

almost all the sedimentary characters have been effaced, the apparent dips being very contradictory and rarely persistent in the same direction for more than a few yards. These rocks have been altered by greenstone dykes which are exposed on the sides of the hill in great numbers. The same kind of altered rock forms the western side of the Schweltza Lake ridge dividing Sumass from Schweltza Lake, where a few bands of hard siliceous black slate are associated with the dark-green sandstones; the intrusive rocks being also represented by numerous dykes of syenitic greenstone. The cliff sections on the western shore of Schweltza Lake present a series of hard white sandstones with alternations of blanché clay-slates and white felspathic conglomerates, the whole dipping north-north-west at a very high inclination (from 70° to 85°). On the opposite or eastern shore of the lake, regularly stratified rocks are seen for the first time. They are thinly laminated, black, sandy-shales and sandstones, and are exposed in very large quantities, showing sections from 1,500 to 3,000 feet in vertical height. The dips are very regular in a south-south-easterly direction at slopes of 30° to 40° . The same series of black shaly beds is continuously exposed in the cliffs of the Chilukweyuk Valley for about twenty miles to the eastward of Schweltza Lake. In the higher parts they are associated with beds of a bluish-grey limestone, which presents a less perfectly laminated character, being like the limestones in the metamorphic rocks of Vancouver Island, somewhat concretionary in structure. They dip with great regularity to the eastward at slopes between 30° and 10° . There does not appear to be any passage between the lower part of the series at Schweltza Lake, and the highly metamorphic and uptilted rocks on the western shore, though they are only about half a mile apart. The latter are probably unconformable and inferior in position to the former. No fossils have been found after a search in three of the most likely-looking spots among the finer grained portions of the black shales at Schweltza and the Chilukweyuk Valley. Patches of carbonaceous matter and minute gypsum crystals are very commonly present, and the joints of the harder beds are generally covered with a powdrey incrustation of allophane or some allied hydrated silicate.*

The Chilukweyuk, in the valley of which sections of the slates are seen, is the most rapid of all the streams in the country. It flows out of a lake about five miles long and a mile broad, situated in the western range of the Cascades, and after falling through a height of 2,000 feet in about thirty miles, joins the Fraser River near the head of the tidal waters. Near the lower or northern end of the lake, the slaty rocks

* It is probable, from fossils since obtained on the Chilukweyuk, that a part at least of these rocks are of Cretaceous age.