As with all oceanic sea floor, the process of axial accretion along the crest of an active mid-oceanic ridge is of paramount tectonic importance to the geologic fabric of the northern Atlantic Ocean floor.

The chronologic evolution of the Norwegian-Greenland Sea region has been derived from the analysis of Raff-Mason magnetic anomaly patterns by several investigators. These studies indicate that Norway and Greenland were severed when rifting commenced 60–70 m.y. ago, approximately along what are now the edges of their continental shelves. A half rate of 1.2 cm/year has been measured as the rate for this earliest sea-floor spreading. A second episode of spreading lasted from 40 to 18 m.y. ago, and was accompanied by a westward axial shift of the mid-oceanic ridge in the Norwegian Sea. At present, the axis of activity is along the Iceland-Jan Mayen and Mohns Ridges. Mohns Ridge apparently has been stable throughout the evolution of the region whereas the Iceland-Jan Mayen Ridge appears to be a very recent feature. In the Greenland Sea the Knipovich Ridge is apparently now acting as a trench which connects the mid-oceanic ridge branches in the Arctic and Norwegian Seas.

Baffin Bay is enigmatic as to whether it is downfaulted continental or oceanic crust. The writers prefer the hypothesis that Baffin Bay was formed at the same time as the Labrador Sea (prior to 60 m.y. ago) in a proto-North Atlantic by the process of sea-floor spreading. The now-extinct Mid-Labrador Sea ridge would have extended via transform faults through Baffin Bay and perhaps even to the Alpha Ridge in the Arctic. This system then slowed down and became extinct in the Tertiary.

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GEOLOGY, PETROLEUM POTENTIAL, AND EXPLORATION OF HUDSON BAY BASIN, CANADA

The Hudson Bay basin is a major sub-Arctic sedimentary province of Canada. Situated south of the Arctic Circle the basin underlies much of Hudson Bay, an extensive but shallow inland sea.

The basin covers approximately 270,000 sq mi and has a Phanerozoic stratigraphic thickness variously estimated between 6,000 and 10,000 ft. It is dominated by Devonian, Silurian, and Ordovician carbonate rocks with local Cretaceous clastics.

The geology of the basin is considered as a present northern exploration frontier. Estimates of hydrocarbon potential have been made.

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SPECULATIONS ON LATE MESOZOIC TECTONIC HISTORY OF PART OF SOUTHERN ALASKA

Late Mesozoic sedimentary and volcanic rocks in southern Alaska form 2 crudely parallel, arcuate belts that are concave on the south. The northern belt consists of the southern Wrangell Mountains and their ill-defined mergence with part of the St. Elias Mountains on the east. The southern belt consists of the eastern part of the Chugach Mountains and part of the St. Elias Mountains. Both belts include large tracts of geologically unmapped terrane; knowledge of their geology is based mainly on reconnaissance investigations and a few local detailed studies.

The northern belt is the less structurally complicated of the two. It contains a sequence of Late Triassic, Jurassic, and Cretaceous shelf deposits that overlies widespread Triassic subaerial basalt. Mesozoic rocks of the northern belt clearly have continental affinities and probably were deposited on a late Paleozoic oceanic terrane that collapsed against the continental margin during the early Mesozoic.

Geologic details of the structurally complex southern belt are less well known. Late Mesozoic rocks of this belt, which attain great thickness, include argillite, slate, graywacke, submarine lavas, and small bodies of ultramafic rock. These rocks are cut by numerous granitic plutons of Mesozoic and early Tertiary ages and locally have been metamorphosed. The Mesozoic rocks are interpreted to have been deposited at least in part on the oceanic crust and later underthrust against the continental margin.

The rocks of the region have been affected by at least 2 major orogenies; the older from the Late Jurassic to Early Cretaceous and the younger from Late Cretaceous to earliest Tertiary. Each of the orogenies involved significant crustal shortening by folding and imbricate faulting in the southern belt and similar but less severe coeval deformation in the northern belt. Details of the Mesozoic tectonic history of the southern belt have been partly obscured by Cenozoic tectonic events.

Both the northern and southern belts appear to be truncated on the east by a system of major dextral transform faults. Late Mesozoic rocks similar to those of the northern belt occur about 500 mi southeast on the Queen Charlotte Islands near the present continental margin. Rocks similar to those of the southern belt are absent there, suggesting that they may have been thrust beneath the continent.

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STRATIGRAPHIC SCHEME OF ORDOVICIAN OF NORTHEASTERN USSR AND ITS CORRELATION

Ordovician deposits occur in marginal uplifts of the Kolyma medial massif (different facies zones of the Omulevka Mountains, Selennyakh Ridge, Tas-Khayakhtakh Ridge), middle part of the Kolyma River, in the Verkhoyansk fold-mountains region (Sette-Daban Ridge), in the Chukotsk Peninsula. Recent data indicate the presence of Ordovician in the Omolon and Okhotsk medial massifs. A correlation chart was prepared, and it shows the correlation of Ordovician deposits of all principal regions of the northeastern part of USSR by ostracod, brachiopod, trilobite, and graptolite associations. The biostratigraphic zones corresponding to the Upper Ordovician of the international stratigraphic standard are accepted as principal units of regional stratigraphic importance. However, the stratigraphic positions of some biostratigraphic suites have been revised. This resulted in the revision of the contents and names of some zones.

The oldest Ordovician deposits (Inaya horizon) are correlated conditionally with the Tremadocian of England, the Gasconadian Stage of North America, and the Ust'kut Stage of the Siberian platform. The correlation is based on brachiopod and trilobite associations and stratigraphic position. The Khita horizon is compared with Beekmantown Stage of North America and the Chunya Stage of the Siberian platform on the basis