

NOTE.—In 'Silliman's Journal' for January, 1868, Mr. Dall has published a few notes on the geology of the Youkon country, which may perhaps be of interest in connection with the above. Speaking first of the cliffs known as the "Ramparts," he says they "were entirely composed of Azoic rocks, of which a silvery-greenish rock of talcose appearance, but very hard, predominates. Quartz, in seams, slates and quartzite rocks, are abundant; and a rock resembling granite, but with a superfluity of feldspar, and no mica, rarely. The slates generally have a north-westerly dip. True granite appears only once, near the termination of the Ramparts, and forms a ledge extending across the river, and making a rapid—not, however, a dangerous one."

Further on he says, "From the end of the Ramparts to Coyoukuk river (250 miles), the right bank presents in their order: conglomerate, quartzite, bluffs of yellow gravel, blue talcose slate, conglomerate hard blue slates and quartzose rocks, blue sandstones, and a soft green rock (Plutonic) with light stellate spots in it. Granite is very rare, and mica also. I have found fine specimens of obsidian on the beach and just above the Ramparts pebbles of Niagara limestone with its characteristic fossils. From the bend we find the following strata: blue sandstone (unfossiliferous), brown sandstone in beds at least 500 feet thick, containing vegetable remains, in some layers and rarely, casts of mollusca, all as far as I have collected, Lamellibranchs. Thirty miles below the bend is a small contorted seam of coal, between two thin layers of shale, containing very poor vegetable remains, and underlaid by the brown sandstone, which also overlies the blue sandstone; which, in its turn, I think covers the blue slates. The coal seam is very limited, being on the extreme point of a bluff, and the greater part of it has been denuded. The fossils are very poor, vegetable, and resemble Fuci. The coal is of good quality, bituminous, non-caking, and leaves a gray ash. The seam is 16 inches wide. The sandstones continue down the river some 45 miles, more generally with a north-west dip, and always in gentle undulation, sometimes continuous for miles, and often broken short off. Below, the rocks for 300 miles are slates and eruptive rocks of a pink colour, sometimes containing spathose minerals. The formation changes at the Russian mission, from hard blue slate to a volcanic rock, full of almond-shaped cavities, which are empty; but certain parts of the rock are quite solid. It is black, and contains minute crystals (of? olivine).

[It is roughly columnar on Stuart's Island, Norton Sound, in five-sided columns, on the beach.]

"From this to the sea the banks are mostly low, but when they approach the river they are invariably blue hard slaty sandstone or sandy slate, the rock passing from one into the other imperceptibly. This formation extends to St. Michael's, nearly where the fore-mentioned volcanic rock takes its place, and continues up the shore of Norton Sound some 30 miles, when it is replaced by the hard slates and sandstone, and I have followed them up for 30 miles more to Unalachleet river. Here you cross in winter to the Youkon, 200 miles of portage.

"The entire country is sprinkled over with remains of Pliocene animals, ? *Elephas*, *Ovibos*, *moschatus*, &c. Beds of marl exist near Fort Youkon, consisting of shells (fresh-water), still found living in the vicinity. The Kotto river, emptying into the Youkon above Fort Youkon, is held in superstitious dread by the Indians, on account of the immense number of fossil bones existing there.

"The Inglutalic river, emptying into Norton Sound, has a somewhat similar reputation.

"I have carefully examined the country over which I have passed for glacial indications, and have not found any effects attributable to such agencies.

"My own opinion, from what I have seen of the West coast, though yet unproved, is that the glacier-field never extended in these regions to the west-