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#### Geology and Hydrocarbon Discoveries of Canadian Arctic Islands

Most exploration geologists now are reasonably familiar with the general geology of the circumpolar areas of the United States, Canada, and the USSR. Spitsbergen is less well known and few know anything of the Greenland Sequence.

A discussion of the Canadian Arctic Islands can be divided into two parts: a general discussion on the geology, and hydrocarbon discoveries and potential of the area.

There are two major sedimentary basins in the Arctic. The oldest contains late Proterozoic to Upper Devonian rocks; the youngest consists of Mississippian to Tertiary rocks. The older exposed beds, with the exception of those of Devonian age,

contain few coarse clastic rocks and are dominantly carbonate and shale with a major facies change along a hingeline. The latter has a close genetic relation with the southern and eastern margins of the Sverdrup basin.

Following a phase of earth movements in the Devonian, a younger basin developed northward of the older one. In this basin the rocks, with the exception of those of late Proterozoic age, are sandstone and shale. The late Paleozoic beds include thick evaporitic sequences which form the cores of many of the Tertiary structures in the basin.

Thus far, the only potentially economic discoveries are gas production from Mesozoic sandstones. Interesting oil shows have been recovered from beds of similar age and also from Devonian carbonate rocks. One major factor that may account for many of the structures being dry or water-bearing is that they are very young. The distribution of the structures bearing hydrocarbon can be rationalized to some extent by analyzing the sedimentary and structural history of the basin.



#### A. I. LEVORSEN AWARD—FIRST WOMAN RECIPIENT

John Runge, President of the Rocky Mountain Section of the AAPG, presented Esther R. Jamison Magathan the A. I. Levorsen Memorial Award for her paper, "Silurian Carbonate Recycling: An Explanation for the Anomalous Sub-Devonian Unconformity in the Williston Basin," given at the 1973 section meeting in Salt Lake City. She is the first woman geologist to receive this award.