

bottomed in typical Shield rocks, but it is customary to regard the Canadian Shield Region as the part that is exposed or covered by glacial deposits. The overlying strata are undisturbed or gently tilted or flexed, the Shield and the Plains and Lowlands together forming a central continental region that has been relatively stable since Precambrian time, while orogenies were active in the flanking geosynclinal belts now indicated by the Appalachian, Cordilleran and Innuitian mountains.

The Canadian Cordilleran Region is a northwesterly-trending belt about 500 miles wide composed of high mountains and lower plateaux and valleys. It comprises southwestern Alberta, all of British Columbia except its northeastern corner, almost all of Yukon Territory and the southwestern part of the Northwest Territories. The individual mountain groups and plateaux are arranged in a complex pattern divisible into three parallel northwesterly-trending zones; in most places these zones are quite distinct and are called the Western, Interior and Eastern Systems. The greater part of the Western System is composed of the high, rugged Coast Mountains along the mainland coast of British Columbia. Along part of the Yukon-Alaska boundary they are flanked to the southwest by the still higher St. Elias Mountains. Separated from the mainland by the Insular Passage are ranges forming Vancouver and Queen Charlotte Islands. The Interior System is a complex group of plateaux and mountains. The Eastern System is divided into the Northern Ranges and the Rocky Mountains, separated by a plain and plateau along the Liard River near the British Columbia-Yukon boundary. The main features of the Northern Ranges are the British and Richardson Mountains near the Arctic Coast, and the Mackenzie and Franklin Mountains in the western part of the Northwest Territories. The Rockies are composed of high, serrated ranges extending northward from the 49th Parallel; the elevation of the highest peak, Mount Robson, is 12,972 feet. Flanking them on the east are the Rocky Mountain Foothills which form a transition with the Plains. Because the Rocky Mountains, although extensive, are but a relatively small part of the mountains of Western Canada, the popular tendency to apply the name to the entire Canadian Cordillera is inadmissible.

The Cordillera are on the site of a great geosyncline where sediments were laid down at least as early as late Precambrian time, where marine sedimentation continued in places as late as the Upper Cretaceous, and where freshwater sediments were deposited locally during the Tertiary. The principal mountain-building and igneous processes of which good evidences remain began locally in early Mesozoic time, culminated in the western Cordillera in the Nevadan orogeny in late Jurassic and early Cretaceous time, but was not significant in the eastern Cordillera until the Laramide orogeny early in the Tertiary. Thus the western Cordillera were formed much earlier than the eastern, were largely worn down by erosion by the time the Rockies and other eastern mountains were built, and the western part of the region was uplifted at the time of the Laramide orogeny so that renewed erosion could carve the surface into the present mountains and plateaux. The strata in the western Cordillera are intruded by many bodies of igneous rocks, from small to very large in size. Most are granodiorite or diorite but many others are granite, gabbro or other related types; still others are ultrabasic, i.e., composed mainly of iron and magnesium minerals. Most are related to the Nevadan orogeny but some must have been intruded in late Cretaceous or early Tertiary time, and there is incomplete evidence that some are of ages from late Precambrian to Triassic. The intrusions are scattered widely, the largest concentration being the Coast Range Intrusions which form the greater part of the Coast Mountains. Intrusive rocks are rarely exposed in the eastern Cordillera, probably because the mountains there have not been eroded sufficiently to reveal many.