital debris.

CORBO, SALVATORE, New York State Geol. Survey, Alfred, NY

Paleoenvironmental Control of Biogenic Structures in Upper Devonian Prodeltaic Turbidite Deposit

The Rock Stream Formation near Ithaca, New York, is a proximal, submarine fan-like deposit of an epicratonic sea. Turbidites and interbedded shale were deposited in alternating channel and interchannel facies. This lithology is in sharp contact with overlying mudstones which were probably deposited on a progradational slope.

The complex environmental parameters which affect the distribution of trace-making organisms is shown by their ichnologic distribution. Three associations occur within the submarine fan. (1) The *Paleodictyon* association consists of five ichnogenera representing pascichnia. These are followed stratigraphically by (2) the *Arenicolites* association consisting of 12 ichnogenera representing domichnia and fodinichnia. Two repichnia compose (3) the *Pteridichnites* association. This last association is ubiquitous to the study section. Food resources significantly influenced behavior as the population shows a trophic shift within a lithologically consistent section, from grazing (like *Nereites*) to the endobenthic feeding and dwelling behavior of a shallow-water assemblage. Within the *Arenicolites* association, substrate texture and cohesion differentially influence the distribution of suspension-feeders and deposit-feeders through a trophically consistent assemblage. Multiple ichnogenera among any one behavioral class rarely occur in the same bed. Ecologic competition affects the distribution of individual phylotaxa within a behavioral class. Ecologic competition may have depended mostly on spot concentration at the time of substrate availability. On muddy substrates which may vary widely in cohesiveness, trophic group ammensalism allows fodinichnia to inherit a similar lithology from domichnia. The complexity of ichnogeneric distribution is produced by ichnotaxa ambiguities as well as ecological controls.

CORDELL, ROBERT J., Cordell Reports, Inc., Dallas, TX

Introduction (to SEPM Research Symposium): Source Beds—Depositional Environments and Early Diagenesis

In recent years, symposia and publications on hydrocarbon source beds have dealt primarily with organic geochemical and late diagenetic aspects. The present symposium is designed to balance the source-bed approach with treatment of depositional-environmental and early diagenetic factors.

The first two presentations discuss kerogen as an indicator of depositional environments; and the next three topics examine, respectively, source type shales, source type carbonates, and the evaporitic environment.

Subsequent papers are arranged by geologic age, commencing with studies in the Holocene to late Tertiary, and moving to progressively older strata. This younger-to-older stratigraphic order permits the coverage to begin with examples in which direct or quasi-direct environmental verification is possible, and to follow with investigations in which the evidence is indirect. In this sequence of stratigraphically restricted papers, most of the lithic examples are shales, mudstones, or other argillaceous rocks.

CURRAN, H. ALLEN, Smith College, Northampton, MA, and RONALD L. MARTINO, Marshall Univ., Huntington, WV