

Johnstown Flood

NATIONAL MEMORIAL • PENNSYLVANIA

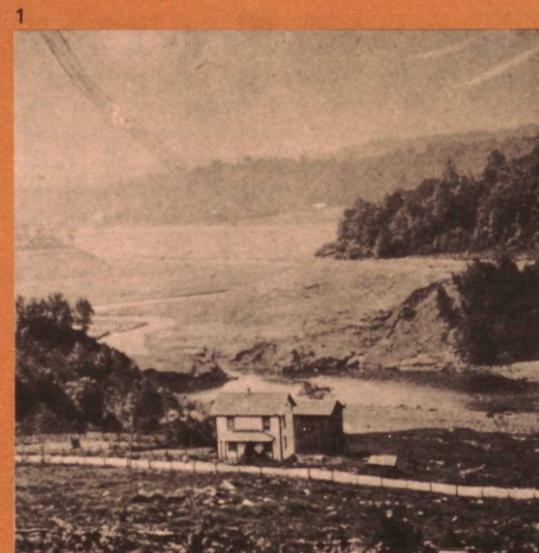
At about 4 o'clock the Reservoir struck the town, and in little more than ten minutes later its worst work was done. The first appearance was like that of a great fire—the dust it raised. It came like a thief, and was upon us before we were aware. Already when it reached us it had numbered its victims by the hundred. Mineral Point and East Conemaugh were gone, a passenger train was engulfed, Woodvale was swept away, Conemaugh Borough was shaved off as if by the sharp surface of an avalanche; in a moment more Johnstown was tumbling all over itself, houses at one end gobbled to houses at the other and went like a swift, deceitful friend to meet, embrace, and crush them. Then on sped the wreath in a swirl, the angry water, baffled for a moment, running up hill with the town and the helpless multitude on its back, the flood shaking with rage and dropping here and there a portion of its burden—crushing, grinding, pulverizing all. Then back, with great frame buildings floating along like ocean steamers, upper decks crowded, hands clinging to every support that could be reached, and so on down to the great stone bridge, where the houses, piled mountain high, took fire and burned with all the fury of the hell.

Johnstown Weekly Tribune, June 14, 1889

The South Fork Dam broke, or "simply moved away" as some eyewitnesses said, at 3:10 on the afternoon of May 31, 1889. It took one hour for its waters to move down the 14 twisting miles of the Little Conemaugh to Johnstown. The devastation of the city itself was over in about 10 minutes. But in that time more than 2,200 persons were killed. Practically everyone in Johnstown and in the villages above the city was left homeless. Property damage totaled more than \$17 million.

The residents of Johnstown had been warned that the dam might break, but they paid no attention, for they were accustomed to spring floods. There had been a flood every year but one since 1880. And each time the water rose in the city there was talk about the dam breaking, but it always held.

Through the years man had set the stage for these floods by abusing the land in the narrow valley



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between the forks of the Little Conemaugh and Stony Creek Rivers, which drain 618 square miles of the Allegheny Mountains.

Johnstown, first settled in 1794, had remained a small backwoods trading center until 1834 when the Allegheny Portage Railroad and Pennsylvania Canal brought in industry and trade. By 1840 the area boasted a population of 3,000 persons and after the arrival of the Pennsylvania Railroad and the establishment of the Cambria Iron Company in the 1850's, Johnstown grew rapidly. By 1889 the population of the valley was nearly 30,000 and Johnstown had become one of the largest steel producing centers in the country.

As the community grew, man stripped the nearby hills and mountains of their forests for lumber. Spring thaws and summer thunderstorms then sent torrents racing down the mountain sides, tearing away more and more of the soil and the dwindling ground cover. In the valleys below, man narrowed the river channels to make room for new buildings, bridges, and people. Fitting the steel mills, people, stores, and railroads into the narrow river valley started a contest for the land in which man and his enterprises had their way at the expense of the natural environment. The result was high water and floods every spring.

The storm bringing the 1889 flood moved into western Pennsylvania on the afternoon of May 30. Forced by winds into the mountainous area of the

The Ruined City Now Under State Control, with a Ray of Hope Ahead.



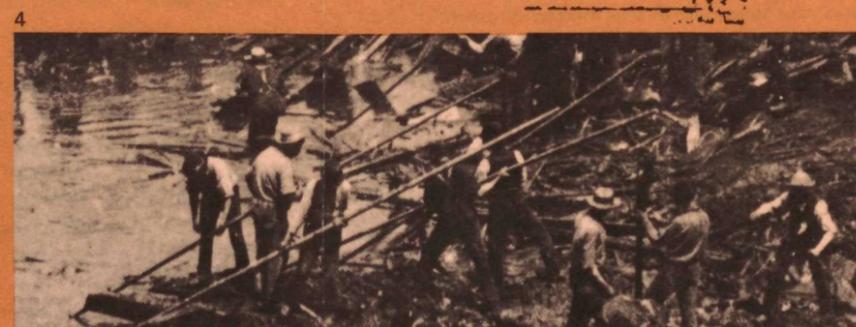
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Library of Congress



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American Red Cross



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Library of Congress

State, heavy, moisture-laden clouds lingered over the Alleghenies unable to move. The entire west-central section of the State was saturated by six to eight inches of rain in a 24-hour period. In the mountains, some areas recorded 10 inches of rain. Unable to absorb this much water in such a short period of time, streams began to overflow their banks and the citizens of Johnstown began to prepare for another spring flood.

The downpour continued and by early morning of the 31st the lower section of Johnstown was under water and the situation at the South Fork Dam was serious; Lake Conemaugh, behind the dam, had risen two feet during the night. The rivers were rising at the rate of a foot an hour, and the lake, 461 feet in elevation above Johnstown, was rising about an inch every 10 minutes. It would be only a matter of hours until the water started over the top of the dam, unless something was done to release more water than the spillway was able to handle. Col. E. J. Unger, president of the South Fork Fishing and Hunting Club, inspected the dam early on May 31 and sent some employees to dig a second spillway at the western end of the dam to relieve the burden of the water flowing over the spillway at the eastern end. The workmen had little success digging into the hard rock and succeeded only in making a ditch two feet wide and 14 inches deep. The water in the lake continued to rise as the fish screens at the spillway became clogged with debris.

Unger, seeing that the spillway and hastily dug auxiliary ditch were unequal to the task of handling the large volume of water running into the lake, ordered workmen to try to raise the level of the dam itself. But by 11 a.m. the water was about level with the top. At this point, Unger sent John G. Parke, Jr., the young resident engineer, to South Fork to warn the people in the valley below of the dam's condition. Several telegraph messages were sent down the valley warning of the impending disaster, but none was heeded.

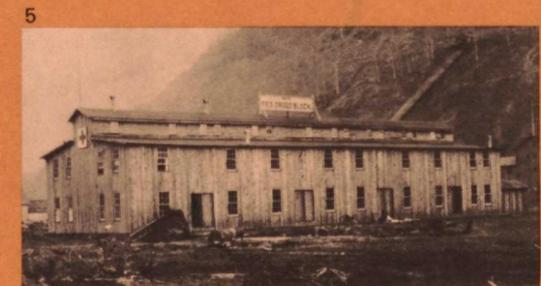
By 1 p.m. John Parke returned to the dam only to see that the water had already started pouring over the top of the dam right above the point where the old discharge pipes had been. It would only be a matter of a few hours until the dam broke, for the water was rapidly wearing down the ends of the embankments and the lake level continued to rise.

OUR CALAMITY

"The big break took place at just three o'clock," Parke wrote later, "and it was about ten feet wide at first and shallow; but when the opening was made, the fearful rushing waters opened the gap with such increasing rapidity that soon after the entire lake leaped out and started on its fearful march of death down the valley of the Conemaugh. It took but forty minutes to drain that three miles of water. The big boulders and great rafters of logs that were in the bed of the river were picked up, like so much chaff and carried down the torrent for miles. Trees that stood fully seventy-five feet in height and four feet through were snapped off like pipe-stems."

The 30- to 40-foot high flood wave moved as fast as 40 m.p.h. down the narrow mountain valley, picking up speed and debris as it advanced toward the unsuspecting towns below. Sometimes the debris formed a dam of its own and stopped the water altogether. But then it broke loose and raced on, faster than before. Shortly after 4 p.m. the flood waters reached Johnstown and in short order the town was ravaged. The rushing flood waters carried buildings, machines, trees and all that stood in its path downstream. And the debris rapidly piled up among the massive stone arches of the railroad bridge across the Conemaugh. The debris at the bridge was reported to be 40 feet high, covering 45 acres. But worse was to come in the swirling eddies and vicious currents at the bridge, for the frame buildings soon caught fire, trapping many who had survived thus far.

Contact with the rest of the world was completely broken off. Washed out railroad rights-of-way, corpses bobbing down the river, and the few terror-stricken refugees from Johnstown who had managed to get out of the valley helped to fan the wild rumors about the events of May 31. The horror of the rumors was scarcely lessened once the staggering weight of truth began to be learned.



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Library of Congress

The beguiling peacefulness at the dam itself (1) was not wholly destroyed even when it broke. The lack of destruction just below the dam was no indication of what would happen down the valley.

Before the Civil War, Cambria County led the country in iron production. The anchor of the industry was the Cambria Iron Company (2) which was damaged by the flood. The manager of the company, Daniel Johnson Morrell, offered in 1880 to repair the dam for the South Fork Fishing and Hunting Club. His offer was declined.

Workmen (4) pick through the debris that piled up behind the stone bridge of the Pennsylvania Railroad.

The American Red Cross was just about 8 years old at the time of the flood. Hospitals for the injured and "hotels" for the homeless were rapidly constructed under Clara Barton's (3) direction. This hotel (5) was one of 6 built by the Red Cross.

ALLEGHENY PORTAGE RAILROAD

Nearby are the remains of the Allegheny Portage Railroad which operated from 1834 to 1857. The historic Lemon House located on U.S. 22, 2 miles east of Cresson, Pa., serves as a visitor center.

ADMINISTRATION

Johnstown Flood National Memorial is administered by the National Park Service, U.S. Department of the Interior. A general superintendent, whose address is P.O. Box 247, Cresson, PA 16630, is in immediate charge.

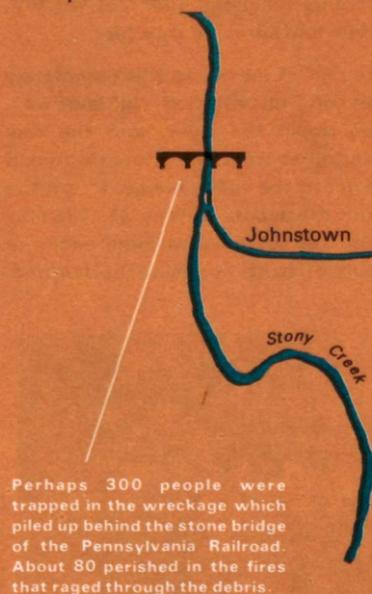
As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

National Park Service
U.S. DEPARTMENT OF THE INTERIOR

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Enormous sympathy for the flood victims aroused by telegraph, newspapers, and pictures brought about the greatest outpouring of popular charity the country had ever seen. Contributions from within the United States and abroad totaled \$3,742,818.78. Clara Barton, "angel of the battlefield," put her newly organized American Red Cross to the test by caring for the flood victims. With her delegation of 50 doctors and nurses from Washington, D.C., hospitals were organized and food and clothing were distributed to the flood victims. Clara Barton and the Red Cross stayed five months.

The work of rebuilding the city began almost immediately after the flood waters subsided. Within a few years the city regained the population it lost during the flood and the manufacturing centers were put back into operation. But a half century later Johnstown again became a victim of flood waters. The St. Patrick's Day Flood in March 1936 took several lives and caused damage estimated at \$41 million. This disaster prompted the widening and deepening of the river channels and the building of river walls. These programs spared Johnstown from Pennsylvania's most devastating natural disaster, the flood of June 1972 spawned by Hurricane Agnes. Johnstown was believed to be flood-free, but in July 1977 the third major flood in a century caused an estimated \$340 million in damages and claimed nearly 80 lives.



WESTERN RESERVOIR AND SOUTH FORK DAM

In 1889, when the dam broke, Lake Conemaugh was used as a resort by the well-to-do. Originally South Fork Dam was built by Pennsylvania to form a reservoir to supply the Johnstown Canal Basin and Western Division of the Main Line Canal with water during the dry summer months.

Begun in 1838, the Western Reservoir was completed 15 years later. The reservoir contained more than 430 million cubic feet of water, and the dam was one of the largest earthen ones in the world at that time. The 931-foot long and 72-foot high reservoir embankment was well built and safe. The walls were 270 feet wide at the base, 20 feet wide at the top and contained a core of well-puddled clay supported on both sides by layers of stone rip-rap and slate gravel.

At the eastern end of the dam a spillway, 99 feet wide and 10 feet deep, was cut through the natural rock of the hillside to carry the overflow water into the river below. Through the center of the dam, iron discharge pipes were placed. A trestle tower connected with the dam wall contained the valves to regulate the amount of water flowing into the river. While under State ownership, only 50 feet of water was kept in the reservoir due to the newness of the construction.

Slight breaks in the dam were reported by the Pennsylvania canal commissioners in 1854. In 1862, however, a serious break occurred in the stone culvert that surrounded the discharge pipes. It happened during the dry season and the flooding caused little damage in the river valley below.

When John Hess realized that the dam had broken, he opened up the whistle on his locomotive and began heading for East Conemaugh, 1/2-mile away. The whistle blew almost 5 minutes and was the only warning the townspeople had. About 50 people, half of them train passengers, died here.

The approximately 1,100 inhabitants of Woodvale had no warning. The official death toll was 314.

Mineral Point was a small village of about 30 families. When the flood passed, the townsite had been swept clean to the bare rock.

Debris swept before the flood clogged the arch of the Conemaugh Viaduct and momentarily dammed the waters. But the bridge held for only a matter of seconds before giving way.

On July 1, 1863, the Pennsylvania Railroad Company, which had bought the Pennsylvania Main Line of Public Works in 1857, abandoned the canal and the break in the wall of the reservoir was not repaired.

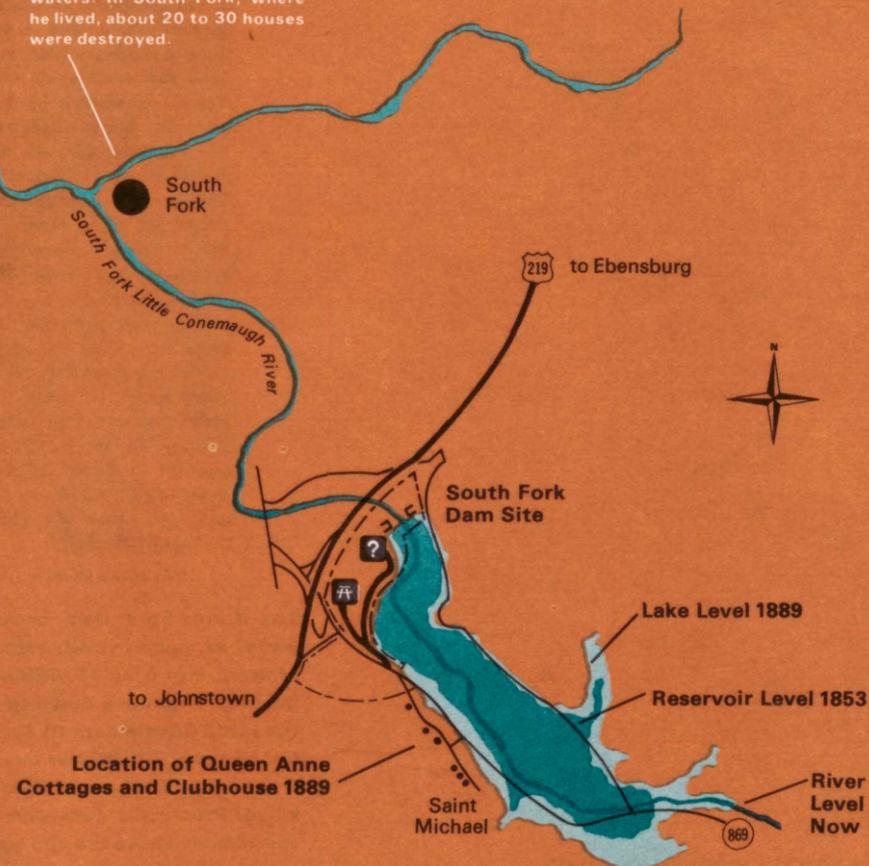
In 1879, 16 years after being abandoned, the dam and surrounding land were acquired by a group of Pittsburgh industrialists who proposed to repair the dam, stock the reservoir with fish, and develop a pleasant summer resort high in the mountains. A list of club members who secured a charter under the name of the South Fork Fishing and Hunting Club included Andrew Carnegie, Henry Clay Frick, Henry Phipps, Jr., Robert Pitcairn, and Andrew Mellon. These men represented the industrial might of Pittsburgh and the backbone of the iron and steel industry of the United States. Seeking relief from the heat and dirt of Pittsburgh, they selected this secluded spot as their private recreation ground.

Under the supervision of Benjamin F. Ruff the club began to repair the dam in April 1880. Earth, stone, and shale were dumped into the breach that had resulted from the break in 1862. All was then covered with brush and straw to prevent seepage. The iron discharge pipes had already been removed and sold for scrap by a previous owner. To accommodate a road over the dam, the walls of the dam were not rebuilt to their original height. The spillway was not cut deeper into the ground so that, with the dam height lowered, the spillway could not handle the increased water that an emergency would bring. The failure to replace the discharge pipes meant that there was no way to control the level of the reservoir or to lower the water to make repairs to the dam.

To complete the conversion of the canal reservoir into a fisherman's lake, a bridge was built over the spillway. And to prevent the fish from going over the spillway, heavy wire screens were fastened to the bridge supports. In the water in front of the spillway, nail-studded logs arranged in a zig-zag fashion kept the fish away from the overflow. Above these, at the water's edge, was an elevated screen to prevent the fish from leaping onto the bridge or dam wall. Thus the three devices prevented the fish in the reservoir from escaping. The three obstructions also acted as a trap for any debris and thereby slowed the water, much like food caught in the kitchen sink drain. When the rains came in late May 1889, washing more refuse than usual into the lake, the spillway became so clogged that it reduced the normal flow.

The repairs to the South Fork Dam were completed in 1881 and the impounded water formed beautiful Lake Conemaugh. Twenty Queen Anne-type cottages and a clubhouse of 47 rooms were erected on the green slopes which bordered the shores of the lake. Two steam yachts glided through the placid basin of the lake and excursion trips were frequent. Boating was distinctly fashionable, and fishing, thanks to Izaak Walton, a gentleman's sport.

Michael Mann was the first person to be drowned by the floodwaters. In South Fork, where he lived, about 20 to 30 houses were destroyed.



By 1889 when the club membership had grown to 68, the resort contained 700 acres, of which 500 formed a reservoir storing 540 million cubic feet of water. The lake was more than two miles long and 65 feet deep at the dam. Conditions were ripe for disaster.

ABOUT YOUR VISIT

Johnstown Flood National Memorial is located along U.S. 219 and Pa. 869 at the South Fork Dam site, 10 miles northeast of Johnstown near St. Michael, Pa. At the dam site are a small visitor center, restrooms, interpretive trails, and a picnic area with tables and cooking grills. Camping, hunting, open fires, and the removal of any object of antiquity are prohibited.

FOR YOUR SAFETY

Do not allow your visit to be spoiled by an accident. While every effort has been made to provide for your safety, there are still hazards which require your alertness and vigilance. Exercise common sense and caution.