Alaska region. The second period began in the middle Oligocene and continued through most of the Neogene; rocks of this age, however, are typically found only south of lat. 65°.

YORATH, CHRISTOPHER J., Geol. Survey Canada, Calgary, Alta.

GEOLOGY OF BEAUFORT-MACKENZIE BASIN AND EASTERN NORTHERN INTERIOR PLAINS

The eastern part of the northern Interior Plains is underlain by rocks of Cenozoic, Mesozoic, and Paleozoic ages. The region is bounded on the east by the Coppermine arch, composed of lower Paleozoic and Precambrian rocks. The plains region is a northwest-dipping homocline, interrupted in its western part by the Kugaluk arch, a north-trending pre-Cretaceous uplift.

Mesozoic rocks of the Interior Plains consist of Cretaceous sandstone, mudstone, and shale with a composite thickness of about 3,000 ft along Anderson and Horton Rivers. The Lower Cretaceous units are correlated with similar rocks on Banks Island. On the mainland, these are disconformably overlain by varicolored clastic rocks of Late Cretaceous and early Tertiary ages.

Westward, in the region of the Mackenzie delta, the Tertiary Reindeer Formation consists of a northward-thickening sequence of poorly consolidated to unconsolidated cherty gravel, cross-bedded sandstone, coal, and ash beds. Its maximum outcrop thickness is about 4,000 ft. In the nearby B. A.-Shell-I.O.E. Reindeer D-27 well the Reindeer Formation is 3,970 ft thick and underlies 790 ft of Quarternary and Holocene sediments. Microfaunal studies show that the Reindeer Formation overlies 2,200 ft of Late Cretaceous clastic rocks which may be partly equivalent to the Moose Channel Formation that crops out on the west side of the delta adjacent to the Richardson Mountains. The Upper Cretaceous rocks in the Reindeer well unconformably overlie 5,690 ft of Lower Cretaceous sandstone and mudstone which can be correlated with similar units in the eastern Richardson Mountains.

Offshore seismic profiles obtained during the 1969 Arcticquest survey indicate the presence of a thick sequence of sedimentary rocks, the lower part of which has been deformed into broad domal structures. These lower rocks are unconformably overlain by nearly flat-lying younger rocks. This unconformity may be the same one that separates the Lower and Upper Cretaceous rocks in the Reindeer well. Analyses of the profiles indicate that these younger rocks may have been intruded by diapiric structures.

If the Canadian Government's Hudson 70 program in the Beaufort Sea is successful additional information on the geology of the Beaufort Sea basin will be available.

YUFEREV, O. V., Inst. Geol. and Geophys., Siberian Branch, Acad. Sci. USSR, Novosibirsk, USSR

PALEOBIOGEOGRAPHIC ZONATION OF CARBONIFEROUS IN NORTHERN HEMISPHERE

A Siberian biogeographic realm with the fauna and flora of a temperate-cool climate, and a Mediterranean realm with the fauna and floras of a tropical-subtropical climate existed in the Northern Hemisphere during all of the Carboniferous.

There were no ammonites during the Tournaisian in the Siberian realm and the corals and brachiopods were less varied than in the Mediterranean one. Endemic brachiopod species are typical for the Siberian realm. The Siberian realm included the Verkhoyansk, Kolyma, Taimyr, Tunguska, and Chersk provinces. The Verkhoyansk and Kolyma provinces, with rich faunas, coincided with the shelf of the Kolyma massif and the Siberian platform that was covered by calcareous silt. Verkhoyansk and Kolyma were separated by the Chersk province which had a poor fauna typical of deep-water basins. The Tunguska province differed from the Taimyr province in variety of tournayellids and endothyrids present and in poverty of brachiopods, but is similar to Kuznetsk province in poverty of brachiopods.

Only multifacial foraminifers remained among the Viséan foraminifers of the Siberian realm. Ozaweinellidae became scarce during the time of Yasnaya'Polyana and Okhoye deposition. Endothyridae became scarce but archaediscids increased during the time of Serpukhov deposition. Corals were represented by impoverished complexes. The Siberian species constitute a large percentage of the brachiopods. During the Viséan, the Siberian realm spread over the Omolon, Zaysan-Mongol, and Kazakhstan provinces.

During the Serpukhov deposition, the Kolyma and Verkhoyansk provinces joined, and the Chersk province was eliminated as a result of structurally controlled facies changes. At the same time, the Tunguska and Kuznetsk provinces disappeared as a result of the continuing marine regression.

In Late Carboniferous (Samodiye-early Bashkirian) time, the Archaediscidae continued to dominate in the seas of the Siberian realm; there were many local species and genera among the brachiopods. The fauna of that time was especially abundant in the Taimyr province, from where an arm of the sea extended south to the seaway in the Ob'-Zaysan geosyncline. East of the Kolyma massif, the Anyuysk province existed. Beginning with Kulom deposition (late Bashkirian), arenaceous foraminifers continued to develop in the seas of the Siberian realm; fusulinids, archaediscids, and other forms were completely absent. The brachiopods were represented mainly by endemic species and genera. The goniatites (including species common with those of Northern America and the Urals) were represented by Siberian endemic species and genera. The most essential differences at that time took place between the faunas of Verkhoyansk-Kolyma province with its foraminifers, goniatites and brachiopods and Mongol-Okhotsk province where foraminifers and goniatites were absent. Not long before the end of the Carboniferous the goniatites had disappeared from the seas of the Siberian realm. At the same time, most brachiopods had become extinct.

In the western part of the Arctic the Barents-Franklinian area had an impoverished fusulinid and goniatite fauna that differed from the faunas in the Mississippian basins of North America.