

The Paw Paw Tunnel

A Nineteenth Century Worker's Monument



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Left above: Looking from inside the tunnel out through the North portal.
Left: Cyclists and hikers enjoy the towpath where they can travel all the way to Washington, D.C., a 184.5 mile journey from Cumberland.

Looking into the South portal of the Paw Paw Tunnel you can see the North portal, a lot further away than you may think (3,118 feet). The towpath is on the right.

Thousands of visitors annually enjoy The Chesapeake and Ohio Canal National Historical Park, a 184-1/2 mile waterway and towpath that were originally planned to connect Georgetown with Pittsburgh and the Ohio River. Constructed between 1828 and 1850, at a cost of 11 million dollars, the canal offered entrepreneurs hope of linking frontier areas along the Potomac River to the eastern coastal plain. Unfortunately, the C&O Canal became obsolete before completion, so construction ended at Cumberland, Maryland, making that city the western terminus. Overly optimistic engineering estimates, outbreaks of disease, frequent flooding, railroad competition, and labor disputes all contributed to the canal's obsolescence and demise by 1924. While a variety of setbacks caused the C&O Canal to fail, there was one project that proved to be particularly challenging for canal officials — the Paw Paw Tunnel.

Located at the Maryland/West Virginia border along Maryland Route 51, the Paw Paw Tunnel is one of the longest carved structures of the canal building era, as it stretches 3, 118 feet through a mountain called Sorrel Ridge, later referred to as Tunnel Mountain. Visitors enjoy the quiet, scenic site maintained by the National Park Service, and they may even choose to walk or ride a bike through the historic structure. As one enters cool, damp darkness, he is tracing footsteps of canallers who took the same walk for over 7 decades. But quiet surroundings do not reveal the monumental construction effort the Paw Paw Tunnel required and the numerous labor conflicts it fostered.

The Paw Paw Tunnel proved to be a labor-intensive undertaking and engineering challenge. Construction of the structure was determined to be necessary because it would save 5 miles of difficult digging along the Potomac River at a location known as "Paw Paw Bends," a series of

huge river loops that twist lazily through the heavily forested mountains. Canal company engineer, Ellwood Morris, proposed building a 1-mile bypass directly across a 6-mile river bend. A 5-mile difference seemed to be a significant cost effective measure at the time. Agreements with the Baltimore and Ohio Railroad, which restricted the C&O Canal Company from crossing onto a friendlier southern terrain, also bolstered arguments for construction at Sorrel Ridge.



*C&O Canal boats were not all work.
Women posing on cargo for Sunday outing.*

Plans were drawn in 1835 and a completion date set for 1838. Three persons most responsible for overseeing the project were Engineer Charles Fisk, Assistant Engineer Ellwood Morris, and contractor, Lee Montgomery. Their plans called for extensive use of manual labor.

Workers faced formidable challenges carving into solid rock and then securing the opening with brick and masonry work. Contractors also confronted optimistic engineering estimates that projected removal of up to 8 feet of rock per day from both ends of Tunnel Mountain. Additional calculations, made shortly after work began, determined shafts would be necessary for workers at mid point in the mountain, so plans for 2 sets of vertical shafts, each 14 feet in diameter, were prepared. Shafts would extend from the top of Tunnel Mountain to a point where canal level was reached. Workers at the shaft base were to initiate more faces, as digging would progress from both inside and outside the mountain, thus speeding up the project. A northern shaft was to be 122 feet deep, while the southern one required a depth of 188 feet.

Inside the tunnel, plans called for workers to create a 5-foot towpath through a 24-foot horseshoe shaped archway portal. The waterway would be 19 feet wide, 7 feet deep, with a 17-foot ceiling above water level. It is also interesting to note that several features of Morris' plans never reached fruition: the tunnel became barrel shaped,

masonry railing was not used, a brick parapet with stone capping was omitted, and the 14 foot shafts were reduced to 8 feet in diameter. After plans were finalized, construction began in February 1836.

Shaping of the tunnel required use of black powder explosives. Large pieces of stone fell and workers, equipped primarily with sledges and picks, broke the spoils into manageable sizes for removal from the site. Workers in shaft areas loaded stone via a winch system where it was raised to the mountaintop using one-horse gins, transferred to a cart, and then hauled to a waste dump. In order for the shafts to ventilate properly, fires were built at the base on one side, thus creating an updraft for heat. The updraft in one side caused a downdraft of fresh air in the other one causing workers to be supplied with fresh air.

Slate rock proved troublesome because it would fall in long sections, causing larger than necessary openings to occur. Workers backfilled the voids with excavated material and covered them with brick linings. In some areas, 33 layers of brick supported excavation material packed into the ceiling and side walls, although the usual arrangement was for 7 to 13 layers. Steam drills were unavailable to work crews and the manual labor required to complete boring, blasting, and sledge work, was prodigious. The Paw Paw Tunnel took its toll on men who learned engineering estimates did not match the reality of conquering Tunnel Mountain. Estimates of removing 8 feet of rock per day proved to be nearer a weekly total. By late 1838, the canal company was in a distressed financial position, as construction costs had escalated 75% over estimates. Most of the cost over runs was due to problems at the Paw Paw site.

Labor disputes and labor shortages also slowed work at the tunnel and along the entire waterway. The company addressed early labor shortages, when it dispatched agents to Europe for the purpose of recruiting workers, primarily from England, Wales, Ireland, and Germany. Deceptive recruiting practices may have occurred, as many immigrant laborers suffered from disillusionment once they settled along the canal. Early workers signed agreements with the company, in return for passage to the United States, making them indentured servants for specified periods of time. Advance travel allotments, for miserable accommodations

on the trans-Atlantic voyage, were later deducted from paychecks for a period of four months.

Once in the United States, immigrants learned the harsh realities of canal digging. Irish-American newspapers repeatedly warned their brothers in Ireland to avoid railroad and canal recruiters because they “would be treated as slaves.” Resentment of poor working conditions, sultry summer weather, to which northern Europeans were unaccustomed, caused many workers to leave their positions before company fees had been satisfied. They were summarily hunted down and jailed. The company later abandoned such recruiting practices.

Ethnic and social divisions also plagued the work force. Irish workers, while resentful of management practices, also brought with them old grudges from northern and southern Ireland. Corkonian and Longford feuds directed energy away from gainful employment and caused death and injury to both sides. In 1834, one pitched battle at Williamsport’s Dam #5 resulted in five deaths and many injuries. Ethnic warfare and labor strikes reached the Paw Paw Tunnel in the Spring of 1837.

English coal miners were chosen by Montgomery to work on the Paw Paw Tunnel because they possessed necessary skills for the job. Irish workers perceived English workers as a wage and job security threat. Subsequently, they drove off all but two of the 40 English tunnel workers. Workers shanties were torn down and chaos reigned at the work site. C&O officials did not actively prosecute perpetrators because it feared the time and expense of doing so would outweigh the benefits. Workmen also feared retaliation if they identified perpetrators of illegal activity. Consequently, work ceased at the Paw Paw Tunnel for a time while friction continued to rise among workers.

An Irish raid at Oldtown, New Years Day, 1838, brought further disruptions to tunnel work. Marching from the Paw Paw Tunnel site, workers assaulted the small town causing significant property damage. State militiamen from Cumberland and Hancock responded to restore order. Shanties were destroyed and firearms seized in the crackdown against disgruntled employees. The canal company subsequently fired and blacklisted over 100 rioters.



C&O Canal cargo boat emerges from South portal.

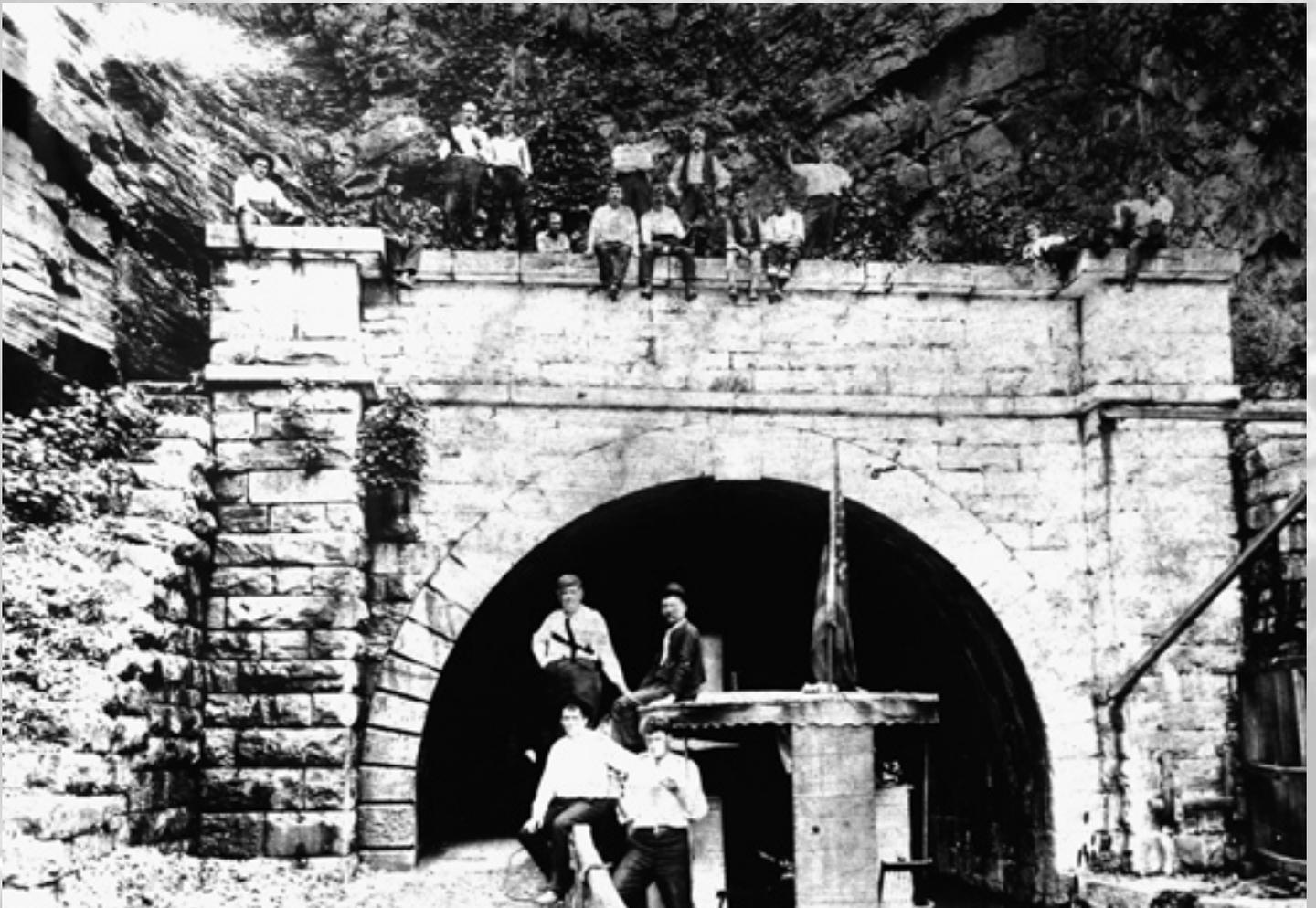


Pleasure and packet boats also used the canal. Photo taken at South portal.

Labor pressures reached a boiling point in the Summer of 1839. German workers, who the Irish also viewed as a threat to wages and job security, were brutally attacked at Little Orleans. According to a report filed by Assistant Engineer Clement Coote, the precipitating incident “was a difference between a Dutchman (German) on No. 281 and an Irishman from Watkins section.” More than 100 Irish workers surprised unsuspecting and sleeping German workers, razing shanties, stealing, and assaulting bystanders. One resisting victim was thrown into a fire where he suffered fatal injuries. A German priest, who witnessed the attack, later called the Irish rioters “incarnate devils.” Coote also concluded the Irish intended “to exterminate the Dutch (Germans).” A local newspaper, dated September 5th, 1839, proclaimed “The Canal War” was raging. In order to restore order, militia forces under the direction of Colonel Thurston of Cumberland were dispatched. The newspaper account listed the destruction of “40 or 50 shanties and shops, ...destruction of about 120 guns

and pistols, and the capture of 26 of the prominent leaders who are now in the Cumberland Jail. The troops were actively engaged for five days. The state of the country, along the whole line, is described as being in the most unhappy conditions.”

Considerable evidence collected by Thurston, indicated use of passwords and countersigns. C&O officials believed the perpetrators were connected with secret, Irish fraternal societies. To make matters worse, residents viewed Thurston’s crackdown with disdain. He was accused of destroying private residences whose owners were not involved in the preceding melee. Chaos reigned along the canal and none of the principle parties were pleased with the state of affairs. The company responded by firing and blacklisting workers. An Ellwood Morris memo, dated October 30, 1839, lists 27 workers who were fired and blacklisted. First on the list was John Stewell, whose dispute with a German worker apparently instigated the assault.



Paymaster's boat at North portal of the Paw Paw Tunnel.

Violence near the Paw Paw Tunnel was perceived in different ways. C&O Canal Company officials undoubtedly saw it as a labor problem stemming from Irish secret societies, old world rivalries, and drunkenness. Those issues were certainly factors in the unrest, but Irish workers most likely viewed their actions to be a result of inept management decisions that placed them in dire straits. Contractors experienced financial distress due to unexpected tunnel costs and were unable to pay employees. Workers, who toiled 12 to 14 hours a day under difficult working conditions, thought it logical to undo the work they were not paid for. Underlying economic issues influenced labor unrest and ethnic rivalries.

Labor problems defy simplistic explanations, such as “Irish drunkenness” or “illiterate troublemakers,” terms often applied to canal workers. Horrible working and unsanitary living conditions fostered cholera and other communicable

diseases. Reports specifically indicated workers were housed in deplorable, substandard structures.

Other underlying reasons also contributed to tension along the canal. Workers typically found it difficult to negotiate with employers about pay or working conditions. Decades before labor laws were instituted and labor unions recognized, workers generally found themselves at the mercy of employers. Ethnic and occupational bonds became important to workers who were far from their homelands. Fraternal societies also created a sense of comradeship in an unpleasant environment. The situation was compounded when the canal company endeavored to increase the labor pool, which sometimes placed one ethnic group against another. The canal company can hardly be faulted for seeking to meet deadlines and yet remain profitable. But its inaccurate engineering forecasts that resulted in low bids by contractors became a serious concern. Subsequent

failures to meet payroll obligations contributed to unstable labor relations.

Finally, fourteen years after the first pick broke ground at Paw Paw, workers completed the tunnel; sections of the canal had been operating for 20 years by the time of its completion. Cargoes of George's Creek coal, produce, lumber and other goods, continued to flow through the tunnel from 1850 to 1924 when operations ceased. Tunnel work consumed 6 million bricks, required workers to remove 210,000 cubic yards of material, cost the canal company any hope of realizing a profit, and financially destroyed contractor Montgomery. But the project stands in remembrance to workers who toiled under difficult circumstances to make the tunnel a reality. Success isn't necessarily measured in terms of profit or personal gain. If one views the Paw Paw Tunnel as a test of will and human achievement, then it stands as a monument to success.

For additional information on the Paw Paw Tunnel, see: Journal of the Franklin Institute, 1839, Robert J. Kapsch, "Paw Paw Tunnel," Walter Sanderlin, The Great National Project, Peter Way, Common Labor, C&O Canal Company Report, 1850, Elizabeth Kytle, Home on the Canal, "Paw Paw Tunnel" pamphlet provided by the National Historical Park. All of the above sources were used in preparation of this article. Special thanks to Rita Knox, Park Ranger, C&O Canal NHP, Cumberland, Visitor Center, 13 Canal Street, Cumberland, Maryland 21502.

How To Get There

From Cumberland, Maryland, take Route 51 south for 25 miles, to the Paw Paw Tunnel. The tunnel sign is located just prior to crossing the Potomac River Bridge into Paw Paw.

From Interstate 70, take Route 522 south to Berkley Springs, WV. Turn right on Route 9, and drive 28 miles to the town of Paw Paw. Cross the Potomac River Bridge into Maryland and look for the tunnel sign on the right. The Paw Paw Tunnel is located at Mile 155 of the towpath.

The C&O Canal National Historical Cumberland Visitor's Center, located at Canal Place in Cumberland, features a display of Canal artifacts and an interpretive exhibit. You can contact the Cumberland Visitor Center at 301-722-8226.



All black and white photos courtesy of the National Park Service.

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