## GEOLOGICAL SURVEY OF NEWFOUNDLAND.

summit with a wide curve; moreover, as there is a fall of twenty feet in the next quarter of a mile, a cutting of ten or twelve feet at the highest point would still further lessen the grade. After surmounting this ridge the country is gently undulating for the next five miles to the head of Lake Bond, the highest level being about fifty feet. Lake Bond is 257 feet above the Badger, or only seven feet above the summit of the ridge at the second mile. Between the seventh and eleventh miles the surface is more uneven, there is a rise, by aneroid, of 170 feet in the first mile-and-a-half, or about 1 in 46. Then a fall of eighty-three feet to Rowsell's River (East Branch), in a distance of fifty-five chains. This equals a down grade of about 1 in 44. The summit of the ridge on the west side of the valley, one-and-a-half miles further, gives a rise of 195 feet, or about 1 in 40. I believe this section can be greatly modified and sufficiently easy gradients obtained, by locating the line more to the left, winding around the hills as shown on the plan, so as to take the lowest elevations of the ridges and a somewhat higher level in crossing Rowsell's River Valley. For the next two miles the country is fairly level till reaching the ridge on the east side of the valley of the main branch of Rowsell's River, where a considerable fall occurs of 321 feet down to the river, in a distance of one mile and three-quarters. Here again a tract of level country intervenes a mile-and-a-half in extent on the opposite side of the river. A still higher ridge with bare summit forms the west side of the valley, which attains to a height of 558 feet above the level of the brook, with a fall on the opposite side of about 207 feet. All these very considerable elevations and depressions occur within a total distance of only five miles, and would appear to present almost insuperable obstacles, were it not possible to avoid or lessen them in some measure. This, I conceive, can be effected by making a considerable double curve, beginning about the tenth mile, and at an average distance of a mile to the left of our line. Such a curve, winding around the two steep ridges of the eastern valley, would bring the line out through a gap in the hills of the main valley at a point higher up, and directly opposite which on the west side is a gorge, through which the Main River sweeps around the higher hill at a much lower level, probably little less than 200 feet below the summit of the ridge. An examination of this latter route convinced me that it is decidedly the most feasible, although

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