

Andesite tuffs, ash-rocks and other volcanics are found in small quantities associated with the red slates and sandstones.

#### GLACIATION.

All the valleys in this region are flooded with deposits of drift composed of a variety of materials and laid down under different conditions. The rivers have cut trenches in and removed vast quantities of these deposits, but the depth of material still remaining is unknown. Large patches of loose material still adhere to the valley slopes to a height of 1500 feet above the river along its lower reaches, but in the upper valleys the drift mantle becomes thinner and does not appear to alter the pre-existing topography to any great extent.

Boulder clay or till, which is a direct ice deposit, occurs in large patches at several points along the Stewart river between Frazer falls and Nadaleen river, but none was observed above this point. The exposures of boulder clay, where cut into by the river, are at least 100 feet in thickness and present the usual steep faces with the upper portion carved into pinnacles and knots.

At the few points where the bottom of the thick sheets of boulder clay was observed they rest on low bed-rock benches, but on other points thin sheets of boulder clay overlie or are interstratified with sands or gravel, indicating reinvasions of the ice after the general withdrawal. Following the boulder clay on the downstream side there are generally found non-coherent and confused deposits consisting of boulders, gravel, sand and clay which appear to be morainal overwash.

Between these accumulations which may be terminal moraines, are found deposits of more or less evenly bedded materials varying in coarseness from fine silts to beds or layers composed of boulders.

Deposits of this character form the greater portion of the drift along the rivers, and on Ladue river they have a thickness of at least 250 feet.

No boulder clay was observed on the Ladue river or in the wide valley between the McQuaten lakes and the Beaver river, the latter valley being flooded with fine river sand.

A thick deposit of plastic blue clay without pebbles occurs in the middle of the wide valley of the Stewart about thirty miles above Frazer falls, and a similar deposit was found underlying sand and gravel beds opposite the mouth of Hess river.

Some of the materials of the drift have been transported to points far distant from their source. The hematite and jaspilite pebbles which are caught in such abundance in the sluice boxes on all the creeks of the Duncan Creek mining district have their source somewhere between the headwaters of Rackla and Wind rivers. In this