

SPOILIATION AND ENCROACHMENT IN THE CONEMAUGH VALLEY BEFORE THE JOHNSTOWN FLOOD OF 1889¹

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THE FIFTIETH ANNIVERSARY of the Johnstown Flood occurred on May 31, 1939. Commemorative notices in newspapers and magazines have appeared in great numbers with various degrees of quality, truth, and fiction. Even after fifty years, the American people still want their Johnstown Flood in its traditional form with all the horror still in it and none of the fables removed. Today, the "Tragedy of the Conemaugh" still remains the greatest emotional experience of the latter half of the nineteenth century. No other event so captured the sympathy and imagination of the American people as did the "Great Flood." Around this event has been built a great mass of fiction, songs, and poems.² As late as 1904 a mechanized representation of the Johnstown Flood was a feature on the Boardwalk in Atlantic City.³

The result of the foregoing attitude is that the true nature of the Flood and particularly the relief of the stricken valley and the rehabilitation of Johnstown have been ignored. In 1889 and 1890 appeared nine-

¹ An elaboration of a portion of a paper on the general subject of the Johnstown Flood that was read at a meeting of the Historical Society of Western Pennsylvania on May 30, 1939. A sequel, entitled "The Johnstown Flood and Pittsburgh's Relief, 1889," is expected to be published in a subsequent issue of this magazine. Mr. Shappee is an instructor in history, University of Pittsburgh, Johnstown Center, who has been engaged in extended research on the subjects named in preparation for the acquisition of a doctor's degree. *Ed.*

² Burton E. Stevenson, in his *Poems of American History* (Boston and New York, 1908), has three "flood poems." Walt Whitman wrote a poem on the Flood shortly after his seventieth birthday. The present writer has collected fifty "flood poems" in the course of his reading.

³ *Johnstown Flood: a History and Souvenir* (Atlantic City, 1904), a pamphlet sold at the "scenographic" reproduction of the Johnstown Flood, Boardwalk, Atlantic City, New Jersey.

teen accounts of the Flood, but these, with one exception,⁴ dealt more heavily in horror and fable than in sober and reflective fact. The Paul Revere of the Flood, Daniel Periton, still rides today, even though on the day of the Flood he did not. Mrs. Hettie M. Ogle, the Western Union Telegraph operator who was drowned in the Flood, remains the "Patient Heroine of the Flood" who was killed while ticking out a "last message" from the beleaguered city.⁵ The "Huns," in spite of official denials in 1889, still stand condemned of cutting fingers off corpses to obtain rings.

Against such an ingrained background of horror and fable, the historian of today must take his stand, discard the untruths, and write the history of what actually happened, even though his work appears much duller than the more exciting information of contemporaries of the great event. Johnstownners are just as oblivious of the true nature of their moment in history as the world outside. In the accounts appearing in Johnstown papers on the fiftieth anniversary, Daniel Periton was again brought out to ride his horse through the inundated city.⁶

The devastation of Johnstown had its origin in two sources: human carelessness toward the peculiar physical environs of Johnstown, and the visitation of the greatest deluge that has ever been recorded in Pennsylvania. In accounting for the damage of the Flood one must examine the geography of the area and the ways in which damages had been inflicted upon it. The deluge of May 31 came as an instrument of vengeance from a violated physical environment.

⁴ The only serious contemporary attempt to present an accurate account of the flood and relief was written by John Bach McMaster whose unfinished manuscript was published in the *Pennsylvania Magazine of History and Biography* in 1933, 57:209-243, 316-354. McMaster was engaged by the Relief Commission of Pennsylvania to prepare the official history of the flood and the work of the commission, but the project was dropped after a series of violent attacks was made on the work of the commission by the *New York Herald* in October and November, 1891. McMaster was paid \$1,866.38 for his work. The commission claimed that there was no need for a separate official history, since the published reports of the State Relief Commission, the Relief Committee of Pittsburgh, and the Flood Finance Committee of Johnstown obviated the need for the former plan.

⁵ E. M. Colson, "Patient Heroine of the Johnstown Flood," in *Woman's Home Companion*, 31:8 (June, 1904).

⁶ *Johnstown Democrat*, May 31, 1939.

Johnstown is located between the forks of the Conemaugh and Stonycreek. In a narrow valley these two winding streams unite and flow westward to pour their waters finally into the Allegheny. The Conemaugh Valley lies deep in the Allegheny Plateau, five hundred to a thousand feet beneath the level of the mountain tops.⁷ To the east lies Allegheny Mountain and to the west Chestnut Ridge and Laurel Hill. The Conemaugh River has cut these mountains to their base to give an outlet to its waters toward the west.⁸ The two streams that flow through the valley are short mountain streams with a fall of twenty feet per mile.⁹ Together they drain 618 square miles. Johnstown, the metropolis of the region, lies in the deepest hole in the Alleghenies for a thousand square miles.¹⁰ The natural beauty of the Conemaugh Valley was especially noted in the early guide books of the Pennsylvania Railroad.¹¹ Earlier this rugged terrain had almost discouraged the state engineers who surveyed the area for the route of the Portage Railroad. In 1825, Charles Treziyulny had written: "The whole country, from the upper forks of the Juniata to the forks of the south branch of the Conemaugh, is mountainous: mountain rising after mountain in quick succession. The main one . . . is hemmed in and surrounded by other high mountains with steep slopes, separated from one another by narrow ravines and presenting no favorable situation for canalling, either by lockage or tunnelling. Here nature had refused to make her usual kind advances to aid the

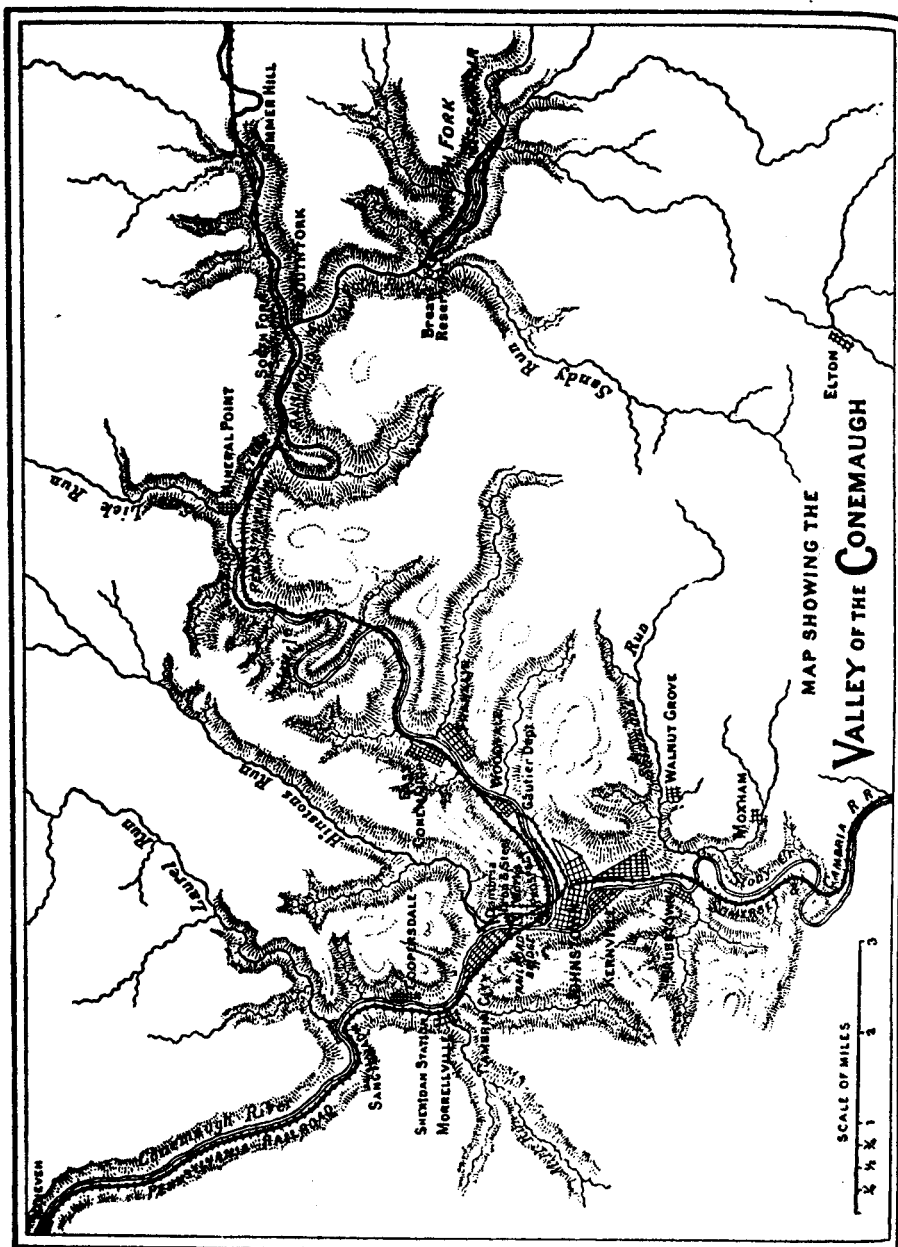
⁷ Raymond E. Murphy, "Johnstown and York: a Comparative Study of Two Industrial Cities," Association of American Geographers, *Annals*, 25:175 (December, 1935); John Fulton, "The Source and Behavior of Fire Gas in the Johnstown Mines," American Institute of Mining Engineers, *Transactions*, 13:772-776 (February, 1885); W. C. Phalen and Lawrence Martin, *Mineral Resources of Johnstown, Pennsylvania and Vicinity*, 11 (Bulletin 447 of U. S. Geological Survey, Washington, 1911).

⁸ F. and W. G. Platt, *Report of Progress in the Cambria and Somerset District of the Bituminous Coal Fields of Western Pennsylvania, Part I, Cambria*, 95 (Second Geological Survey of Pennsylvania, Harrisburg, 1875-1877).

⁹ John J. R. Croes, *The Rivers at Johnstown*, 13 (New York, 1891).

¹⁰ Johnstown Reception Committee, *The Iron, Steel, and Allied Industries of Johnstown, Pennsylvania, for the Information of the Visiting Members of the Foreign and American Technical Societies*, 34 (Johnstown, 1890).

¹¹ Pennsylvania Railroad Company, *Guide for the Pennsylvania Railroad, with an Extensive Map including the Entire Route with All Its Windings, Objects of Interest, and Information Useful to the Traveller*, 24 (Philadelphia, 1855).



exertions of man; mountains are thrown together as if to defy human ingenuity and baffle the skill of the engineer."¹² However, the engineers did find their way through the mountains, and the Portage Railroad was built. In 1836, Peregrine Prolix, in very poor poetry, eulogized the engineers, who

Levelled the mountains, raised the valley,
Made straight the crooked, smoothed the rough;
Cut tunnels through the hills and valleys
Through the forest dense and tough.

Nor have they spared the Allegheny
But overcame his towering height,
With engines, endless ropes and many
Inclining planes and bridges light.¹³

Johnstown, located at the western end of the Portage Railroad, received its first boom as a result of the completion of the canal and the railroad. Founded in 1800, Johnstown, prior to the canal, had received the benefit of small merchandising for the area. It had also been the port of deposit for Juniata iron brought over the mountains by the Franks-town Road and floated to Pittsburgh in the spring from this small valley town, "the only port for boating on the western waters, east of Laurel Hill."¹⁴ When the canal and the railroad were completed in 1834, Johnstown took on a bustling enterprise that transformed the small village. Incorporated in 1831 as "Conemaugh," the village became "Johnstown" in 1834. The *Johnstown Democrat* was begun in the same year. A "hydraulic cement" plant was started to furnish cement for the state system. Two boat yards, two tanneries, two breweries, in addition to car shops and blacksmith shops, were begun in the first decade of the canal. The four principal religious congregations of Johnstown built brick churches in the 1830's.¹⁵ Canal tolls, in the first year of operation,

¹² Pennsylvania Canal Commissioners, *Report and Correspondence of the Commissioners for Promoting the Internal Improvements of the State*, 54 (Harrisburg, 1825).

¹³ Peregrine Prolix, *Pleasant Peregrinations through the Prettiest Parts of Pennsylvania*, 4 (Philadelphia, 1836).

¹⁴ Solomon W. Roberts, "Reminiscences of the First Railroad over the Allegheny Mountains," *Pennsylvania Magazine of History and Biography*, 2:376.

¹⁵ W. Horace Rose, "Historical Address," in *History of the Centennial Celebration of Johnstown, Pa., October 5, 6, 7, 1900*, pages 37-39 (Johnstown, 1900); P. C. Leber, *Souvenir der St. Joseph's Gemeinde zu Johnstown, Cambria County, Pa. Herausgegeben*

reached \$1,800 a week. In 1839 the canal and railroad collected \$147,050 at Johnstown, and in 1844 the system transported almost eight million pounds of iron.¹⁶ When the system was perfected the railroad could carry from six to ten cargoes an hour up and down its cables. Passenger packets arrived on schedule, and the mellow, echoing notes of the boatman's horn enlivened the little town to the prospect of additional trade.¹⁷ The Public Works system brought many Germans to Johnstown in the late 1830's and all during the 1840's. Traveling from Philadelphia westward, they settled there because the thriving condition of the valley invited settlement. Besides, Bedford and Somerset counties to the south had been settled by Germans.¹⁸

The Pennsylvania Canal and Allegheny Portage Railroad were the forerunners of the Pennsylvania Railroad. With the canals of the Public Works establishing the best grade for heavy traffic, and the Portage Railroad solving the mechanical problems, the railroad was bound to appear as a competitor of the canal and finally as its victor. As early as 1835 locomotives had been introduced on the railroad, and the first engine, the "Boston," was put into service at Johnstown. The locomotives soon replaced the horses and mules on the system, and Johnstown-ers, accustomed to the locomotives, early became promotors of the Pennsylvania Railroad. At a railroad convention held in Harrisburg in 1838 Cambria County was represented by five delegates, three of whom lived in Johnstown.¹⁹ When the Pennsylvania Railroad Company was char-

bei Gelegenheit der hier abgehalten Generalversammlung der deutschen Katholiken des Staates vom 21 bis 23 Mai 1901, pages 9-10 (Johnstown 1901).

¹⁶ *Annual Report of the Canal Commissioners*, 1839, p. 47 (Harrisburg, 1840); 1844, p. 29 (Harrisburg, 1845).

¹⁷ A. J. Hite, *The Handbook of Johnstown for 1856* (Johnstown, 1856); Henry S. Tanner, *A Description of the Canals and Railroads of the United States*, 126-131 (New York, 1840); Michel Chevalier, *Histoire des Voies de Communication aux Etats Unis et des Travaux d'Art Qui en Dependent*, 1:402 (Paris, 1840).

¹⁸ Leber, *Souvenir*, 9; John Meise, *Schantz and Johnstown*, 88 (Johnstown, 1913); Deutsch Amerikanischer Staats-Verband von Pennsylvania, Johnstown Zweig, *Offizielles Souvenir für die Feier des Ersten Deutschen Tages abgehalten unter den Auspizien des Johnstown Zweiges des Deutsch-Amerik Centralbundes*, Johnstown, Pa. 19 Juli 1904, *passim* (Johnstown, 1904).

¹⁹ *Proceedings of the Rail-Road Convention Assembled at Harrisburg, March 6, 1838*, p. 4 (Philadelphia, 1838).

tered in 1846 Cambria County furnished eight incorporators, five of whom came from Johnstown.²⁰

From its geographical situation Johnstown would be a terminus of railroad shops and facilities for the railroad as it was for the canal; the town would derive benefit from this fact. In the report of the president of the railroad for 1848, S. V. Merrick was pleased to note both interest and subscriptions for the projected route by the people of the area: "A great spirit of liberality has been evinced by the property holders on the several lines west of the mountains, a free release having been given by nearly nine-tenths of the owners on two of the lines, and a large proportion on the third, besides a liberal conditional subscription to the stock of the company."²¹ After a short hesitation over routes the directors chose the Conemaugh Valley route in place of the Black Lick Creek route through Indiana County even though it would be necessary to cross the Conemaugh by bridges at least six times.²²

In 1850 a contract was let to S. H. Smith of Johnstown for the construction of an iron bridge across the Conemaugh. This structure was 104 feet in length and a "work of the most airy and substantial character."²³ Temporarily retarded by labor troubles around Johnstown in 1851,²⁴ the Pennsylvania Railroad was opened for business on the low grades in December, 1852, and completely opened over the mountain division on February 15, 1854. In 1852, Smith, who had built the

²⁰ *By-laws of the Board of Directors (Adopted April and May, 1847) Together with the Charter of the Pennsylvania Railroad Company, Its Supplement and Other Laws relating Railroads Projected from Cumberland to Pittsburg and from Pittsburg East*, 10 (Philadelphia, 1847).

²¹ S. V. Merrick, President, *Second Annual Report of the Directors of the Pennsylvania Railroad Company*, October 31, 1848, p. 22 (Philadelphia, 1848).

²² W. C. Patterson, President, *Third Annual Report of the Directors of the Pennsylvania Railroad Company to the Stockholders*, October 31, 1849, p. 37 (Philadelphia, 1849).

²³ Hite, *Handbook of Johnstown for 1856*, p. 31.

²⁴ The trouble arose among the Irish laborers. The "Way-Uppers" of North Ireland were the special objects of wrath of the "Way-Downers" of the South. When construction was being done around Johnstown, the foremen would sometimes send for Father Mullen of St. John Gualbert's Church to restore peace. W. C. Patterson, President, *Fifth Annual Report of the Directors of the Pennsylvania Railroad Company to the Stockholders*, February 2, 1852, p. 11 (Philadelphia, 1852); "Sketch of St. John Gualbert's Church, 1830-1896," *Johnstown Tribune*, December 19, 1896.

bridge over the Conemaugh, also secured a contract for twenty-five eight-wheeled "box burden cars." In a few years, the industries of Johnstown were also furnishing iron goods for the railroad.

However, for hotel keepers and small merchandisers, the railroad actually removed business from the town. Until the Horseshoe Curve and the Gallitzin Tunnel were completed in 1854, the state depot at East Conemaugh was used as a transfer point, and business gravitated east of the business center of Johnstown. With the completion of the mountain division in 1854, East Conemaugh suffered also. Not only Johnstown but the entire valley felt the removal of the business due to the "through" routing of passengers and goods in the valley. In the canal days, the railroad and canal both ended in Johnstown; at the later time the village became merely a ticket office.²⁵

Fortunately after this bad turn of Johnstown's fortunes a new enterprise was begun which soon made Johnstown a boom town for the next seventy-five years; the Cambria Iron Company was resumed on a responsible financial basis. The development of the Cambria mills, which B. Frank Jones (of Jones and Laughlin) called the "cradle in which the great improvements in rolling mill practice were rocked,"²⁶ solved the problems of the stricken valley.

The iron industry of Johnstown is of quite venerable origin in the western part of Pennsylvania. John Holliday had built a forge on the bank of Stonycreek in 1808, where he worked Juniata iron. In 1810 a nail factory operated in town for a few years. After these early endeavors nothing further was done in the early boom of canal days. In 1839-1840 George S. King, a merchant, began a search for native iron ores in the vicinity and located good beds on Laurel Run, west of the town. With the Shryocks and David Stewart, King built Cambria Furnace in 1841, and Mill Creek and Bens Creek Furnaces in 1842. In 1845 Dr. Peter Schoenberger, through purchase of the other partners' shares, became the associate of King. Later, buying the Blacklick Fur-

²⁵ George T. Swank, *Geo. T. Swank's General and Business Directory of Johnstown; Including Conemaugh, Cambria, Millville, Woodvale, and Coopersdale, also East Conemaugh, Franklin and Prospect* (Johnstown, 1869).

²⁶ John Fritz, *The Autobiography of John Fritz*, 134 (New York, 1912).

nance of David Stewart and the Mount Vernon Furnace in Johnstown, King and Schoenberger became the chief ironmasters of the Conemaugh Valley.²⁷ Since there was no rolling mill in the area, or even in Pittsburgh at that time, King persuaded his partner that such an iron plant would be the best enterprise they could undertake. In 1852 King went to Boston where he persuaded some financiers to back the projected Cambria Iron Company. The scheme called for a capital of one million dollars, which the Boston men promised to raise in six months. When they failed to do this, King went to New York, where other financiers undertook the project. King and Schoenberger were given two hundred thousand dollars for their furnaces and land. King was to act as general manager. In 1853 the buildings of the Cambria Iron Company were begun on the level land north of the railroad line at the foot of Prospect Hill.²⁸ The project soon failed, and King again went east for capital. In Philadelphia he interested a group of merchants headed by Daniel J. Morrell, later an "iron" Congressman, who took over the administration of the plant in 1855 as general manager. King sold his interests and moved to Lewistown, Illinois.

The revived undertaking was pursued vigorously by the Philadelphia men. A large "company" store was opened in 1855. At the same time, the company secured the services of John and George Fritz. John, in 1857, introduced the first three high roll mills in the Johnstown plant.²⁹ George Fritz in 1872 patented a blooming mill which introduced the hydraulic pusher that turns and moves the ingots on the table.³⁰ While the Fritz brothers were setting up the mills for large-scale production, William Kelly, who came to Johnstown in 1857, experimented with and patented his pneumatic process for producing steel. Morrell, in con-

²⁷ James M. Swank, *Introduction to a History of Ironmaking and Coal Mining in Pennsylvania*, 65-66 (Philadelphia, 1878), and *History of the Manufacture of Iron in All Ages, and Particularly in the United States from Colonial Times to 1891*, p. 220 (second edition, Philadelphia, 1892); W. Horace Rose, "Historical Address," 38; *Johnstown Tribune*, December 6, 1894.

²⁸ *Johnstown Tribune*, November 2, 1895.

²⁹ Fritz, *Autobiography*, 108-115.

³⁰ Alexander P. Holley, "Rolling vs. Hammering Ingots," and Robert W. Hunt, "A History of Bessemer Manufacture in America," in American Institute of Mining Engineers, *Transactions*, 1:204 (February, 1872), and 5:201-216 (June, 1876), respectively.

trol of Kelly's patents, then combined with other capitalists who controlled Bessemer's patents. Together they secured the patents of Robert F. Mushet of England on the chemical formulas for steel and in 1867 formed the Pneumatic Steel Association.³¹ In 1871 the Cambria mills produced their first Bessemer steel, the sixth earliest Bessemer plant in the United States. At the same time slack coal was introduced into the converters and roasted with the ore.³² At the end of the decade the Cambria Iron Company purchased the Vulcan mines in Michigan from Mark Hanna.³³

As a result of shrewd management, improvements, and investments in latest devices, the Cambria mills soon became prosperous and known all over the world. In 1856 the mills rolled 13,206 tons of iron rails; by 1863 this tonnage had risen to 35,000; next year the mills made a thousand tons a week. By 1875 the plants produced 37,000 tons of iron rails and 43,000 tons of steel rails. In 1876 the Cambria Iron Company rolled more rails than any other plant in the world, 103,000 tons.³⁴

The Cambria Iron Company, under the management of Morrell, Charles Wood, and E. Y. Townsend, adopted a generous but firm paternal control over the industries of the Conemaugh Valley. In addition to their "company" store, Wood, Morrell, and Company, they established brick plants, gasworks, waterworks, the Woodvale Woolen Mill, which employed the wives and daughters of their workmen, and a large flour mill. In 1878, the corporation aided in the establishment of the Gautier Steel Company, which specialized in wire. For this mill, English wiredrawers were imported directly from England. In 1882, the

³¹ Swank, *Introduction to a History of Iron Making*, 81-83.

³² Frederick Prime, Jr., "The Economy of the Blast Furnace," *American Institute of Mining Engineers, Transactions*, 1:134 (November, 1871).

³³ John Fulton, *The Autobiography of John Fulton, A.M., E.M., written during 1912 and 1914 Covering from his Birth in 1826 until 1914*, vol. 3, pp. 103-104 (a manuscript of six volumes in the possession of his daughter, Mrs. Nannie Fulton Howe of Johnstown).

³⁴ James M. Swank, "The Manufacture of Iron and Steel Rails in Western Pennsylvania," in *Pennsylvania Magazine of History and Biography*, 28:5; J. Leander Bishop, *A History of American Manufactures 1608 to 1860*, vol. 2, p. 579 (Philadelphia, 1864); John B. Pearse, *A Concise History of the Iron Manufacture of the American Colonies up to the Revolution and of Pennsylvania until the Present Time*, 168 (Philadelphia, 1876); Swank, *Introduction to a History of Ironmaking*, 91.

Baltimore and Ohio Railroad also laid tracks into the town. Possessed of large farms, hundreds of tenements for its workers, and several coal mines, the company ruled the valley and reserved the right to dismiss any employee who joined a labor union.³⁵

Johnstown and the adjacent districts in 1850 had a population of 2200. By 1860 this had grown to 9000, 13,000 in 1870, 18,817 in 1880, and at the time of the Flood the valley contained 25,000 inhabitants. Accompanying this phenomenal increase in population, separate boroughs were rapidly chartered. Prior to the development of the mills only Johnstown in 1831 and Conemaugh in 1849 had corporate form. After 1853 incorporation spread rapidly: Millvale, 1858; Cambria, 1861; Prospect, 1863; Franklin, 1868; East Conemaugh, 1868; Woodvale, 1870; and Grubbtown, 1882. By 1889 there were a dozen separate boroughs and villages in the valley.³⁶

In 1865 the annual payroll of the Cambria Iron Company totalled \$1,500,000.³⁷ This huge sum was constantly increased. Johnstown took its second boom in full stride. The waterworks had been finished in 1868. Streets were paved; walks laid. *The Cambria Tribune*, started as a weekly in 1853, became the daily *Johnstown Tribune* in 1873. A. J. Hite's first directory of 1856 was succeeded by George Swank's *Directory* in 1869. By 1870 the town boasted a high school, and a night school maintained by the company. In addition, the valley had seven hotels, fourteen boarding houses, six breweries and sixty-two saloons. George Swank ascribed this new prosperity to the founding of the works: "Before that time it was but a wooden village. Since then ten miles of streets have been graded and paved, and twenty miles of brick pavements laid. Pure water is now brought the distance of five miles, and ten miles of water pipe are laid, furnishing the water of a mountain stream at small cost. Large Gas Works have been built and not less than ten miles of gas pipe laid."³⁸

³⁵ The best account of these collateral interests of the company, outside the *Johnstown Tribune*, is A. L. Holley and Lenox Smith, *The Works of the Cambria Iron Company*, 2 ff. (London, 1878).

³⁶ W. Horace Rose, "Historical Address," 41-46.

³⁷ Daniel J. Morrell, *The Manufacture of Railroad Iron*, 4 (Philadelphia, 1866).

³⁸ Swank, *Business Directory of Johnstown*, 1869.

S. B. McCormick, while eulogizing the company and its payroll, nevertheless gave part credit to the progressive men of Johnstown borough: "A Town Council of go-ahead-ative business men was elected, who proceeded to boulder the streets, widen and pave the sidewalks, lay out new streets and alleys, and enforce other improvements, till at length Johnstown has assumed the characteristics of a city of no mean pretensions."³⁹

In the 1880's, the horse car, electric lights, and the telephone were introduced and Johnstown now had all the conveniences of the larger cities. The proximity of the mills, however, spread a pall of smoke and dirt over the beautiful valley. While the mills were "grandly elemental," "Johnstown itself is a dispiriting borough, shabby and dirty. Darkness and desolation are apt to spread where manufacture gets a foothold. . . . It is more in the streets and houses of the working people that the need of beauty is felt, to overcome the discord which the works bring into the picturesque highlands."⁴⁰

The foregoing sketch of the industrial development of Johnstown was undertaken so that the problem of fitting the industries and the towns into these narrow valleys, or, essentially, into this irreducible physical environment, could be thrown into high relief. The steel mills, the auxiliary industries, and a rapidly growing and congesting population had to fit into the same valleys that had formerly harbored a tiny village and a few farmers. Stress and strain was bound to develop. The land in the valley became more valuable as industries developed. People were crowded into closer quarters, with poorer living conditions resulting. Both the mills and the people, stores, and railroads became packed in the small areas of level land. In this struggle the physical environment came out a poor second. Man and his enterprises had their way at the expense of the mountains and rivers. So careless did the inhabitants finally become that on the day of the Great Flood they were caught in the trap which they themselves had made and permitted to be made dangerously. The devastation of May 31, 1889, came at the end of a long series of abuses to the

³⁹ S. B. McCormick, *Sketch of Johnstown and Suburbs and the Cambria Iron Works*, 8.

⁴⁰ George Parsons Lathrop, "The Heart of the Alleghenies," in *Harpers New Monthly Magazine*, 67:334-335 (August, 1883).

Conemaugh Valley which had been done over a period of half a century. Mountain side, river bank, and river bed—all had received harsh treatment at the hands of man. When, then, the deluge of May 31 began, an overburdened narrow mountain valley was unable to perform its geographical functions.

When the State Works were planned to go through Johnstown, the engineers decided upon a canal basin to be dug in the town. The basin was to be the eastern end of the Pittsburgh division of the canal. Goods were changed from railroad cars to canal boats in the basin at Johnstown for the resumption of their trip westward. Passengers likewise stopped at hotels in Johnstown until the ascent of the mountains could be made or until their boats departed for the west. In 1830 a contract was let for the canal basin. Located on the present site of the Gautier Steel Works, the basin had an area of eight and a half acres with a towing path of 1470 feet on one side. Hotels and wharves lined the opposite bank. At each end was an aqueduct over the Conemaugh River.⁴¹

To assure a supply of water for the basin in time of low water in the Conemaugh, a canal "feeder" was built in 1833. A dam 358 feet long and 7 feet high was placed across Stonycreek to impound water for the feeder which followed the hills for a mile before it poured the water into the basin. The feeder, costing \$17,780, was completed in 1834. Residents living along the feeder asked fancy prices for damage to their lands but were disappointed when the canal commissioners fragmented their claims. Jacob Stutzman, presenting claims for \$3,350, received \$200. Jacob Stutzman, on a claim of \$1,000, received nothing because of the "advantages derived by him from the canal are a sufficient compensation for any injury he may have sustained."⁴²

The "feeder dam" did supply enough water for the basin in Johnstown, but water shortage soon became acute east of the Johnstown boroughs. To remedy this defect, the state engineers planned a storage dam

⁴¹ *Johnstown Tribune*, March 28, 1881.

⁴² *Report of the Canal Commissioners of Pennsylvania, Read in the Senate, December 7, 1883*, pp. 2-3 (Harrisburg, 1833); *Appendix to Volume II of the Journal of the House of Representatives, 1834-35, Containing the Canal Commissioners' Report and Accompanying Documents*, 88, 375-377 (Harrisburg, 1835).

high in the mountains which would furnish enough water for the canal from South Fork to Johnstown. Sylvester Welsh, after regional surveys, recommended in 1835 the construction of a storage dam on the South Fork of the Little Conemaugh with a capacity of 485,000,000 cubic feet of water. The legislature in 1836 appropriated \$30,000 to start construction, but work did not start until 1838. Halted several times due to lack of funds, the South Fork Dam was completed in 1853 at a total cost of \$166,647. The specifications called for the construction of a puddled earthen dam faced with stone, seventy-two feet high. At the eastern end, a waste channel was built to carry the overflow water into the ravine below. Through the center of the dam wall, sluice pipes of iron were placed. A trestle tower connected with the dam wall contained the sluice valves to regulate the amount of water flowing into the canal. Work on the dam was suspended from 1840 to 1851; then another appropriation enabled the engineers to finish the dam. Early in June, 1852, the sluices were closed; by August the reservoir contained forty feet of water. While the state owned the dam, only fifty feet of water was kept in the reservoir due to the newness of the bank.⁴³

Slight breaks in the dam were reported by the canal commissioners in 1854, but these were not dangerous. In 1862, however, a serious break occurred in the stone culvert that surrounded the sluice pipes. The break occurred during the dry season so that little damage resulted to the river valley and towns below.

On July 1, 1863, the Pennsylvania Railroad Company, which had bought the Pennsylvania Main Line Works in 1857, abandoned the canal; the break in the wall of the reservoir was not repaired.⁴⁴

For twelve years after the abandonment of the canal, the railroad company paid no attention to the broken reservoir. In 1875, they sold the dam to John Reilly who, four years later, disposed of it to some of his Pittsburgh associates.⁴⁵ The Pittsburgh men proposed to repair the

⁴³ There are many accounts of this fateful dam but few writers have referred to the engineers' investigations and reports after the disaster in 1889. The material above is taken from the "Report of the Special Committee of the American Society of Civil Engineers on the Cause of the Failure of the South Fork Dam," *Engineering Record*, 24:198-200, 215-216, 237-238 (August-September, 1891).

⁴⁴ Thomas J. Chapman, *The Valley of the Conemaugh*, 91 (Altoona, 1865).

⁴⁵ *Altoona Tribune*, September 29, 1879.

dam, stock the reservoir with fish, and develop a pleasant summer resort high in the mountains. Securing a charter in Allegheny County under the name of the South Fork Fishing and Hunting Club, they began repairs.⁴⁶

In the fall, a small force of men was put to work on the reconstruction of the wall. On Christmas Day, 1879, as a result of six days of rain, the repairs were swept away by the rise in water.⁴⁷ When the repairs were resumed in April of 1880, under contractor B. F. Ruff, a tunnel builder rather than an engineer, the sluice pipes were removed, and native stone was dumped into the breach. This was covered with brush and straw, to prevent seepage, and the break was filled with earth and shale. A defect in the repair was that the repairmen did not build up the break in the puddle wall by puddling a new core to the level of the previous one. When the repairs were completed, a total of 262,241 tons of material had been put into the break, but this had been dumped in from wagons. The repair then was a rough cyclopean wall whereas the original had had a well puddled earthen core.

Apprehension over the quality of the repairs by people in Johnstown caused D. J. Morrell of the Cambria Iron Works to send John Fulton, chief engineer, out to examine the repairs. Fulton, securing the information from members of the club and the engineers there, raised some questions about the rough nature of the repair work; then returned to Johnstown to file his report. After giving a resumé of the construction of the dam and the repairs to the wall, Fulton concluded:

There appears to me two serious elements of danger in this dam: 1st; the want of a discharge pipe to reduce or take the water out of the dam for need-

⁴⁶ A careful reading of the *Johnstown Tribune* for 1879 and 1880 leads to the conviction that the Pittsburgh men were secretive and probably deceptive about their plans for repairs to the dam. In the first place, the able editor of the *Johnstown Tribune*, George T. Swank, and the engineer of the Cambria Iron Company, John Fulton, knew the organization as the "Western Game and Fish Association" and the "Sportsmen's Association of Western Pennsylvania" in 1879 and 1880, even though the charter in March of 1879 contained the aforementioned correct name. In the second place, the charter was improperly filed in Allegheny County because the law demanded that the charter be sought in the county which was the seat of the chief activity of the corporation. *Johnstown Tribune*, December 27, 1879; John Fulton, copy of a letter to Daniel J. Morrell, November 26, 1880, in the possession of Walter W. Krebs of Johnstown.

⁴⁷ *Johnstown Tribune*, December 27, 1879.

ed repairs. 2nd;—the unsubstantial method of repair, leaving a large leak, which appears to be cutting the new embankment.

As the water cannot be lowered, the difficulty arises of reaching the source of the present destructive leaks. At present there is 40 feet of water in the dam; when the full head of 60 feet is reached, it appears to me to be only a question of time until the former cutting is repeated. Should this break be made during a season of flood, it is evident that considerable damage would ensue along the line of the Conemaugh. It is impossible to estimate how disastrous this flood would be, as its force would depend on the size of the breach in the dam with proportional rapidity of discharge. The stability of the dam can only be assured by a thorough overhauling of the present lining of the upper slope, and the construction of an ample discharge to reduce or remove the water to make necessary repairs.⁴⁸

From the time of the purchase of the dam from Reilly in 1879 to the time of the Great Flood, there was constant apprehension about the stability of the dam. On September 30, 1879, the *Tribune* had almost prophetically said: "It is well to recall such matters as these for there is a chance that someday a historian will embody in book form the story of the old reservoir, and it will greatly interest those who came after us."⁴⁹

The repairs to the South Fork Dam were completed in 1880. The following year the Pittsburghers began to move into their "Lake Conemaugh" estate. Cottages were built by more members. The club built a large hotel for its members who did not want to build separate houses.⁵⁰ It stocked the dam in 1881 with a thousand black bass from Lake Erie, brought to South Fork in a palace car with oxygen tanks to insure better condition.⁵¹ Annual shooting matches as well as an annual regatta furnished the members with frequent excuse to spend vacations in their mountain resort. Two steam launches furnished visiting wives and children with an unusual novelty during their stay at the lake.⁵²

⁴⁸ Letter of John Fulton to D. J. Morrell, November 26, 1880.

⁴⁹ *Johnstown Tribune*, September 30, 1879.

⁵⁰ The hotel and a few of the cottages still stand along the bank of the old dam. A few years after 1889 a Pennsylvania Railroad spur track was constructed through the bed of the dam to Windber so that the coal of the Berwind-White Company mines might have an easy outlet to the Main Line.

⁵¹ *Johnstown Tribune*, June 4, 1881.

⁵² Commonwealth of Pennsylvania, Bureau of Industrial Statistics, *Report* (in the *Annual Report of the Secretary of Internal Affairs for 1909*), 37:142.

The South Fork Fishing and Hunting Club had been chartered on March 19, 1879. At that time it was the only club in Pittsburgh that owned its own grounds. Its membership was limited to sixty members in 1883. The early projectors of the club planned for a resort and a membership which would appeal to the wealthy who wanted comfort as well as seclusion for their pastimes. The names of Carnegie, Chalfant, McClintock, Mellon, Thaw, Frick, and Laughlin graced the roster of members. Initiation fees were set at eight hundred dollars. Sunday was strictly Presbyterian. Game laws of the state were strictly enforced. Members could take their families to the club for two weeks in the summer.⁵³ The grounds of the club were posted against trespass and in this fact lies much of the ill-will of the natives toward the club before the Flood, as well as the hatred toward the organization after the disaster. Building small wicker dams at the mouths of the streams that flowed into the dam, the club soon enraged the people who lived near the lake. The residents, fully intent upon catching the club's bass which swam up into the tributary streams, tore out the obstructions.⁵⁴ In this feud the natives were able to poach all the fish they desired, but the privacy of the grounds irked the peripatetic residents who had wandered over the mountains to hunt for a century. By 1889 the club membership had grown to sixty-eight, the resort contained 700 acres of which 500 formed a reservoir storing twenty million cubic yards of water.⁵⁵

The people in the Conemaugh Valley knew that the dam had broken in 1862 and had then remained weathering until 1879 and 1880, when a patchwork repair had been made by a tunnel contractor who was a member of the club. However, the fact that the dam was fourteen miles from Johnstown tended to make the residents feel that the patches of level land and valley in this distance would take care of any break or discharge of water which might happen. Twice in 1881, the *Tribune* allayed the fears of Johnstownners about damage from a break in the dam, stating that even if a break did occur, it would only "inundate that

⁵³ *Pittsburgh Commercial Gazette*, July 3, 1883.

⁵⁴ *Johnstown Tribune*, May 9, 1884; *Pittsburgh Leader*, December 21, 1885.

⁵⁵ Dwight Porter, "Flood Discharge from Small Watersheds," in *Technology Quarterly*, 4:316 (December, 1891).

entire section below Market Street.”⁵⁶ Danger was further reduced when an old grist mill bulkhead was removed from the Conemaugh in 1883.⁵⁷ As late as 1887, the possibility of a break was still minimized by the *Tribune*, which claimed that a break could not affect Johnstown to any considerable extent unless it “occurred in conjunction with a great flood in the Conemaugh Valley which is one of the possibilities not worth worrying about.”⁵⁸ Regardless of the mild ridicule by the *Tribune*, the geographical fact remained that a large body of water had been impounded high in the mountains above Johnstown by a defective wall, and had created, at an elevation of four hundred feet above the town, a “lake over their heads.”⁵⁹

Much more blameworthy, however, were the attitudes and actions of the local people toward the rivers that watered the narrow valley. The storm of indignation against the South Fork Club is easily understood, but the Pittsburgh club was not the only guilty party in obstructing the environment of the mountain area. Johnstownners, by their own individual attitudes and acts and by the lack of action which they permitted their town councils to take toward the encroachment of the river banks by the railroads and the industrial plants in the area, were also to blame. Johnstownners, even though they suffered frequent floods and ice jams from their streams, continued to use the banks of the rivers as dumps for refuse, filth, and slag from the mills. When more land was needed it was always reclaimed by filling in the river bed. In the 1860's Stonycreek had been a stream 300 feet wide and the Little Conemaugh from 132 to 225 feet wide.⁶⁰ In 1882, the borough councils of Johnstown and Millville, in granting riparian rights to the Cambria Iron Company, set the channel width of Stonycreek at 175 feet and that of the Little Conemaugh at 110 feet.⁶¹ This great reduction of river channels, as the

⁵⁶ *Johnstown Tribune*, February 11, June 10, 1881. The section below Market Street was triangular in shape, four blocks wide and six long.

⁵⁷ *Johnstown Tribune*, July 3, 1883.

⁵⁸ *Johnstown Tribune*, June 30, 1887.

⁵⁹ “The South Fork Dam,” Engineers Society of Western Pennsylvania, *Proceedings*, 5:89-99 (June 18, 1889).

⁶⁰ *Johnstown Tribune*, May 22, 1894.

⁶¹ Johnstown Borough, *General Borough Law, Digest of Acts of Assembly Relating to*

Flood proved, could not but seriously handicap the ability of the streams to do their natural work.

From very early days the residents of the valley had used the rivers and their banks as the place to deposit all sorts of refuse. Rubbish from gardens, ashes, and contents of outhouses and stables had all gone onto the river banks or into the streams. In the early days the night-soilers hauled the contents of vaults to the shores of the rivers and dumped the reeking mass into the water. Sometime during the year, a freshet would raise the water in the streams enough to flush out the channel. All sewers in the towns drained into the streams. This meant that all loose dirt was flushed from the towns into the rivers. In 1887 the *Tribune* called the river banks the place where "loud and pestiferous stinks prevail."⁶² Earlier attention had been called to this practice of fouling the river banks by Dr. J. M. Toner of Washington who had returned to Johnstown on March 28, 1881, to deliver a lecture on "Johnstown: Its Growth and Sanitary Needs" before the Cambria Scientific Institute. Realizing that the community was approaching a time "when the individual who can prevent a catastrophe and does not will be held responsible to public opinion and amenable to law," Dr. Toner went on to decry the dangers to community life which individuals created; and recommended that the boroughs consolidate to fight municipal dangers. Enlarging on the "change from a village, with its segregated dwellings, outhouses, stables, etc., to paved streets and blocks of houses built over ground saturated for a half century with domestic waste," the physician warned that the citizens could no longer permit "village" practices to prevail in Johnstown.⁶³

In 1886, James P. McConaughy started a wall on the Johnstown side of the Conemaugh, ten feet out into the stream to protect a row of tenements that he had built on the river bank. Opposite McConaughy's wall, a man on the Millville side of the Conemaugh also had a wall in

the Borough of Johnstown, and Codified Ordinance of the Same, 79-83 (Johnstown, 1883).

⁶² *Johnstown Tribune*, June 18, 1887.

⁶³ J. M. Toner, "Johnstown: Its Growth and Sanitary Needs," in *Johnstown Tribune*, March 28, 1881.

the channel. These two walls would have narrowed the Conemaugh at that point to a "bottleneck" eighty-five feet wide. The Johnstown authorities finally forced the removal of McConaughy's wall.⁶⁴

The borough government had not been very careful, either, about the river banks. Once a year Johnstown let out on contract the job of removing sand from the Point between the rivers,⁶⁵ but this good act was nullified by the deposit of street scrapings from the annual spring clean-up on the banks of the Point.⁶⁶ Farther east, Woodvale borough had built a six-foot wall in the channel of the Conemaugh in 1864.⁶⁷ Conemaugh borough had filled up the canal basin in the 1870's. In addition, both Johnstown and Conemaugh had reclaimed river-bank land in the 1880's. The result of these encroachments had been that the current of the Conemaugh had been thrown against the Pennsylvania Railroad right-of-way and in some places, their land had been washed away to the depth of forty to fifty feet into the hill.⁶⁸ Earlier, on Stonycreek, the residents had observed alterations in the flow of water in the channel. Obstructions on one side of the river directed the current against the opposite bank. Kernville bank, south of Johnstown, was being washed away; the point of the stream around the old Union Cemetery was being eroded by the altered current, and the land at the Point was being cut away as early as 1875. In 1881, the borough council authorized the plea for an injunction against John Spenger for erecting a wall in Stonycreek, but nothing had been done about the encroachment as late as 1887.⁶⁹

⁶⁴ *Johnstown Tribune*, September 9-15, 1886.

⁶⁵ *Johnstown Tribune*, May 4, 1875.

⁶⁶ In 1887 the street commissioner hauled 1150 cartloads of dirt from the streets. He sold 350 loads; the remaining 800 were dumped along the banks. *Johnstown Tribune*, May 18, 1887.

⁶⁷ Chapman, *The Valley of the Conemaugh*, 116-117.

⁶⁸ In 1888 the borough of Johnstown sought an injunction against the Pennsylvania Railroad Company to restrain them from filling in along their side of the Conemaugh. In arguing this case, Chal L. Dick of Johnstown, attorney for the railroad, reviewed the changes in the width and course of the Conemaugh since 1849 when the railroad route was surveyed through the valley. *Johnstown Tribune*, January 19, 1888.

⁶⁹ *Johnstown Tribune*, August 4, 1875, January 11, 1887.

When the Cambria Iron Company was started, the promoters bought the level land between the railroad and Prospect Hill for their plant from Peter Levergood for \$3,000. Around its plant developed the borough of Millville. As the plant expanded the company poured its slags and iron "cobble" along the river bank. When the company sought a route for a spur track to its Woodvale woolen mill it filled in some more river bank to build its track.⁷⁰ After the Baltimore and Ohio Railroad entered town by the Stonycreek route, it was necessary for the Cambria Iron Company to secure a switch connection with the railroad from the south. The Pennsylvania, afraid of B. & O. competition, prevented a company track from being laid on the bed of the Conemaugh because it trespassed on the land which they had bought from the state in 1857.⁷¹ Foiled in this attempt, the company then approached the boroughs of Millville and Johnstown for permission to build a bridge across the Point, fill in the north bank of Stonycreek, and tap the B. & O. tracks at their freight station at Haynes Street. On March 28, 1882, the Johnstown council gave permission for this arrangement, provided that the iron company still respect the 175-foot channel for Stony Creek.⁷²

In 1887 the Pennsylvania Railroad built the famous stone bridge. The new structure replaced the earlier iron bridge that had stood since 1850. The stone bridge was composed of seven arches which spanned the Conemaugh. Local protests about the bridge interfering with the stream were raised but nothing of a vociferous nature developed from these complaints, so the new bridge was completed even though the bases of four of the arches rested on the bed of the river. After the Flood the people of the valley divided the accusations for their disaster between the dam and the stone bridge.⁷³

⁷⁰ *Johnstown Tribune*, March 18, 1873, August 27, 1887.

⁷¹ *Pittsburgh Commercial Dispatch*, January 31, 1881.

⁷² Johnstown Borough, *General Borough Law*, 79-83.

⁷³ Beginning at this point the remainder of the account is based primarily on articles in the following issues of the *Johnstown Tribune*: August 10, 1874; February 25, 1875; January 11, 1877; November 7, 1878; January 13, September 27, November 3, 1880; March 28, May 14, June 9, 10, 1881; January 3, 1882; February 7, 15, November 13, 1883; January 7, February 6, 7, 1884; April 1, 1885; June 7, November 7, 1887; August 22, 28, 1888; and June 20, 1889.

The expansion of the railroad and the mills put a high premium on level land. After the canal basin had been filled in and the Gautier plant built upon it, a building boom began that lasted for five years. The *Tribune* in November, 1878, estimated that the population had increased by 1,000 persons in the previous four months. The demand for tenements was immediate and for a long time the industries were hard pressed to supply quarters for their help. In 1880 one rooming house reported thirty tenants; Negroes slept out-of-doors until Gautier built a "bachelors' hall" for them. The boroughs enjoyed a tremendous building boom in 1881 when 389 family apartments were built; most of these were two- to five-family tenements. As the prosperity of the decade continued, more tenements were built farther from the works or on the surrounding hills. The Johnson Company in 1887 bought the Louis Von Lunen farm of 193 acres along Stonycreek for \$65,250, and here it developed the town of Moxham for its workers. With the development of Moxham all the level land in the valley had been appropriated. Then the plants and the railroads along the rivers had first choice and the people a poor second for their homes. Real estate came too high for people of ordinary means, and tenements increased rapidly. The rivers in the valley were drained nearly dry to meet the demands of the plants and the city.

Encroachments on the river banks and the gradual filling of the channels with all sorts of drift began to tell upon the valley in the 1870's and 1880's. Johnstown has a long history of floods, beginning with a "pumpkin" flood in the fall of 1818, which was of sufficient danger to force the evacuation of people in Johnstown to Green Hill. In February of 1832 the canal was flooded from Johnstown to Pittsburgh and locks had to be rebuilt. Both rivers flooded the lower part of the town in 1861 when part of the original Franklin Street bridge, built in 1842, was carried away. Other floods in 1867, 1875, 1881, 1884, 1887, and 1888 all should have warned the residents of the valley that the condition of their streams rather than perverse weather was the cause of their distress. Hard winters, with snow falling for eighteen weeks, would freeze the rivers over with two-foot ice. Thaws in the spring would produce ice gorges twenty feet high for the distance of several miles. In the warm

seasons, sometimes a rain in the watershed of one river would only produce an uneven rise of water. Such an event happened in 1884 when the Conemaugh rose two feet in an hour although Stonycreek remained at its former level. In 1885 Stonycreek, on the other hand, rose three feet in forty-five minutes.

In the 1880's these floods would cover the lower part of the town if the rise was more than eight feet in the channels. High water of eight feet in the channel of Stonycreek in 1883 flooded Millville cellars. Water of nine feet in the Conemaugh in 1881 flooded the Point. With ten feet of water in the channel, railroad fill and ballast were washed away. In the June flood of 1887, fourteen feet of water in Stonycreek washed away part of the floor of the Franklin Street bridge and flooded the first four wards of Johnstown—located between the rivers. In August, 1888, high water again visited the valley. Stonycreek rose to eleven feet; the basement of the main office of the Cambria Iron Company on Washington Street was flooded to a depth of four feet. After this flood, people living on the Point began to move out of this exposed area.

The floods of 1887 and 1888 warned the residents in the borough. The shallow stream beds, the narrow banks, and twelve-inch street sewers in Johnstown had all hindered the escape of water. After the flood of August, 1888, Burgess Chal L. Dick sent a special communication to the Johnstown council on the subject of the floods and river channels. The floods of recent years had demonstrated that the channels of the two rivers were inadequate. With the hills being cleared of trees, the river channels now had an extra task to carry off the increased volume of water which formerly the tree roots held in the soil. Calling council's attention to its ordinance fixing the width of the channels, Burgess Dick declared that these widths were not respected:

If a stream along its course be alternately widened and narrowed, its carrying or draining capacity is no greater than its narrowest points, the banks being equal.

At one point on the Stonycreek the distance from bank to bank is at present only about one hundred and thirty feet. This elbow juts far out into the natural channel of the stream; it is caused by the fill made by the Baltimore and Ohio Railroad Company, who some years ago were permitted to make a shifting yard in the bed of the Stonycreek. . .

It is not too late, however, to compel by legal means, a strict uniformity in width as provided by ordinance, and wherever persons have encroached, compel the removal of the encroachment.

It is folly to presume that our streams will deepen as we narrow them; they are both rock-bottomed, and it will take centuries to make a perceptible impression on them.⁷⁴

However, the Johnstown council did not do anything about the encroachments. Even if they had, nothing would have been done to remedy the evils. By this time there were eight separate borough councils with jurisdiction over the Conemaugh and two over Stonycreek. Fifty years of corporate individualism could not create united action to protect the valleys in the short eight months between Burgess Dick's message and the Great Flood. Men for nearly ninety years, boroughs for fifty, and industries for forty had been ignoring and abusing the magnificent but dangerous terrain of the Conemaugh valley.

⁷⁴ *Johnstown Tribune*, September 19, 1888.