

clothed in deer-skins, with fox-skin caps, or cast-off clothing of the whites; their arms, except in the case of three or four, who had rifles, were bows and arrows, similar to those I have described as used at the north; their arrows were carried in a quiver made of seal-skin, which was suspended over the shoulders.

On the 15th, they reached the base of the Elk Mountains, which divide the valley of the Willamette from that of the Umpqua. The ascent and descent of this ridge are both gradual, and the hills were covered with pines, spruces, and oaks, with a thick undergrowth of Hazel, Arbutus, Rubus, and Cornus. Through these thickets they were obliged to force their way along the back of one of the spurs, and were three hours in reaching the top, which was fifteen hundred feet above the level of the plain. A species of *Castanea* was met with, whose leaves were lanceolate and very rusty beneath; the cup of the nut was very prickly.

The route over the Elk Mountains was very serpentine, owing to the obstruction caused by fallen timber, many of whose trunks were four and five feet in diameter. Previous to ascending the mountain, they had crossed several small streams over which the Hudson Bay Company had constructed bridges for the passage of their sheep. Much trouble was caused by the necessity of dragging a number of their pack-horses with lassos from a miry pool into which they had plunged. At the encampment, during the night, ice made on the pools to the thickness of a quarter of an inch, and the thermometer had fallen to 26°. The soil on the Elk Mountains is hard and dry; on the ridge, rock is nowhere exposed to view, and only a few fragments of sandstone lie on the surface; where they made their descent, however, and in the banks of the streamlets, they saw the rock finely developed in horizontal layers. The soil also was more sandy and of indifferent quality, and the grass in consequence is thin and occasionally mixed with ferns.

On the 16th, they encamped on the Elk river. The hunters were successful in killing a large elk, which was brought into camp and divided. Lieutenant Emmons, Mr. Agate, and Sergeant Stearns, with a Canadian as guide, left the encampment for Fort Umpqua, which was fourteen miles distant. The country for the first five miles was hilly, with scattered patches of pines, and it appears in places to be suitable for cultivation; the rest of the distance was over a country much broken. The trail carried them over a succession of steep hills and through deep ravines, which at times appeared almost impassable to their broken-down beasts; four of which Lieutenant Emmons was taking with him to exchange. They did not reach the