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REWRAPPING ROEBLING'S DELAWARE AQUEDUCT

Last Oct. 8, a small group of construction workers gathered on the downstream side of the Pennsylvania abutment of John A. Roebling's Delaware Aqueduct. They uncorked a bottle of champagne and cheered as they witnessed completion of the total rewinding of the 137-year-old cables on the oldest surviving Roebling suspension structure.

His first suspension bridge, an aqueduct carrying the Pennsylvania Main Line Canal across the Allegheny River and into the heart of Pittsburgh, had been completed a few years earlier, in 1845. Despite fears about its strength, the seven-span structure was successful and led to a commission to build four others for the Delaware & Hudson Canal Co.

The D&H opened in 1828 and soon was busy floating boatloads of anthracite and other cargo from the Moosic Mts. to the Hudson River. With the "improvement" of the canal in the late 1840s, the Delaware Aqueduct was one of four suspension structures erected by Roebling to increase the system's capacity and relieve bottlenecks. It was built to carry the canal over the Delaware River, doing away with haulage of the boats across the river by rope ferry. Roebling's design called for three piers instead of the five that would have been required for a conventional masonry and timber aqueduct, thereby allowing more clearance for ice floes and timber rafts.

The Delaware Aqueduct was completed in 1849 and operated for the next half century. Eventually the N.Y. & Erie Railroad cut into the canal profits and in 1898 the aqueduct was abandoned and sold to a timber dealer, who converted it to a roadway for his lumber wagons

while collecting tolls from other users. For the next 82 years, through several owners, it remained a privately owned toll bridge, until the National Park Service acquired it in 1980.

In 1968, as part of the D&H Canal, the aqueduct was designated a National Historic Landmark and a year later it was recorded by HAER. In 1972 it was designated a National Historic Civil Engineering Landmark by the ASCE.

Despite the growing recognition, the bridge had reached a serious state of disrepair. Vandalism was increasing. These financial and structural problems coincided with the river valley's designation as part of the National Wild and Scenic Rivers system. The NPS bought the structure from the last private owner, Albert Kraft, in 1980.

Although Kraft had closed it in 1979, the NPS made a commitment to reopen it for vehicular use. The agency spent \$26,000 to replace the railings and 50% of the deck timbers and to repair the

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THE DELAWARE AQUEDUCT. *Below:* In service, c1885. View from Minisink Ford, N.Y. looking toward Lackawaxen, Pa. *Above right:* Rewrapping the south cable with a wrapping machine loosely following the design of Roebling's original. At left is the cleaned, unwrapped cable with temporary banding. The new wrapping is seen between the wrapping capstan and the wrapping-wire reel. To the right of the reel are two of the original wrought-iron-rod suspenders, temporarily disengaged to allow the wrapping machine to pass by. The floor system is temporarily supported by the steel beam which carries the loads to the adjacent floor beams. *Below right:* General view of cable-restoration work; view along deck toward N.Y. *Robert M. Vogel photographs.*

