

South Similkameen Valley.

section, which shows them splitting and ramifying across the laminations among the older rocks. At this point a few black and irregular impressions somewhat resembling plant stems were found in a bed of sandstone. They are probably pseudomorphs after staurolite or andalusite crystals. The contortion seen to the east of this point is accompanied with (as far as can be seen) a general westerly inclination. As far as the mouth of Roche River, cherty or hornstone-like metamorphic beds, probably originally sandstones, and conglomerates of a green colour are seen.\* The same rocks are continuously exposed in the valley of the South Similkameen, with a southerly dip, up to within five miles of the Peseyten river junction, where they are succeeded by a small mass of grey syenite which preserves its massive character for a mile and then becomes gneissic. The gneiss is flanked by soft talcose and micaceous slates at the junction of the two streams. The mouth of Roche River is 3,458 feet, and that of the Peseyten 3,060 feet above the sea level. The valley between these points is filled with thick masses of gravel containing a large quantity of pebbles of the green conglomerates. They are cut through in many places by the river, forming nearly vertical cliffs from fifty to eighty feet in height.

Mountains east of Similkameen

After receiving the Peseyten the valley of the South Similkameen takes a nearly northerly course, but in order to continue along the boundary-line the trail turns to the eastward, crossing a steep hill 6,330 feet in total height above the sea level, known to us as Ptarmigan Hill. This summit is the culminating point of the ground lying between the Peseyten, South Similkameen, Ashtnoulou and main Similkameen. It is made up of stratified masses of blue trachytic porphyries, with a few brecciated beds of a similar mineral composition, dipping north-north-west at a slope of 50°. †

Ashtnoulou Valley.

The junction of the porphyries with the talcose micaceous slate of Peseyten is not seen, the nearest dips, however, indicate considerable unconformity. The western side of the hill is very swampy and covered with burnt and fallen timber. On the eastern side it is covered by a coating of a remarkably fine gravel, and a forest of small dead pine sticks which conceals all the rocks on the descent to the Ashtnoulou River which is struck at a point 3,550 feet above the sea level. In the Ashtnoulou Valley, green, red and grey quartz-porphyrries are seen in large quantities. They are well stratified, having a west-north-west dip of 50° which nearly corresponds in direction and inclination to that of the porphyries of Ptarmigan Hill. They are underlaid by beds

\* The rocks east of the Skagit, above described, form the southern extension of a considerable area of Lower Cretaceous. See Report of Progress, 1877-1878, p. 105. B.

† This is the western edge of a basin of Tertiary volcanic rocks, which are more fully described in the succeeding paragraph.