MINFILE
NTS 082N, O – GOLDEN & CALGARY

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The Golden and Calgary map areas, situated in southeastern British Columbia, contains 93 documented occurrences. The region is maturely dissected, mountainous and glaciated. Northwest-trending strike ridges, sculptured from carbonate and arenaceous rocks, dominate the topography. Four national parks occur in the map area: Glacier and Mount Revelstoke National parks in the west, and Yoho and Kootenay National parks in the east.

The map area is transected by the Rocky Mountain Trench and Columbia River, which also serve as a boundary between the Omineca Belt in the west and the Foreland Belt to the east. Rocks of the Ancestral North American craton dominate the map sheets, with lithologies of the Kootenay Terrane and post-terrane accretion intrusions predominant on the west side of the trench.

The eastern part of the Cordillera is physiographically manifested as the Rocky Mountains; the Main Ranges and Western Ranges are subprovinces of the Rocky Mountain system and are east of the Rocky Mountain Trench. West of the trench is the Purcell Anticlinorium. The Main Ranges subprovince is typified by broad open folds and flat, simple thrust sheets in which the dominant level of exposure is of Cambrian rocks, but also includes strata ranging from Upper Proterozoic (Horsethief Creek and Miette groups) to Ordovician. The Main Ranges are divided into eastern and western parts along an abrupt facies transition in Cambrian and Ordovician rocks, from a carbonate-dominated sequence in the east (i.e. Beaverfoot, Mount Wilson, Owen Creek, Skoki, Outram, Survey Peak, Mount Whyte, Cathedral, Stephen, Eldon, Pika, Arctomys, Waterfowl, Lynx formations) to a pelite-dominated sequence in the west (i.e. Starbird, Mount Forster, Harrogate, Cedared, Beaverfoot, Mount Wilson, Glenogle, Canyon Creek, Ottertail and Jubilee formations; McKay and Chancellor groups). The facies transition marks an abrupt change in structural style, from the carbonate terrane where penetrative deformation is lacking, to the pelitic terrane where tight folds and pervasive cleavage are predominant. A broad, asymmetric, fan-shaped anticlinorium dominates the structure of the western part of the Main Ranges.

Exposure in the Western Ranges principally reaches the level of Upper Cambrian to Middle Devonian rocks. The lower part of this succession shares the distinctively cleaved aspect of the western part of the Main Ranges. The Western Ranges differ structurally from other parts of the Rockies in that planar structural elements (faults, cleavage surfaces and axial surfaces of folds) are overturned toward the southwest and thus dip to the northeast. Tight southwesterly overfolds and a complex pattern of longitudinal and transverse faults characterize the Western Ranges subprovince. These mark the core of a synclinorium that shares a common, and apparently unbroken limb with the anticlinorium of the western Main Ranges.

The Rocky Mountain Trench, in the southern part of the map area, is underlain by Cambrian to Ordovician pelitic facies rocks in which there are southwesterly overturned structures comparable in size, style and orientation to those in the Western Ranges. These structures are truncated abruptly along the western side of the trench by the west-dipping Purcell thrust, a long first-order feature that marks the eastern boundary of the Purcell Anticlinorium.

Within the Purcell Anticlinorium, a thick succession of Proterozoic (i.e. Horsethief Creek and Miette groups) and Paleozoic (Hamill, Lardeau and Gog groups; Eager, Badshot, Mohican, Donald, Reno, Laib, Quartzite Range formations) miogeoclinal rocks has been deformed by imbricate thrust faults, normal faults, complex folds, and widespread penetrative deformation.

The documented occurrences in the map area are evenly distributed on both sides of the Rocky Mountain Trench. Approximately 2/3's of the total occurrences comprise lead-silver-zinc-(copper-gold) replacement-type deposits hosted primarily in carbonate rocks, and lead-silver-zinc-(gold-copper-tungsten) quartz veins in metasediments, chiefly slates, graphitic slates, schists and argillites. The replacement-type Monarch (082N 019) and

Kicking Horse (082N 020) deposit was mined and approximately 826,000 tonnes of lead-silver-zinc ore processed. The vein-type Woolsey (082N 004) deposit was mined intermittently from 1930 to 1967, with reported reserves of 590,703 tonnes grading 71.6 grams per tonne silver, 2.66 per cent lead, 1.26 per cent zinc, 1.1 per cent copper, 0.13 per cent tin and 0.015 per cent tungsten.

Industrial mineral occurrences comprise the remaining 1/3 of the total occurrences on the map sheets. The Moberly (082N 001) and Nicholson (082N 043) quarries continue to produce a silica product, while the Parson (082N 002) underground operation produces barite. The Moose Creek (082N 027) occurrence has been in the Mine Development Assessment Process, with indicated reserves of 365,000 tonnes of broken talus material containing magnetite with an average grade of 5.5 per cent.

In the 1940s, there was some minor production of limestone from the Albert Canyon (082N 072), and dolomite and railroad ballast from the Glenogle (082N 076).

In 1983, bulk samples from the Mark (082N 089) and Jack (082N 088) alkaline diatremes produced a microdiamond chip. Further sampling through to 1990 has failed to reconfirm the presence of microdiamonds. Some important talc bodies (Gold Dollar, 082O 001 and Red Mountain, 082O 002) occur in the extreme southeast corner of the map area, very near the British Columbia-Alberta border.

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