

## Student Handout 1: Excerpt of *The Great Bridge*

...At Johnstown [Roebing] ...became familiar with the workings of the newly built Portage Railroad, a system of long, inclined planes devised to haul canalboats up and over the Alleghenies, between Hollidaysburg at the foot of the eastern slope and Johnstown at the foot of the western slope. It was popularly thought to be one of the engineering marvels of the age and Roebing was fascinated by it. He also decided, after a good deal of study, that it could be greatly improved by dispensing with the immense hemp hawsers then in use. These were about nine inches around, more than a mile long in some cases and cost nearly three thousand dollars. They also wore out in relatively short time and had to be replaced or, as happened more than once, they snapped in two, sending their loads crashing down the mountainside. In one such accident two men had been crushed to death.

Roebing proposed to replace the hawsers with an iron rope just an inch thick, a product not made in the United States then, but which he had read about in a German periodical. Such a rope, he said, would be stronger, last longer, and be much easier to handle. Apparently he was the only one who took the idea seriously, but he was told to go ahead and try if he had such confidence in it—at his own risk and expense.

He began fashioning his new product at Saxonburg some time in the summer of 1841, using the old ropewalk system on a long level meadow behind the church he had built soon after finishing his house. The wire, purchased from a mill at Beaver Falls, northwest of Pittsburgh, was spliced inside a small building and wound onto reels for “running out.” Separate strands of wire were laid up first, then twisted into the larger rope by means of a crude machine he had devised, which, like everything else in the process, was powered by hand.

A six-hundred-foot rope finished “in the best style,” as he said, was tried out at Johnstown in September and it was a failure. Someone hired by the hemp rope interests had secretly cut it at a splice, with the result that it broke during the test. But the sabotage was discovered, Roebing was given a second chance, and his rope worked with such success that it was soon adopted for the entire Portage system. Orders began coming in from other canals with similar inclined planes. The rope was wanted for dredging equipment, for pile drivers, for use in coal mines. Roebing published an article on it in the *Railroad Journal*. “His ambition now became boundless,” his son would write. ...

Excerpt taken from McCullough, David. *The Great Bridge: The Epic Story of the Building of the Brooklyn Bridge*, pp.48-49. New York, NY: Simon & Schuster, 1972.