

sections of the bed and measuring the average velocity for a certain distance. No suitable place for taking the discharge occurs on the Wind river, so the volume and velocity of the united stream was ascertained below the junction. The results show the Peel river to have a discharge almost three times as great as that of the Wind. The actual figures obtained were:—15,136 cubic feet per second for the Peel river alone; and 20,538 cubic feet per second for the united streams. This allows the Wind river a discharge of 5,402 cubic feet per second. These figures are valuable merely as showing the comparative discharges of the two streams, and not for their absolute volume, for the volumes vary enormously at different seasons of the year.

The upper cañon of the Peel river ends one mile below the mouth of the Wind river, and from this point down to the next cañon, a distance of fifteen miles, the river bed has an average width of nearly a mile, most of which, however, is occupied by gravel bars and willow and poplar islands. For this distance the river flows through the low level Tertiary basin before mentioned. The banks of the valley are about a hundred feet deep. On the south side is a level wooded plain, stretching onward to the mountains; while on the north is a great curve in the mountains, the two ends of which touch and cross the river at the upper and lower cañons.

Eight miles below the upper cañon, Mountain creek enters from the north, flowing through the great bay formed by the curve in the mountains. It is this stream that the Indians follow in making the cut-off across the great bend in the Peel to avoid the lower cañon and swift water; and it was this route that the North-west Mounted Police patrol followed in making their winter journey from Dawson to Fort McPherson. The north end of this trail joins the river at the mouth of Trail creek 120 miles below.

Directly opposite the mouth of Mountain creek are the burning lignite beds noted by Count de Sainville on his map in 1893. It is impossible to say how long these beds have been burning, but for nearly a mile along the bank the lignite has been burnt away, and has so undermined the overlying glacial drift as to cause large landslides. One had only recently occurred in July, and thrown down a great mound of material half way across the stream, so as to divert the water to the other shore. In other parts exposures of reddened clays and shales indicate places from which the lignite has been consumed away.

It seems altogether likely that the burning away of the numerous lignite beds in this section, and the consequent sliding down and washing away of the overlying material, is accountable in some measure for the great width of the valley, which is wider here than in