

grades, abrupt curvature and excessive cost, this is happily exempt from nearly all.

"A large portion, equal probably to one-half the whole of this road, will be either level or of inclination not exceeding 20 feet per mile. The curvatures are all easy, and nearly equivalent to a straight line. Passenger trains may pass over the whole road in the space of ten hours, and the largest class of freight engines will be able to transport 200 tons over the road in either direction.

"With a view to illustrate, more clearly, the great advantages this road possesses for cheap transportation, and the attainment of great velocity, compared with other great roads, designed as channels for the western trade, I have prepared diagrams exhibiting the grades and elevations passed over by several of these lines—viz., that between Portland and Montreal, the Western Road from Boston, and the New York and Erie Road.

"It will be observed, by reference to these profiles, that the former road has but one main summit, and that the grades are either level or descending with the preponderance of the trade for a large portion of the whole road. That the two last-mentioned roads have several high summits and grades from 60 to 80 feet per mile.

"As regards the cost of transportation on the St. Lawrence and Atlantic Railroad, the most satisfactory information would be gained by comparing it with some line of nearly equal extent and facilities, and designed for general trade.

"Perhaps no other road at present in operation approaches nearer to it as it regards its object and design than the Western Railroad in Massachusetts; yet the cost of transportations on this road will much exceed that on the St. Lawrence and Atlantic, from the more unfavourable character of the grades, and large amount of curvature.

"On the Western Road there are three elevated summits, to surmount which the following grades are required, to wit:—

3 miles of 60 feet per mile

$1\frac{1}{2}$ " 68 & 69 "

$5\frac{6}{10}$ " 74 "

6 " 78 & 79 "

2 " $82\frac{1}{2}$ & 83 "