



MORRIS CANAL

ARCHAEOLOGY AT LOCK 2 EAST

In 1923, after almost a hundred years of service, the Morris Canal was finally closed. As part of an abandonment plan, the canal was drained, road crossings leveled, buildings torn down and locks filled in. Today, Wharton's Hugh Force Canal Park contains one of the few remaining water-filled sections of the Morris Canal and the site of Lock 2 East.

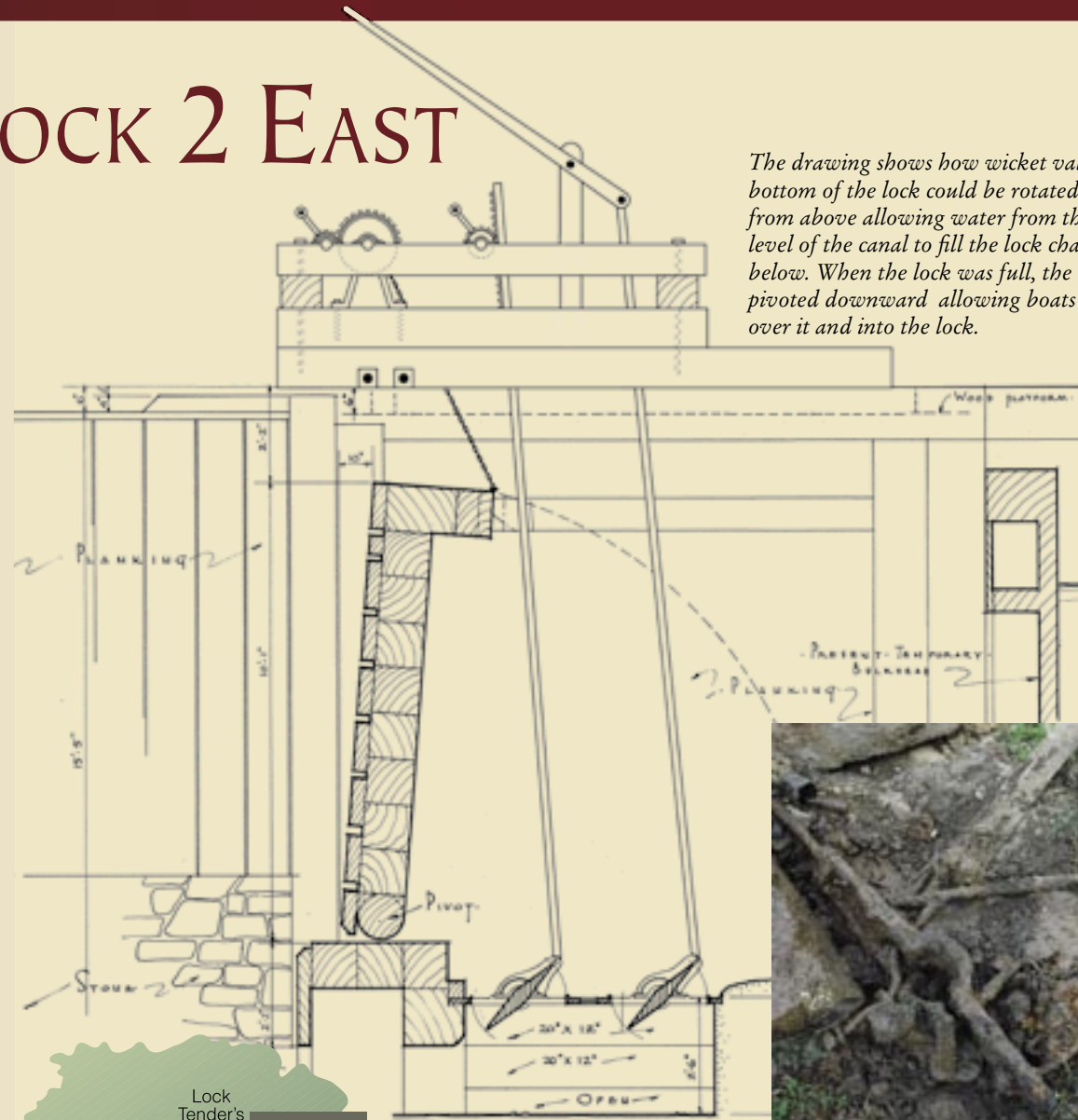
One of the 23 locks and 23 inclined planes on the canal, Lock 2 East raised and lowered boats 8 feet. The lock was a heavily built stone chamber with a wooden miter gate at the lower end that opened to let the 89-foot-long canal boats enter.

The upper end of the lock was controlled by a drop gate that pivoted down into a pocket in the bottom of the lock. Below the drop gate, paddle valves called wickets could be opened by means of a lever and crank from above. The lock tender would first raise the drop gate and then open the wickets to fill the lock with water. A boat in the lock would be raised to the next higher level of the canal.

In the fall of 2006, as part of a restoration plan, archeologists dug to see if the lock could be rebuilt. Their excavations showed that, although many wooden parts had rotted away, the lock walls were intact and many iron artifacts had survived. Parts of the wicket valves were discovered at the upper end of the lock and carefully conserved to demonstrate how the lock works.



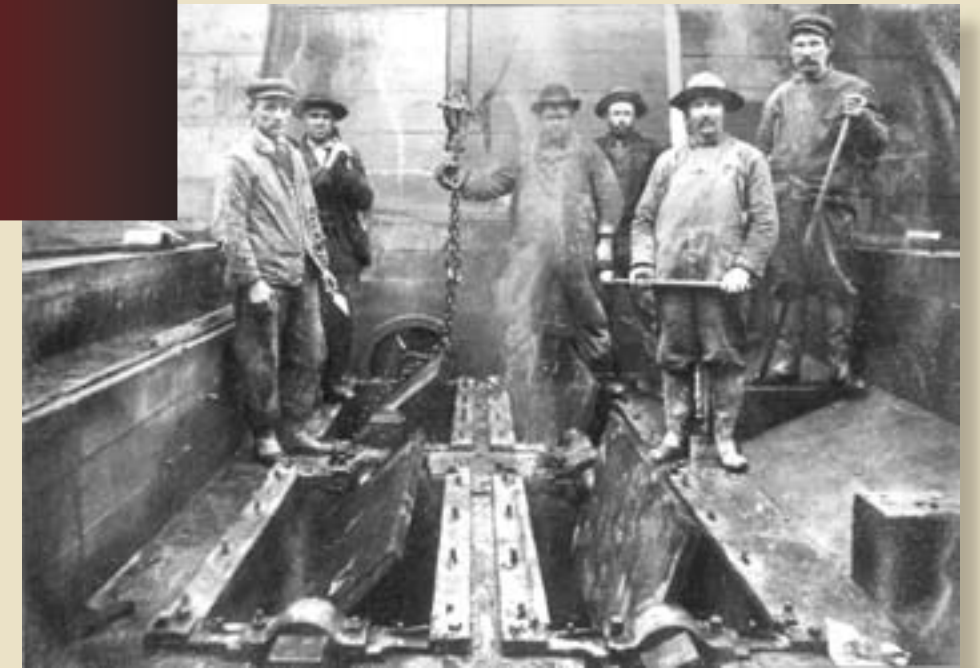
In the fall of 2006, archaeological investigations showed that the stone walls of Lock 2 East are still intact below ground level.



The drawing shows how wicket valves in the bottom of the lock could be rotated by a lever from above allowing water from the upper level of the canal to fill the lock chamber below. When the lock was full, the drop gate pivoted downward allowing boats to float over it and into the lock.



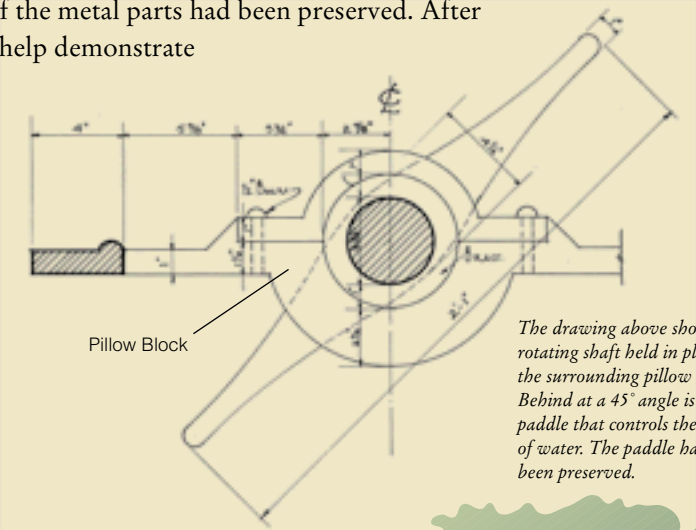
The wicket gate pillow block, bolts and shaft assembly as they appeared when first removed from the ground.



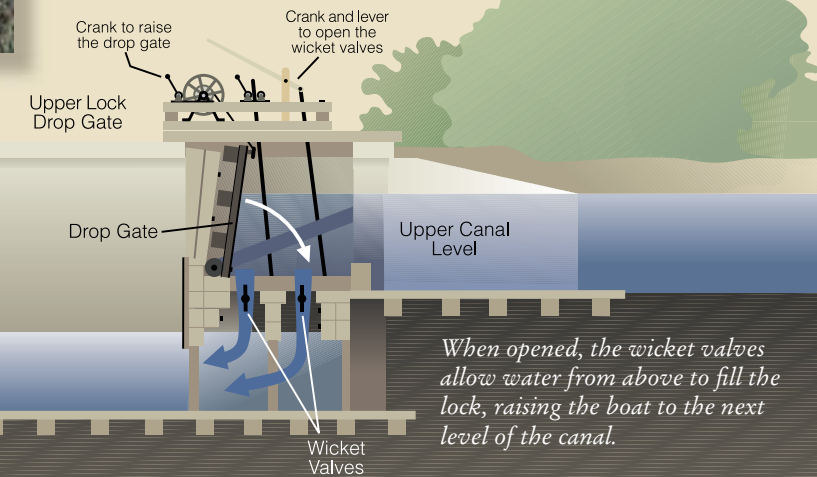
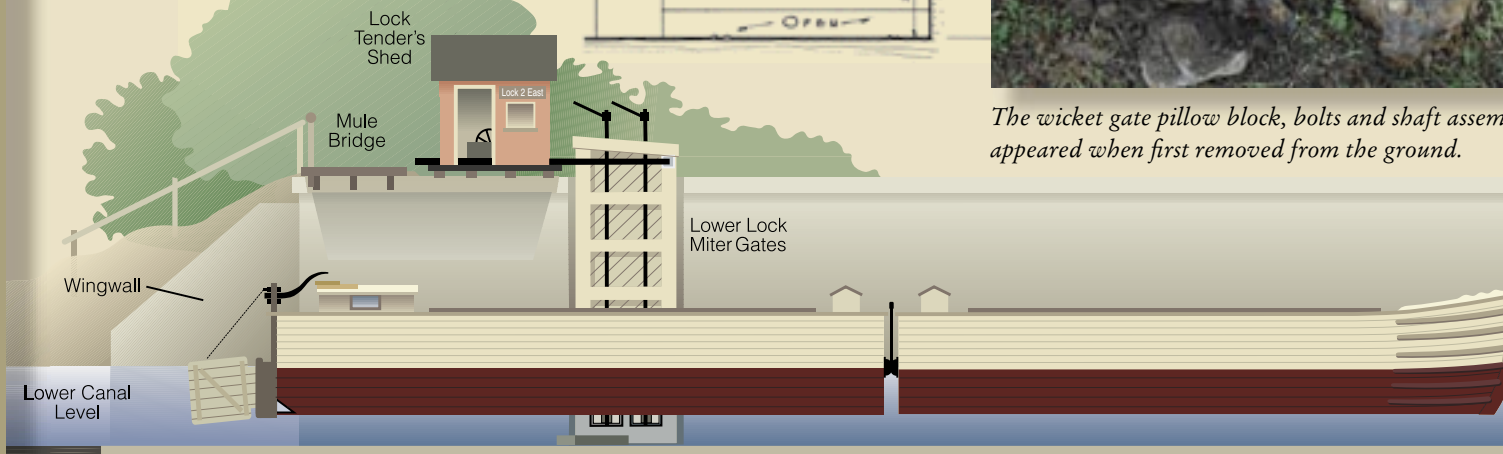
A work crew on the Lehigh Canal stand in the bottom of a dewatered lock with the wicket valves open at their feet.

THE DROP GATE

When archeologists excavated the upper end of Lock 2 East, they discovered that the lock walls were intact and, although the wooden parts of the wicket valves had rotted away, some of the metal parts had been preserved. After careful restoration, these parts help demonstrate how the lock worked.



The drawing above shows the rotating shaft held in place by the surrounding pillow block. Behind at a 45° angle is the paddle that controls the flow of water. The paddle has not been preserved.



When opened, the wicket valves allow water from above to fill the lock, raising the boat to the next level of the canal.