

gave Dr. Bell much information about the country, and Dr. Bell procured from some intelligent Indians of the region, and others, various sketch maps and notes in regard to its geography. This information will no doubt prove useful in connection with future explorations.

From Methy Portage a track survey was made of the route to Isle à la Crosse Lake, and thence of the Beaver River to Green Lake, which was reached on the 4th of October. That portion of the route above referred to as between the Athabaska and the confluence of the Clear Water has already been frequently traversed and its features described in more or less detail, the latest account of it being that of Professor Macoun, published first in the Report of the Geological Survey for 1875-76, and since then (1882) in the same author's "Manitoba and the Great North-West." These accounts do not materially differ from that of Dr. Bell, except as regards the probable origin of the petroleum or "tar" deposits. Dr. Bell has, however, ascertained the interesting fact that the petroleum-saturated sandstones are of Cretaceous age, and of such extent and character as to lead to the idea that the sandstone itself might be utilized for fuel, or the petroleum might be profitably extracted from it. The saturated beds range from 100 to 150 feet in thickness and extend for many miles along the river. Dr. Bell believes the source of the petroleum to be in the underlying Devonian limestones, and not in the black shales mentioned by Professor Macoun; also, that the impregnation has taken place, as in eastern America, from below upward. Neither the eastern nor western limit of this tar-impregnated sand-rock of the Athabaska and Slave Rivers has yet been ascertained. On Peace River the only known indication of its occurrence is where the same Devonian limestones appear at the surface from beneath the Cretaceous rocks, as is recorded by Professor Macoun. (Geological Survey Report 1875-76, p. 88). Dr. Bell was assisted by Mr. Lawson. He left Ottawa on the third of July and returned on the eleventh of November, having travelled about 5,460 miles. Expenses—\$2,500, including salary of assistant.

#### DISTRICT OF KEEWATIN (EAST OF LAKE WINNIPEG).

Mr. Cochrane was requested to make a survey and exploration of the country east of Lake Winnipeg from the 53rd parallel of latitude southward, including the Berens River and the upper waters of the Severn, returning, if practicable, by way of Trout Lake, Lake St. Joseph, and Lonely Lake, the whole of this area never having been explored. Mr. Cochrane reports that he was unable to procure guides for the country on the east side of the Height of Land between the Berens and the Severn; and he did not therefore attempt the return route indicated in his instructions. A continuous track survey was, however, made of the Berens River from its mouth to the Height of Land, about 115 miles, as well as about 75 miles of one of the head waters of the Severn. The Pigeon River, which is connected with the Berens, was also surveyed for fifteen miles from its mouth. The Big Black River, about 65 miles north of the Pigeon, was then ascended and surveyed for about 82 miles, beyond which canoes could not be taken. At this point a portage was made, southward, into one of the tributaries of the Poplar River, which was descended and surveyed to its mouth in Lake Winnipeg. Mr. Cochrane then proceeded up the east shore of the Lake to Norway House, with the intention of surveying and exploring the Jackfish (or Pike) River. This, however, was found to be impracticable, the water being too low to make the ascent. A sketch survey was then made of the lake shore from Norway House to the Grand Rapid Post at the mouth of the Saskatchewan. Leaving Grand Rapids on the 6th September the Saskatchewan was ascended to the outlet of Moose Lake, the shores of which were surveyed and examined. The field work commenced on the 1st July and terminated on the 15th October. Expenses—\$985.46. No economic minerals of importance were observed and the rocks on the eastern coast, and as far inland as the examination extended, consisted almost entirely of the ordinary varieties of grey Laurentian gneiss