

Symposium on Recent and Ancient Sedimentary Environments in Alaska

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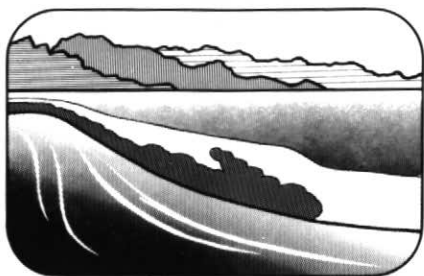
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Symposium on Recent and Ancient Sedimentary Environments in Alaska

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Clastic sedimentary environments have been the lifeblood of Alaska's oil and mineral industry in the past. Hydrocarbons, coal, and placer deposits continue to attract the explorationist and strong public feelings for the proper conservation of the northern ecosystem have added a new dimension to the study of recent sediments in the northern environment. Several of the papers presented at this symposium in Anchorage, held between April 2 and 4, 1975, were of great interest to the Canadian listener.

Four papers described Holocene environments along the North Slope and the Bering Sea: the arctic Colville River Delta with its short intensive flood period and the deposition of flood-derived sediments over sea ice (Walker, Naidu); the recent transgression deposits of the Bering Shelf and the silts of the Yukon River Delta which are extensively reworked by ocean currents and transported northward as far as the Chukchi Sea; the dynamics of beach ridges, shore erosion, nearshore bars and quiet bays which are significant to the exploration effort for offshore placer deposits of gold, platinum, and other metals (Nelson, Moore).

Of particular interest were a series of papers describing the glacial-marine interactions along the Gulf of Alaska which can be traced as far back as the middle Miocene and are beautifully displayed in the 5,000 metre section of the Miocene-Pliocene Yakataga Formation (Plafker and Addicott). Facies models which may turn out to be useful in the reconstruction of ancient glacial-marine environments are presently developed in settings of breathtaking beauty on sandurs, fine-grained outwash plains, beaches, tidal arms and lakes (Boothroyd, Ovenshine and Bartsch-Winkler, Gustavson).

Three papers dealt with the Tertiary Coal-Bearing Group of Central Alaska, a fluvial setting with two upward-fining megacycles of about 200 metres each (Buefler and Triplehorn), and the age-equivalent fluvial to marine (?) channel sands of Cook Inlet which produce oil and gas (Hite, Hayes and Harms).

Ancient deep-sea fans and turbidite environments are becoming of even greater significance as hydrocarbon reservoirs and as important elements for paleogeographic reconstructions: the enigmatic and unfossiliferous Upper Devonian (?) Nation River Formation in Eastern Alaska is now being interpreted as a proximal easterly derived deep-sea fan deposit, and paleogeographic implications regarding the widespread contemporaneous Imperial Formation of the adjacent Yukon Territory clearly require follow-up on the Canadian side (Nilson, Brabb, Simoni); a late Mesozoic sub-sea fan in south-western Yukon Territory seems to have been torn apart by the Denali Fault, and equivalent deposits in Alaska have to be investigated to substantiate a 300 km. right-lateral offset (Eisbacher); the deep-sea fan deposits of the Eocene Orca Group in the Gulf of Alaska, if compared with the recent trench deposits of this region, seem to indicate that the bulk of the deformed clastics plastered against the shores of the northeastern Pacific did not originate in deep-sea trenches but in basins landward from the trenches. The geologic record of trenches remains an outstanding riddle of large scale plate motions (Winkler, Scholl).

Permo-Triassic sedimentary environments of the Alaska Range were greatly influenced by contemporaneous volcanic activity: their study is difficult due to lensing, thinning and slumping of volcanogenic debris and limestones but can be rewarding because of their association with polymetallic stratabound sulphide deposits (Bond, Hawley).

Carbonate banks and associated fine-grained clastics of Carboniferous age are presently being studied with regard to possible sub-surface petroleum reservoirs along the North Slope of the Brooks Range (Armstrong and Bird).

The papers presented at this meeting created lively discussion and will be published in a special volume by the Alaska Geological Society which was the organizing body of this successful symposium.

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