tion? We can only imagine a Cambrian world very different from that existing now.

With the Ordovician we have a more classic marine sedimentation, with the development of a transgressive regularly bedded series (Haouaz formation) which ended with erosion and an infilling which is stratigraphically chaotic (Memouniat sandstone). From then on the sedimentary structures never had the homogeneity of the Cambrian, being affected by local factors.

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PETROLOGY OF THE WESTERN CANADA BASEMENT

The Western Canada sedimentary basin is floored almost completely with igneous and high-grade metamorphic rocks which crystallized during the Hudsonian orogeny, dated at 1,800 m. y. Since that time most movements in the basement have been epeirogenic, in response to isostatic adjustments following long periods of erosion. Five areas of the basin floor, defined on the basis of geophysical anomalies, inferred faults, and positive or negative tectonic history, show distinct variability in percentage of rock types. Basement areas of persistent negative tendency contain higher than average percentages of sedimentary, volcanic, and basic intrusive rocks. The isostatically positive arches are composed dominantly of granitic gneisses.

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ENVIRONMENTAL AND STRATIGRAPHIC SIGNIFICANCE OF DEVONIAN STROMATOLITES OF COLORADO

Upper Devonian carbonates of west-central Colorado contain abundant stromatolites. These finely laminated, crenulated, and commonly brecciated calcareous dolomites and dolomitic limestones comprise most of the Dyer member of the Chaffee formation along the west side of the Sawatch Range, in the McCoy area, and in the White River Plateau.

These fine-grained carbonates display striking structural and textural resemblance to laminated sediments now being produced by algae on western Andros Island, B.W.I., and in Florida Bay. The environment of present-day stromatolitic sedimentation is intertidal where only occasional flooding occurs during spring tides or periods of storm waves. Carbonate mud deposited by these waters is laminated by the trapping and binding functions of filamentous blue-green algae. Desiccation polygons may become dislodged during flooding to form intraclastic breccias. If, in this case, "the present is the key to the past," these Devonian sediments represent quiet-water carbonate deposition in the littoral environment.

The Dyer in the eastern and northeastern part of the study area is predominantly stromatolitic, but to the west the lower portion is a neritic carbonate accumulation. During lower Dyer time the intertidal environment existed on the east and northeast and an offshore environment existed on the west. During upper Dyer time the intertidal environment regressed westward and southwestward behind the waning Upper Devonian sea.

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GEOLOGY OF A PORTION OF THE CONTWOYTO LAKE AREA, NORTHWEST TERRITORIES

Approximately 24 square miles of Archean(?) igneous and metamorphic rocks have been mapped at a scale of 1 inch equals 1,000 feet in an area centered 5 miles south of the central part of Contwoyto Lake, N.W.T.

The oldest rock unit is apparently a quartz-plagioclase-biotite-K-feldspar paragneiss containing numerous pegmatitic segregations of quartz, plagioclase, K-feldspar, and minor amounts of muscovite, tourmaline, and apatite. A sequence of low- to medium-grade metasediments overlies the paragneiss. In the northern part of the area, these rocks are largely quartz-chlorite-muscovite phyllites. As the grade of metamorphism increases southward, biotite, almandite, andalusite, cordierite, and staurolite become common. Approximately 20 beds of quartz-hornblende-almandite amphibolite up to 10 feet in width have been mapped in the schist sequence. The phyllites, schists, and amphibolites are believed to be correlative with the Yellowknife group.

Two biotite granite bodies approximately one mile in diameter intrude the Yellowknife group metasediments. The sediments are also cut by diabase dikes 20–100 feet in width, and a gabbro stock $\frac{3}{8}$ mile in diameter.

Pyrrhotite, pyrite, and arsenopyrite are found locally in a few of the amphibolite beds. Gold mineralization is locally present in some of the tightly folded pyrrhotite and arsenopyrite-bearing amphibolites.

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DISTRIBUTION OF PTEROPODS IN WESTERN NORTH ATLANTIC SEDIMENTS

The pteropod assemblages in 120 post-Wisconsin cores were studied from an area between the Atlantic continental shelf of North America and the Mid-Atlantic Ridge. Pteropod shells are one of the major constituents in the calcareous pelagic sediments at depths ranging from 350 to 4,200 m., particularly along the Mid-Atlantic Ridge, the Bermuda Pedestal, the Blake Plateau, and the Gulf of Mexico.

The subarctic species *Limacina retroversa* and the temperate species *Clio pyramidata* are present in the Mid-Atlantic Ridge sediments north of about 45° N. Lat. They indicate the faunal mixing zone between subarctic and warmer North Atlantic Drift waters.

Subtropical species *Limacina inflata*, *L. bulimoides*, and *Styliola subula* are the dominant pteropod species in the middle-latitude sediments of the Mid-Atlantic Ridge and the Bermuda Pedestal, and the overlying water of the Sargasso Sea. The subarctic species was present in the pelagic sediments of the Bermuda Pedestal, but is at present not living in the overlying water; it is inferred from this that subarctic waters invaded the Bermuda region some time ago. The maximum concentration of pteropod shells was found in the pelagic sediments of the Bermuda Pedestal at a depth of approximately 2,200 m. The number of specimens decreases considerably in sediments containing less than 80 per cent calcium carbonate at water depths greater than 3,600 m. No pteropods were found below 4,200 m.

Tropical *Creseis acicula* is the predominant species on the ocean floor of the Gulf of Mexico and Blake Plateau, and the overlying water of the Gulf Stream currents. The delicate hexagonal surface reticulation of *Peraclis reticulata* shells were obscured after deposition on the ocean floor; probably this resulted from greater solution of its projecting ridges. Two pteropod species, *Peraclis*