

if 4 miles, $10\frac{1}{2}$ feet, and so on, adding $1\frac{1}{2}$ feet for every additional mile of distance between the dams. It is not likely that they would be placed less than 4 miles asunder, which would make them about 16 or 17 feet high, and 15 in number between Dam No. 6 and Cumberland, so that the average elevation of low water above its present height would be $10\frac{1}{2}$ feet, by which the railroad upon the 23 miles of low level, would be overflowed to a depth of probably not less than 6 feet at every high freshet. These estimates are presented only as an average of and approximation to the results which would ensue upon the construction of the dams in question; but the undersigned is satisfied that they do not present an exaggerated view of the extent to which the railroad would be likely to be inundated on the occasions referred to. On the contrary, there are points upon the river, where the narrowness of the valley would increase the overflow considerably beyond the mean depths here estimated, which depths would also be much augmented by the breaking of any of the dams, and the consequent rise of the water let loose by it upon the level below. Such floods as would produce the effects described are not, indeed, of annual or ordinary occurrence. Within the present century, however, at least four such have happened, being about one in every 8 or 10 years. If however they should occur but once in 20 or 30 years, the damage which they would probably inflict would be almost incalculable, not so much in the mere cost of repairs involved, (large as that would be,) as in the suspension of the business of the road to which they would give rise.

From the risk of these injuries it would not be practicable to protect either the railroad or the proprietors of the bottom lands upon which it is located, by the erection of *guard banks*, as these banks would have to be left open at all their frequent points of intersection with the line of the road; and they would thus only increase the mischief done by the water, by confining it and giving it an increased current at those places.

To remunerate adequately the company from the losses it might sustain by high water, would be equally impracticable; but if the pecuniary amount of those losses could be ascertained fairly, it would, together with that of the injuries done to the land owners, probably reach a sum so large, as to increase the expense of the proposed lock and dam improvement, to an extent so much beyond the simple cost of constructing the work, as to make it in the end more expensive than a description of navigation, which would be more perfect in itself, while it would be free from danger to property.

The preceding statements will, it is believed, furnish an answer to the enquiries of the House, which have been addressed to the undersigned. He is under the strongest convictions:

1st. That the lock and dam improvement referred to by those enquiries, if continuous between Dam No. 6 and Cumberland, or a point 6 miles below it, would place 23 miles, or one-half of the