

Western Cordillera.—In the western Cordillera is a fairly complete succession of sediments of Precambrian, Palæozoic, Mesozoic and Tertiary ages.

The Rocky mountains consist of a series of great fault blocks in which an enormous thickness of Palæozoic and Mesozoic sediments is exposed. Many thrusts of great extent have resulted in an over-riding of the Mesozoic sediments by the Palæozoic, and the erosion of the softer strata of the former has produced longitudinal valleys between the harder Palæozoic blocks. The Palæozoic formations consist mainly of limestones with less amounts of sandstone and shale. A succession with few breaks from the Cambrian through the Ordovician, Silurian, Devonian and Carboniferous is found, and probably extends with certain deviations throughout the length of the Rocky mountains and Mackenzie mountains. Between the Cambrian and Precambrian beds there is apparently little angular unconformity, but the variation horizontally in the Precambrian strata, on which the Cambrian formations rest, and a similar variation in the ages of the over-lying Cambrian strata furnish evidence of a long period of erosion. The Mesozoic strata consist of soft shales and sandstones some of which are coal-bearing. Strata of Triassic, Jurassic, and Cretaceous ages are represented.

The mountains to the west of the Rocky Mountain trench in southern British Columbia are composed of a series of late Precambrian quartzites, slates and magnesian limestones of great thickness. There are wide areas in the vicinity of granitic intrusives in which intensive alteration of these sediments has taken place. The Precambrian rocks extend west as far as Upper Arrow and Shuswap lakes and north from the International Boundary probably half the length of the province. Quartzites, mica schists and crystalline limestones with interbands and broad areas of schists of various kinds and intrusive granite gneiss are found over a wide stretch of the Yukon plateau and are probably of Precambrian age. Slates, quartzites and conglomerates, also probably of the same age, occur in the northern part of the Alaska-Yukon boundary, in the Ogilvie range and in the Kluane district.

On the interior plateau of British Columbia, limestones, quartzites and argillites of Carboniferous age and known as the Cache Creek group are of wide distribution. These are succeeded upward by argillites and limestones and a great mass of volcanic intrusives and effusives of Triassic age, and these are succeeded by sediments and volcanics of Jurassic age. The Triassic and Jurassic formations are widely distributed, are found on the islands to the west, and some at least extend into the Yukon.

Formations of Cretaceous age are found on Vancouver and Queen Charlotte islands and in a belt extending up the Fraser and along the eastern edge of the Coast range into the Skeena valley. They are mainly formations of continental origin and carry coal seams, but also include sediments of marine origin and volcanics.

Very early Tertiary times were characterized by widespread orogenic disturbances in the Cordillera. The Rocky mountains were formed and there was much folding and faulting in places in the interior, followed by intense erosion. Tertiary sediments, partly of continental deposition with seams of lignite and partly of marine deposition, occur at many points throughout the interior of the Cordillera and on Vancouver island. Lava flows capping some of these sediments cover broad stretches of the interior plateau.