sic and Jurassic, a fold-belt zone did not form. Depressions developed with regressive formations around the flanks and littoral formations in the central parts. Such basins developed in the more southern areas (shelf and coastal area of the Laptev, Eastern Siberian, Chukotsk, and Beaufort Seas).

3. In the Late Jurassic-Cretaceous the Arctic province again entered a stage of orogenic development. Extensive flat depressions filled with molasse deposits appeared. The whole region is prospective for oil and gas. Ore mineralization and orogenic intrusive magmatism were relatively unimportant.

4. Changes in the Arctic crust have occurred in recent times. The Polar Ocean is a new feature overlying the previously formed folded structures.

5. The Arctic province is connected structurally with the Pacific Ocean. They were constantly in interaction, but the tectonic processes of each during Phanerozoic time resulted in different tectonic trends.

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MAIN STRUCTURAL FEATURES OF ARCTIC

The fold belts of northern Greenland, Arctic Canada, northern Alaska, Chukotsk, and the Siberian Arctic coast (to the mouth of the Lena River) form the latitudinal Arctic belt of Baikalides, Caledonides, Hercynides, and Mesozoides. The spatial location of the Arctic belt was determined by the Hyperboreal and Greenland-Canadian platforms, and by the center of the Yukon, Anadyr-Seward, and Kolyma massifs at the close of the Proterozoic and the beginning of the Paleozoic. It is suggested that the fold belts of the Arctic belt—according to their geographical position, structural framework, style, and type of development—be isolated as a special geostructural zone of the earth (the Arctides) and the Atlantic segments (the Atlantides). The Arctides are characterized mainly by a miogeosynclinal sedimentation regime; the eugeosynclinal regime is characteristic of the Pacifides.

The Arctides may be divided into two segments: Euramerasian (from eastern Greenland to the Mackenzie District) and Amerasian (from Mackenzie to the Lena River), which differ from each other by the ages of the fold systems. These differences emphasize the asymmetric structure of Arctides. The Caledonian and Hercynian folding systems are developed in the Euramerasian segment. The Mesozoic geosynclinal cycle played the main role in the Amerasian segment (the Mesozoides of the northern Alaska and Novosibirsk-Chukotsk fold systems).

The junction of the Arctides and Pacifides occurs along the zone of the Mackenzie-Lena latitudinal and sublatitudinal deep faults. The nature of the Arctides junction with the folding systems of Taimyr, Severnaya Zemlya, Novaya Zemlya, and Spitsbergen is not clear. Hypothetically, this deep-lying border may be drawn along the continental slope from Greenland to the mouth of the Lena.

The great Kolyma megablock (Kolyma massif, and the Verkhoyansk and eastern Amur Mesozoides bordering the massif), limited by the zones of deep-seated faults, exhibits the mutual influence of the Arctic and Pacific structural styles and tectonic types of development. It is suggested that this megablock be considered as a transitional geostructural area—the Arctopacifides.

It is suggested that the western Arctic (*i.e.*, Taimyr, Severnaya Zemlya, and Novaya Zemlya fold area; fold structures of Timan, Spitsbergen, and eastern Greenland; and the area bordering the Barents Sea platform and the Kara Sea massif) that is spatially and genetically associated with the Atlantic segments and occupies the intermediate position between the Atlantides and Arctides be assigned to another transitional area—the Arcto-Atlantides.

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CANADA BASIN AND LOMONOSOV RIDGE: INFERENCES BASED ON PRECAMBRIAN AND LOWER PALEOZOIC GEOLOGY OF CANADIAN ARCTIC ISLANDS

Canada basin truncates and post-dates a belt of north-trending structures in the central part of the Arctic Islands. The trends, though exhibited by Phanerozoic strata, are interpreted as rejuvenated Precambrian basement features because they cut across Phanerozoic basin axes and parallel exposed Precambrian structures on the south. The maximum possible age of the Canada basin, therefore, is the age of these trends—about 1.7 b.y.

A geanticline, characterized by volcanism and plutonism, rose out of a late Proterozoic geosyncline and occupied the northern rim of the Arctic Islands and adjacent present offshore region, from Cambrian to Devonian time. What lay beyond the geanticline is unknown, and speculations about that region depend on the tectonic model used.

If present concepts of plate tectonics are applied, it appears that Canada basin (or some predecessor) opened in middle to late Proterozoic time with a geosyncline developing on the newly formed continental margin. The floor of the basin was thrust beneath the geosyncline from latest Proterozoic or Cambrian to Devonian time, and produced a geanticline above and southeast of the postulated Benioff zone.

Lomonosov Ridge.—A belt of north-trending structures in northernmost Ellesmere Island lines up with the southern extremity of Lomonosov Ridge. The structures, formed in sialic metasedimentary and metavolcanic rocks, are partly pre-late Middle Ordovician. The belt aligned with Lomonosov Ridge was elevated relative to terrane on the east during 2 Paleozoic orogenies, but not during the Tertiary orogeny. A short distance inland, the north-trending belt terminates against west-trending structures subparallel with the axis of the Franklinian geosyncline. The zone of intersection, marked by ultrabasic intrusions, was a site of repeated crustal extension on a scale of miles.

If the Lomonosov Ridge has oceanic crust the apparent alignment would be coincidental. If it has continental crust, two interpretations are possible: (1) the north-trending belt represents an early Paleozoic "Lomonosov geosyncline" that joined the Franklinian; (2) both Lomonosov Ridge and the north-trending belt in Ellesmere Island are controlled by meridional Precambrian basement trends, but these trends were rejuvenated in a different manner, and perhaps at different times, on Ellesmere Island and in the present Arctic Ocean. This hypothesis is favored.

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EARLY PALEOZOIC EVOLUTION OF NORTHERN PARTS OF CANADIAN ARCTIC ISLANDS