

a comparatively straight, through-going depression it appears to have no rival in any other mountain chain. Its origin is considered at page 113.

The northern end of the Purcell Mountain system is found at the junction of the Beaver and Columbia rivers. The system is locally divided by the valley of Quartz creek into two parts, the Dogtooth mountains and the Prairie hills. The former are the higher and more rugged, though few peaks exceed 9,000 feet in elevation. Because of their structure and comparative lack of thick, massive rock formations, the Purcells are much less imposing than the cliffy and horned ranges to east and west (Plates XLIV and III).

At page 30 of Memoir No. 38 of this Survey (1912) will be found a statement as to the grounds for excluding the mountains east of Beaver river from the Selkirk system. This is contrary to common, though by no means universal, usage, which is not founded on a systematic, comprehensive principle of orographic subdivision, but on a mistake in Palliser's sketch map of 1860. The map indicates the "Selkirk Mountains" as a long, unbroken ridge extending across the area now known to be occupied by the deep valley of Beaver river. In 1860 the existence of this major trough was unsuspected and Palliser's "Selkirk Mountains," though occupying all the space within the northern loop of the Columbia, are represented as of only about half their actual width. The Duncan appears on this map far out of its proper latitude and longitude, and it is noteworthy that the Selkirks are not shown as extending across the Duncan. Kootenay lake, Duncan river, and Beaver river all lie in the same through-going depression, the Purcell trench. That strongly marked feature is best regarded as a necessary line of primary orographic subdivision (Plates IV to VII). Hence, according to the new definition, the Purcell trench separates the Selkirk system of mountains from the Purcell system. A careful study of Palliser's maps, the earliest showing the "Selkirk Mountains," proves that the new definition does little violence to that explorer's own statement as to a natural eastern limit for the range. It was not until 1905, when Wheeler published his fine map, that a cartographer could be convinced