miles below) 26 feet. At the Little Cacapon, (22 miles below) 25 feet. At the Great Cacapon, (46½ miles lower) 24 feet, and about the same average height thence to Harpers Ferry; the above distances being all counted upon the Rail Road.

Upon the parts of the Rail Road located as above stated on the bottom lands, the level of the bed of the road was designed to be placed in general, *at the place of extreme high water*, and the great flood of April 1843, in fact reached the road at several points within the sections composing the 23 miles above mentioned; but did not submerge the rails. No serious damage was done to the Rail Road on that occasion; but no doubt is entertained by the undersigned that an additional rise of *not exceeding* three feet would have produced considerable injury to the work, and have endangered the wooden bridges across several of the principal tributaries of the river. These facts being premised, it will follow that upon the 23 miles upon the flats, the Rail Road would be subjected to the risk of serious damage by any change in the bed of the river, which would cause the height of extreme freshets to increase; as the road, at present barely out of the reach of injury from them, would, in that case, become covered with water on such occasions, to an extent which would produce consequences disastrous in proportion to the depth of the overflow. As a Lock and Dam navigation upon these 23 miles would virtually raise the level of the bed of the river with reference to that of the Rail road, the inevitable consequence would be what has just been stated. Should a depth of water be provided at the *head* of each pool equal to that of the finished canal below Dam No. 6, the surface of low water in the river, from which the rise in freshets is calculated, would then be raised 4½ feet at those points (allowing the present depth of water to be 1½ feet) and this elevation would increase with the fall of the river towards the foot of the pool, at the next dam below, where it would attain its greatest height. The height of the dams would depend upon their distances from each other; the height and distance increasing together. The fall of the river from Cumberland to Dam No. 6, averages about 3 feet per mile, so that for every mile of distance between the dams 3 feet would be added to the elevation of the water above its present height, at the heads of the pools. If that be taken at 4½ feet, and the dams should be placed only one mile apart, the low water surface of the river would be raised 7½ feet at the foot of the pool, and 4½ feet at its head; or, at a point midway, 6 feet, which elevation would cause the Railway to be inundated to a proportion of that depth, dependant upon the width and form of the valley, at every extreme freshet. This proportion would never probably be less than one half of the elevation of the bed of the river to be caused by the dam, as the width of the bottom lands, (which by permitting the water to spread would prevent its rising as high as if confined) rarely exceed that of the river between its banks.

If the dams were placed 2 miles apart, the average elevation of low water would be 7½ feet—if 3 miles apart, it would be 9 feet—