Aptian inclusive was not present in any of the stratigraphic tests. The oldest Early Cretaceous sediments of late Albian age are of continental origin. The Cenomanian-Turonian marked the onset of marine deposition which was relatively continuous throughout the Late Cretaceous and Tertiary. A climatic cooling first recognized in the early Miocene extended into the Pleistocene. Comparison is made with the data from the Pan Am IOE Tors Cove and Pan Am IOE Grand Falls wells drilled in 1966. The age determinations on 212 samples from 20 of the shallow coreholes have assisted greatly in the construction of a geologic subcrop map of the Grand Banks region.

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BAFFIN BAY

Baffin Bay is a small ocean basin. This has been shown by seismic refraction studies. The depth to mantle beneath the central part of the basin is approximately 10 km, consisting of 2 km of water, 4 km of sediment and 4 km of oceanic crust, with the oceanic crust thickening toward Greenland. Sediments thicken northward and beneath the northern margin, east of Lancaster Sound, and are 6–7 km thick. The margin of the ocean basin can be delineated by gravity measurements, and the change in gravity is accompanied by change in magnetic-field-anomaly characteristics and change in structural style in sediments. Sediment-filled grabenlike structures occupy Melville Bay and Lancaster Sound, and smaller sedimentary basins are present in the southern part of Nares Straits and in Jones Sound. Extensions of the Tertiary igneous rocks of West Greenland and eastern Baffin Island are found offshore. Oceanic "basement" at the southern end of Baffin Bay rises to the surface on the northern side of Davis Strait. This sill is Icelandic in character, and may have been a site of a mantle plume which was at least in part responsible for the opening of the Bay.

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PRELIMINARY REPORT ON U.S. GEOLOGICAL SURVEY GEOPHYSICAL STUDIES OF ATLANTIC OUTER CONTINENTAL SHELF

Regional geologic and geophysical studies are being conducted by the U.S. Geological Survey to determine the structural framework of the area from Cape Hatteras to the northeastern edge of Georges Bank to assess the petroleum potential of the northeastern Atlantic outer continental shelf. Preliminary interpretations of geophysical data integrating gravity and magnetic data from the U.S. Naval Oceanographic Office with seismic surveys, suggest that the linear ridge reported by Drake and others in 1959 is deeper and farther west than previously suspected. Although it is not observed under the seaward extension of the Norfolk arch, it can be traced from the south side of the Baltimore Canyon area northeastward toward the eastern edge of Georges Bank. This ridge seems to form the eastward edge of a Mesozoic trough in the Baltimore Canyon area in which more than 10 km of relatively undisturbed post-Paleozoic sediments accumulated. The types of structures mapped are in general agreement with the sedimentary, structural models hypothesized for the Baltimore Canyon area by Kraft *et al.* in 1971. More than 8 km of sediments are present beneath the continental shelf on Georges Bank. On the basis of the preliminary regional geophysical studies, thick sedimentary sections and structural traps favorable for the accumulation of petroleum appear to exist under the Atlantic continental shelf off the northeastern part of the United States.

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STRUCTURAL FRAMEWORK OF CONTINENTAL MARGIN OF EASTERN NORTH AMERICA

A reference surface is defined as the top of seismic layers of velocity greater than 4.5 km/sec, and referred to as "basement." The configuration of this surface is a series of basins, linear arches, and escarpments which have controlled the thickness and facies distribution of the lower velocity Cenozoic and later Mesozoic sediments.

Velocities within basement cluster in two groups, less than and greater than about 5.6 km/sec. High-velocity basement can be equated accurately with crystalline bedrock only in some nearshore areas of the inner shelf. Lower Cretaceous carbonates in the Bahamas–Blake Plateau area and very possibly farther north have velocities in this range, and obscure the underlying crystalline bedrock. High-velocity basement under the continental rise between the Scotian Shelf and the Carolinas has velocities mostly in the range of oceanic layer 3. Few measurements are in the range of normal upper continental crust.

Low-velocity basement represents a great range of lithologies and ages, including low-grade metamorphic rocks, Mississippian strata, early Paleozoic platform cover, Early Cretaceous/Jurassic sediments, and layer 2 of the ocean basin.

Between the Blake Plateau and the Scotian Shelf, a broad basement arch underlying the outer shelf and a secondary, more subdued, arch beneath the upper continental rise are formed on low-velocity basement. A large gravity high is associated with self-edge arch, but is not solely caused by it. Basement underlying the secondary arch, and seaward of it, has velocities characteristic of layer 2, but is much thicker and may be a mixture of clastic, evaporite, carbonate, and lava rocks which has subsided several kilometers since the region was the shallow margin to a young rift ocean. North of the New England seamounts the secondary arch appears to underlie the "ridge complex" observed by seismic profiler, which in turn follows the magnetic "slope anomaly."

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STRATIGRAPHY OF CONTINENTAL SHELF, OFFSHORE NOVA SCOTIA

A formal stratigraphic scheme has been proposed for the Cenozoic and Mesozoic sediments of the continental shelf, offshore Nova Scotia. The stratigraphy is based primarily on subsurface information from approximately 30 offshore wells and supplemented by an extensive seismic grid.

The oldest recognized stratigraphic unit is salt, possibly of Early Jurassic age. The salt unit thickens into several subbasins where it is overlain conformably by a variable sequence of dolomite, anhydrite, limestone, and shale. Poorly sorted, feldspathic clastic sedimentary rocks disconformably overlie the evaporite section