

evidences remain begun 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.

The Appalachian Region is the northern continuation of a long belt of folded strata extending along the eastern side of the United States. It is on the site of a geosyncline that existed mainly in Palaeozoic time in which great thicknesses of sedimentary and volcanic strata were laid down. The northwestern boundary of the region is a long curving fault or zone of faults which extends from Lake Champlain at least as far as the Gulf of St. Lawrence and which causes the curved shape of the northern coast of Gaspé. The strata in the Appalachians have been folded and faulted by successive periods of orogeny along axes that strike northeasterly; thus strata of different kinds and ages and belts of intrusive rocks form northeasterly-trending bands, many of which are responsible for the peninsulas, bays and ridges of the region. Three principal periods of orogeny—the Taconic, the Acadian and the Appalachian—have been recognized. The Taconic occurred at the close of the Ordovician, the Acadian during the Devonian, and the Appalachian at the close of the Palaeozoic. In Canada the Taconic disturbances were fairly widespread, the Acadian were more so, affecting areas that were previously affected by the Taconic and areas that were not, but the Appalachian orogeny, which was a major feature in parts of the United States, was of minor and local importance.

The Innuitian Region is known mainly from reconnaissance surveys. It is underlain by moderately-to-intensely folded sedimentary, volcanic and metamorphic rocks of various ages, the oldest being probably Proterozoic and the youngest being Tertiary. Folding occurred at different times and in different directions, some before the Silurian period, some in Silurian or Devonian time, some late in the Palaeozoic era, and some in Tertiary time. Five fold-belts have been recognized—Cornwallis, Parry Islands, Central Ellesmere, Northern Ellesmere and Eureka Sound. Granitic intrusions have been found in the Northern Ellesmere belt.

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Brief sketches of the geological regions together with an outline of geological processes are given in the 1961 Year Book at pp. 5-14. Further information is supplied by *Geology and Economic Minerals of Canada* (\$2, including Map 1045A) and *Prospecting in Canada*; the latter also contains chapters on the principles of geology and on minerals and rocks. The *Geological Map of Canada* (1045A, 50 cents) and *Canada, Principal Mining Areas* (900A) are also recommended. Map 900A is revised annually; one copy is sent free to residents of Canada and additional copies are 25 cents each. These publications can be ordered from the Director, Geological Survey of Canada,\* together with lists of reports and maps of the Geological Survey of Canada on specific topics and areas, for each province. Other publications are available from provincial mines departments.

\* A special article covering the history and current activities of the Geological Survey of Canada appears in the 1960 Canada Year Book, pp. 13-19, and is available from the Director in reprint form. A brief outline of the functions of the Survey is given in the Mines and Minerals Chapter of this volume (see Index).