

tion of the upper part of this contract, I observed that an important portion of the earth thrown into the river was taken away by the current, which is made serious by a shoal jutting out from the opposite shore, which has formed the channel bold on the north shore for about 2,000 feet. It became an object with me to counteract this current and throw it from the shore, by which I would not only save all the material carried out by forming a permanent protection against the abrasion and action of the river, but would be enabled to carry the bank farther into the river even than the original plan contemplated, thereby reducing the amount of excavation to an extent that the cost of the piers, even at double the estimate, would be much more than compensated, and the work finally more secure. That this would be the result I have no doubt."

But the result did not prove to be so. Notwithstanding that he had no doubt in regard to it, in the course of a few months, he was obliged to remove his centre line 50 feet into the bank, which was composed of boulders and hardpan; and, two years after, he was obliged to move it 20 feet further into the shore in order to save his bank. There can be no doubt that Mr. Wright, the consulting engineer, was thoroughly aware of the dangerous state of the bank, and of the effect which the ice and a rapid current, in case of flood, would produce. I need only refer to his report to the commissioners in June, 1835, after the bank had been carried away by the force of the river. On the 1st November, 1836, at the close of the season's work, Mr. Jones, the commissioner, who reported that Mr. Harvie's section No. 1—the most dangerous section, as I contend, now—had to be changed because of the slipping away of the banks, the quicksands, and the shifting sands, through which the water permeated from the river into the works, recommended puddle banks. Not only did the water permeate from the canal when there was water enough in it, but it oozed through between the natural bank and the artificial bank from the river, and thousands and thousands of dollars were thrown away in the attempt to make that a safe bank, which never ought to have been constructed there at all. Col. Philpotts, who was appointed after the failure of Mr. Mills, to satisfy the commissioners that he could construct it in an efficient manner and make it permanent, undertook to perform the work by puddling. I have it on the testimony of men who were connected with the construction of that canal, men who are living to day and know of what they speak, that the puddle was made of the poorest material, that Col. Philpotts was not able to get the proper sort of clay to make the puddle, and that the puddle was put on the top of quicksands which should have been removed before the puddle was employed. Col. Philpotts, in all his reports, was obliged to say that the condition of the ground upon which the banks were raised was bad; he was obliged to say that