

<p>CANAL: THE UNION CANAL</p> <p>STATE/PROVINCE: Pennsylvania</p> <p>COUNTIES: Dauphin, Lebanon and Berks</p> <p>LOCATION (Endpoints of Canal): Reading to Middletown, Connecting the Schuylkill Nav. with Pa. Main Line</p> <p>TOPOGRAPHIC MAPS:</p>	<p>STATUS: Abandoned, except for short restoration near Reading</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 10%; vertical-align: middle;">ENLARGEMENTS</td> <td style="width: 15%;">DATES IN USE</td> <td style="width: 55%;">LENGTH</td> <td style="width: 20%;">LIFT LOCKS</td> </tr> <tr> <td></td> <td>CANAL SLACKWATER TOTAL</td> <td>No./ SIZE</td> </tr> <tr> <td>1</td> <td>1828-1885</td> <td>81</td> <td>93</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>8-1/2x75</td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> </table> <p>ACS HAER</p>	ENLARGEMENTS	DATES IN USE	LENGTH	LIFT LOCKS		CANAL SLACKWATER TOTAL	No./ SIZE	1	1828-1885	81	93	2			8-1/2x75	3				4			
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<p>HISTORICAL SIGNIFICANCE:</p> <p style="text-align: right;">the Union Canal, which ultimately connected the Schuylkill River at Reading with the Susquehanna River at Middletown, had the distinction of being the first canal route ever to be surveyed in America. The approximate route for the Union Canal was first conceived by William Penn. Having laid out Philadelphia in 1682, which became the country's first great seaport, Penn issued proposals for another city in the province of Pennsylvania in 1690 as follows:</p> <p style="text-align: right;">"It is now my purpose to make another settlement upon the river Susquehanna . . . and the most convenient place for communications with former plantations in the east . . . which will not be hard to do by water by benefit of the river Schuylkill, for a branch of that river (Tulpehocken Creek) lies near a branch that runs in the Susquehanna River (Swatara Creek) and is the common course of the Indians with their skins and furs into our parts . . . from the west and northwest parts of the continent."</p> <p style="text-align: right;">This canal connection was discussed for many years, and in 1762 David Rittenhouse, the astronomer, and Dr. William Smith, provost of the University of Pennsylvania, made surveys over Penn's route from Reading to Middletown, the route later traversed by the Union Canal.</p> <p style="text-align: right;">The Revolutionary War intervened before anything further was done. In 1792 two companies were chartered by the State of Pennsylvania to build a navigable waterway between the Schuylkill and Susquehanna, improve the Schuylkill from Norristown to Reading, and build a canal from the Delaware River to Norristown. By 1794, the companies had completed 15 miles of work, including several locks, and had spent \$440,000, which exhausted their funds, and the work ground to a stop—for the next twenty-seven years. The legislature granted the companies the right to raise another \$400,000 by means of lotteries, but by 1811 the two companies, united under the name "Union Canal Company," had managed to raise only \$60,000.</p> <p style="text-align: right;">In 1815 by act of the Pennsylvania legislature a new enterprise, the "Schuylkill Navigation Company," was chartered to complete the work on the Schuylkill River.</p> <p style="text-align: right;">In the meantime the Union Canal Company, whose responsibility had now been narrowed to the water route between Reading and Middletown, was offered financial aid by the state of Pennsylvania due to the impending threat to Pennsylvania's commerce of New York State's partially completed Erie Canal. With this additional impetus the Union Canal was pushed through to completion between 1821 and 1828, to make a water link between Philadelphia and the Susquehanna.</p>																								
<p>PHYSICAL DESCRIPTION:</p>																								
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<p>BIBLIOGRAPHICAL SUMMARY:</p> <p style="text-align: right;">"The Amazing Pa. Canals" by W. H. Shank, 1977</p> <p style="text-align: right;">Also many records, articles and maps in the archives of the Lebanon County Historical Society</p> <p>UNPUBLISHED RECORDS, PHOTOS, DRAWINGS (CEHR, HAER, HABS)</p>																								
<p>EXISTING OR RECOMMENDED LANDMARK STATUS (CEHR, National Register, etc.):</p> <p style="text-align: center;">(Continued on the reverse side)</p>																								
<p>REPORTER'S NAME & ADDRESS: William H. Shank, 809 Rathton Rd., York, Pa. 17403 DATE:</p>																								
<p>RETURN TO: CANAL INDEX COMMITTEE, c/o P.H. STOTT, HAINES ROAD, MOUNT KISCO, NY 10549</p>																								

The Union Canal, 4 feet deep, 36 feet wide at surface level and 24 feet wide at bottom, was a remarkable feat of engineering. In a distance of 81 miles (by canal) between Reading and Middletown it climbed 311 feet to the summit level of the canal at Lebanon and descended a total of 192 feet to the level of the Susquehanna River at the west end, using a total of 93 lift locks 75 feet long and 8½ feet wide.

The summit level was approached by a consecutive series of 19 locks on the west side and 7 consecutive locks on the east side of Lebanon.

In addition, just west of Lebanon the canal ran through a 729 foot tunnel in the water shed ridge. Completed in 1826, it was the second tunnel in the country, and is today maintained by the Lebanon County Historical Society as the "oldest tunnel in the United States."

An additional 22-mile feeder, making connection west of Lebanon brought water from a large reservoir, created north of Blue Mountain, to supply the summit level of the Union Canal. (The Pine Grove Feeder.)

The Union Canal, costing a total of \$6,000,000, was traversed in the spring of 1828 by its first boat, the "Fair Trader," which finished the trip from Philadelphia to Middletown in five days.

Maintaining water in the summit level of the Union Canal was a tremendous problem. The limestone soil allowed rapid water leakage, which was subsequently offset somewhat by lining the canal walls with heavy planks at the bottom and sides. Inasmuch as the feeder canal was located some 85 feet below the summit level it was necessary to pump the water from the feeder canal junction (known as the "Water Works") using four huge pumping engines, rated at 120 H.P. apiece and two immense water wheels 40 feet high by 10 feet wide, to raise the water through a 3-foot-diameter wood pipe to the top of a 95-foot hill from which point the water flowed four miles through an aqueduct to the summit level of the canal.

Unfortunately the designers of the Union Canal had been too conservative and had made both the channel and the locks of the canal so narrow that the heavy freight boats and large passenger packet boats, which soon made their appearance on most of the eastern inland waterways, could not use the canal. Special boats able to carry a load of only 25 to 28 tons were constructed for the Union Canal. The canal proprietors secured permission from the state legislature to widen their channel in 1841 but the enlargement was not actually completed until 1856. After spending an additional \$6,000,000 for this enlarging program the Union Canal was then able to handle boats of from 75 to 80 tons capacity, but the company never recovered from this enormous additional expenditure, and it was finally abandoned in 1885.

The original narrow design of the Union Canal thus prevented it from assuming anything more than a secondary role in the Philadelphia-Pittsburgh canal system.