ble to distinguish separate water bodies in this region. The following principles and criteria are the bases of constructing zoogeographical divisions into smaller subdivisions or districts: (1) the degree and the rank of endemism; (2) endemism of species; (3) the areal extents of species, genera, and families; and (4) the coefficient of the community (K_c = the ratio of the quantity of species, genera, and families characteristic of a district, to the total number of species, genera, and families).

Endemic families and genera are absent. High values of K_c are found at the family level. Thus the very great similarity of the Late Jurassic middle Volzhian fossil complexes of the Pechora basin, and western and middle Siberia (K_c = 0.70–0.77), and the endemism of species (22–48%) indicate that these districts belong to the North Boreal subregion of the Boreal region. Values of K_c, and the areal distribution and endemism of species made it possible to recognize the Pechora–West Ural (Pechora basin, West Siberian basin) and North Siberian (Ust'-Yenisey district, middle Siberia) provinces in middle and early Volzhian times. In late Volzhian time a climatic change took place. The ensuing temperature decrease of the marine water caused a narrowing of the distribution of almost all species in middle Siberia and an increase in agglutinated Foraminifera (Ammodiscidae, Ataxophragmiidae, Trochamminidae). The basins of the Pechora, western Siberia, and middle Siberia districts were part of the Boreal region, the boundary of which shifted southwestward. In Berriasian (Early Cretaceous) time, the water area of the Soviet Arctic zone was included in the Boreal region with the western and northern Siberia provinces.

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OIL AND GAS PROBLEMS OF NORTHEASTERN ASIA AND ADJOINING SHELF

1. Northeastern Asia and vast areas of the adjoining shelf attract the attention of petroleum geologists, particularly after the discovery of many large oil and gas fields in structurally similar areas nearby, and in Alaska.

2. There are 18 possible oil-gas bearing basins in the northeast of USSR (excluding Kamchatka).

3. *Geosynclinal basins* (Khatyrka, Olyutorka, Korfovskiy) are linked with young depressions within the Olyutorka-Kamchatka system of the Cenozoides. These basins are characterized by the presence of orthogeosynclinal lithologic sequences, complex folding, and numerous oil and gas seeps that also are known on the adjoining shelf areas.

4. *Proto-orogenic basins* are confined to various intermontane areas. Their positions are defined by the geotectonic setting and the structure of the underlying late geosynclinal and postgeosynclinal rocks. Primary exploration objectives are in molasse complexes. Examples include: Momskiy, Indigirka-Zyryanka, Yamsk-Tauy, Kresty Bay, Anadyr, Penzhino, Parapol' and Pustoretsk basins. In the Anadyr basin, gas flows and definite oil shows were recovered in the wells which have been drilled.

5. *Deutero-orogenic basins* (Ulyogan, North Kolyma) in the area are found entirely within old middle Mesozoides massifs, and are characterized by the presence of two facies: The subplatform and molasse complexes.

6. *Platform-type basins* are confined to an extensive area of epi-Mesozoic depressions on the Arctic and Okhotsk shelves. These depressions are partly exposed on land. The Arctic group of basins is in depressions formed during the waning stages of the Mesozoides. It is possible that in the Arctic shelf conditions similar to those of Prudhoe Bay field in northern Alaska will be found.

7. On the basis of a comparative geologic-economic analysis, the most prospective and immediate objectives are the Anady basin, Indigirka-Zyryanka basin, the inland part of the Laptiyev-Yanskiy basin, and the inner zone of the Novobirsk basins. The large reserves for the future are on the shelves.

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CRETACEOUS PALEOGEOGRAPHY OF ARCTIC CANADA

In Early Cretaceous time Berriasian-Valanginian boreal seas covered North Yukon and Sverdrup basins and were connected at the site of the present Beaufort Sea. Dawson City strait connected the North Yukon sea with the North Pacific sea of the Saint Elias trough across the present Klondike plateau. The remainder of Arctic Canada was dry land.

In latest Valanginian time, uplift excluded the Hauterivian-Barremian seas from Sverdrup basin but North Yukon basin and Dawson City strait remained flooded after partial, early Hauterivian regression.

An Aptian boreal transgression flooded the Sverdrup basin and restored direct connection with the North Yukon sea which subsequently spread eastward into Darnley Bay and lower Peel River areas. Aptian orogeny closed the Dawson City strait and separated permanently the Canadian Boreal and North Pacific seas.

The early and middle Albian boreal seas covered Sverdrup and North Yukon basins and most of Mackenzie Lowlands and Mountains but late Albian and Cenomanian seas were restricted to a residual seaway east of Mackenzie River that connected the Mowry sea with that of Sverdrup basin.

An early Turonian transgression flooded the present regions of northern Yukon, Mackenzie Mountains, and, possibly, the Sverdrup basin; its total extent is still obscure. In the late Turonian the sea left the Mackenzie Mountains region but the North Yukon and Sverdrup basins remained flooded and were connected with a residual seaway east of Mackenzie River. A new seaway, connecting Sverdrup basin with the West Greenland sea across Ellesmere Island and Baffin Bay, opened in the late Turonian.

The most extensive flooding of Arctic Canada was caused by the Coniacian to mid-Santonian transgression which covered the areas of the Mackenzie Mountains, North Yukon basin, and Sverdrup basin, and extended east as far as Coppermine River.

Strong late Santonian uplifts on the west side of the Mackenzie Lowlands were followed by a series of increasingly intense uplifts that caused progressive eastward retreat of the Campanian-Maestrichtian seas. A residual seaway connecting the Bearpaw sea with that of West Greenland across the Canadian Arctic Archipelago and Baffin Bay continued to exist east of Mackenzie River until late Maestrichtian time. All of Arctic Canada became dry land in late Maestrichtian or early Paleocene time.

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MARINE GEOLOGY OF ATLANTIC NORTH OF ARCTIC CIRCLE