LOWER SASKATCHEWAN RIVER VALLEY.

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wan river. The Grand rapids of the Saskatchewan are formed by the river crossing this scarp which is a prominent physiographic feature lying a few miles back from the lake shore, where it maintains a northerly trend for 50 miles or more north of the Grand rapids. South of the Saskatchewin this scarp becomes a less conspicuous feature. The summit of the scarp affords the most promising route in the Saskatchewan district for a wagon road between Grand Rapids and Gypsumville which is the present terminus of the Canadian Northern line traversing the region east of Lake Manitoba.

Prominent cliffs have been developed in the Devonian limestone series in the northern part of the Lake Winnipegosis basin, rising sometimes 80 feet above the lake, but none of these have any considerable extension north and south.

Since the early stages of the glacial epoch geologic processes in this region have acted chiefly in a constructive way, fir. : through the deposition in the river valleys of vast quantities of glacial till, followed by the lake deposits of Lake Agassiz, and still later by the deposits of the relatively small successors of Lake Agassiz and by the waters of the Saskatchewan river. The blocking of the original lines of drainage, which were adjusted to the Winnipeg and Winnipegosis plains, by the drift of the Glacial period, left visible only some of the more conspicuour features of the original topography already mentioned. Over the glacial drift a mantle of lacustrine deposits, generally thin bu sometimes heavy, was spread by the great sheet of water known. as Lake Agassiz. This lake, shortly after the retreat of the ice, covered the country from the Cretaceous scarp west of Lake Winnipegosis to the hills of crystalline rock east of Lake Winnipeg and extended from Minnesota and South Dakora nearly to the Churchill river.1 The gravel terraces marking the old shore-lines, spits, and bars of the various levels of this ancient lake form conspicuous topographic features locally. Tyrrell found the highest of these, on Duck mountain, to have a height

McInnes, Wm., Geol. Surv., Can., Mem. No. 30, 1913, pp. 125-127.

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² Warren Upham, Geol. Surv., Can., Ann. Rep. 1888-89 (1890), Vol. 1V, pt. E. pp. 1-156, Tyrrell, J. B., Geol. Surv., Can., Ann. Rep. 1890-91 (1893) Vol. V, pt. E, pp. 1-235. Geol. Surv., Can., Ann. Rep. Vol. X111, pt. F. Dowling, Geol. Surv., Can., Ann. Rep. Vol. X111, pt. FF.