AAPG EASTERN SECTION EAST COAST OFFSHORE SYMPOSIUM

ATLANTIC CITY, NEW JERSEY
APRIL 23–25, 1973

Abstracts of Papers

ARMSTRONG, W. E., W. B. CREATH, E. J. KIDSON, G. A. SANDERSON, and C. F. UPSHAW, Amoco Production Co., Tulsa, Okla., and J. H. CRAIG, S. A. J. POCOCK, F. L. STAPLIN, and J. A. SULEK, Imperial Oil, Calgary, Alta.

BIOSTRATIGRAPHIC FRAMEWORK OF GRAND BANKS

Paleontologic and palynologic analyses of samples from wells on the Grand Banks of Newfoundland have established the presence of sedimentary rocks ranging in age from Holocene to Devonian. Several unconformities have been recognized, at least one of which is major in terms of areal extent and temporal magnitude. Upper Cretaceous and Tertiary rocks were deposited in environments ranging from middle shelf to slope. Early Cretaceous and Jurassic environments are interpreted as ranging from nonmarine to outer shelf. A graphic technique of compositing all available biostratigraphic data has permitted detailed correlation of wells located in three different basins. The data utilized were derived from analyses of foraminifers, ostracodes, calcareous nannoplankton, dinoflagellates, spores, pollen, and rare megafossils. The foundation for future biostratigraphic work has been established.

AYRTON, W. G., D. E. BIRNIE, J. H. SWIFT, and H. R. WELLMAN, Offshore Exploration Staff, Amoco Canada Petroleum, Ltd., Calgary, Alta., and D. B. HARRISON, J. F. STEVULAK, D. C. WAYLETT, and R. A. F. WILKINSON, Imperial Oil, Calgary, Alta.

GRAND BANKS REGIONAL GEOLOGY

Geophysical and drilling operations within the area of the Grand Banks have established the existence of thick sedimentary accumulations that include Tertiary, Mesozoic, and Paleozoic formations. An angular unconformity that developed in Early Cretaceous time divides the section into two distinct geologic units. The "upper wedge" is comprised of Tertiary and Cretaceous formations, whereas the "subunconformity basins" contain Jurassic and older formations. The structure of the upper wedge is relatively simple, consisting of regional dip broken locally by salt-dome structures. The subunconformity basins contain a great variety of structural types, including salt domes, salt ridges, and basement-controlled block faults.

BALLARD, R. D., Woods Hole Oceanographic Inst., Woods Hole, Mass., and R. N. OLDALE, U.S. Geol. Survey, Falmouth, Mass.

GEOLOGY OF GULF OF MAINE AND ADJACENT LAND AREAS

Seismic reflection, refraction, and magnetic measurements together with bedrock samples obtained with the submersible *Alvin* indicate that the Gulf of Maine has experienced a tectonic history similar to that of coastal New England. The major basement units include the late Precambrian Avalon platform, parts of the Appalachian eugeosyncline, Late Devonian to Middle Pennsylvanian basin and platform structures, and Early Triassic to Jurassic rift structures. The Avalon platform can be traced from the Canadian Maritime provinces to southeastern New England and may represent an ancient subduction zone formed during the early closing of the Atlantic in post-Grenville time. The Taconic and Acadian intrusive rocks of middle-late Paleozoic time also may have resulted from crustal compression during the final stages of closing. At that time the Avalon platform and Appalachian geosyncline were folded, faulted, and welded to the North American craton. Late Paleozoic rift structures apparently formed during the early phase of the opening of the present Atlantic or may have been the result of rotational compression between North America, Africa, and Europe during final closing of the proto-Atlantic. Tensional structures of Triassic age underlie a substantial part of the Gulf of Maine, most being beneath the gulf's many isolated basins. Similar tensional structures can be traced from Newfoundland to Florida and probably resulted from the separation of North America, Africa, and Europe, beginning in the Late Triassic. Mesozoic-Cenozoic igneous activity in northeastern North America also appears to be related to the formation of the present Atlantic basin.

The post-Triassic sedimentary framework of the Gulf of Maine consists of coastal-plain sediments of Late Cretaceous to early Pleistocene age which were deposited on a subsiding basement as the Atlantic widened and deepened with continued spreading. Coastal-plain deposits underlie Georges Bank and isolated topographic highs within the gulf which resisted subsequent removal by stream erosion and glacial activity. Well-defined unconformities beneath Georges Bank are inferred to separate the Upper Cretaceous sediments from the Tertiary and lower Pleistocene sediments and the Tertiary–lower Pleistocene strata from the Pleistocene glacial deposits. Moraine deposits of Pleistocene age mantle the northern slope of Georges Bank and much of the Gulf of Maine. Marine sediments of late Pleistocene to Holocene age are present in the gulf's basins. They are believed to be in part glacial rock flour carried into the basins by melt water and in part sediments winnowed from the moraine deposits on the nearby banks and ledges during the postglacial rise in sea level. The topography of the Gulf of Maine is believed to be the result of fluvial erosion during late Tertiary or early Pleistocene time. Pleistocene glaciation modified but did not alter significantly the preglacial drainage system.

BRIDEAUX, W. W., Geol. Survey Canada, Calgary, Alta., and G. L. WILLIAMS, Geol. Survey Canada, Dartmouth, Nova Scotia

PALYNOLOGIC ANALYSES OF MESOZOIC–CENOZOIC SEDIMENTS OF GRAND BANKS OF NEWFOUNDLAND

Sediments ranging from Mississippian to Pleistocene age were present in a series of shallow coreholes drilled in 1965 on the Grand Banks of Newfoundland. Palynologic analyses of 110 samples from nine of these coreholes permit the recognition of 16 diagnostic biostratigraphic divisions within the late Mesozoic–Tertiary section. These divisions are defined on their spore, pollen, and/or dinoflagellate and acritarch assemblages. The geologic history and paleoecology can be reconstructed in part from the palynomorph assemblages. Mississippian rocks were recognized in only one of the coreholes (no. 10) and are of marine origin.

The stratigraphic interval from Pennsylvanian to the