

Chapter 8

THE UNMENTIONABLE RIVERS

"There are appropriations in this bill for rivers in Pennsylvania the very names of which the Speaker of this House is ignorant of, the names of which I do not find on the map of the United States--of rivers I never heard of," complained Congressman John Ellis of Louisiana during his eloquent attack upon the 1878 public works bill. "The bill provides only a pittance for work on New Orleans harbor," he continued, "but provides funds for an unmentionable river in Pennsylvania. Is this statesmanship? Is this looking after the great interests of the whole country?"

From across the aisle, another congressman shouted: "May I ask the gentleman from Louisiana to name the unmentionable river?"

"I will spell it," said Ellis, "K-i-s-k-i-m-i-n-e-t-a-s."

General Harry White

Carnegie Library of Pittsburgh



Peals of laughter interrupted the debate. After the uproar had subsided. Harry White of Indiana County, who sponsored the surveys of the Allegheny and its unmentionable tributaries, rose to respond. "The gentleman says he cannot pronounce these names. It is the Kis-ki-min-e-tas River he stumbles at."

Laughter again shook the hall, but General White continued: "The honorable gentleman's education has been sadly neglected if he cannot pronounce that name. It is a musical Indian name, has a local association, and signifies, if I rightly remember, 'sprightly stream.' It is one of the tributaries of the Allegheny River. Twenty-seven miles above Pittsburgh the Kiskiminetas, so difficult for the gentleman from Louisiana to pronounce, empties into the Allegheny, being one of its main tributaries. The Kiskiminetas is formed by the junction of the Conemaugh and Loyalhanna at Saltsburg, a town of considerable size some twenty-three miles above its mouth, and the Conemaugh, being called for a tribe of Indians of that name, has its sources in the Allegheny Mountains."

"Is there a steamboat on those rivers?" shouted a listener.

"There has been," replied General White. "I can bring evidence of a steamboat in former years when there was slackwater and canal navigation along these streams going up the Allegheny from Pittsburgh to the Kiskiminetas, thence up to Johnstown near the head of the Conemaugh."

"A sternwheel, was it not?" queried another congressman, and the House again broke up with laughter.

"It was not a steamer of the heaviest draught," admitted White, "but, sir, we want the examination by the Government to see how far artificial appliances can improve these streams for navigation and thus add to the wealth of the country."

Representative Hendrick Wright of Wilkes-

Barre asked, "Where is the stream that is called Conemaugh, Kiskiminetas, or some such name?"

"Why, the gentleman from Pennsylvania," answered General White, "aspires to be the chief executive of that State, and if he does not know the location of these streams he is ignorant of the geography of his State and ought not to seek such a high position."

"I do not fish in such shallow waters for the nomination of governor," Wright retorted, and laughter made the chandeliers dance.

"Whither are we drifting?" asked General White. "The gentleman is an old Democratic politician in Pennsylvania. He was famous when I was a child, but does not know enough of geography to be our governor, I fear." He then recited the history of navigation on the Kiskiminetas and of the Pennsylvania Canal for the edification of his colleague and the House.

Wright ignored General White's lecture and asked, "Are they navigable streams?"

"They can be a portion of the year," White replied, "and it is practicable, in my opinion, that they can be made navigable the greater portion, if not the whole of the year. I want the survey to show this to the country for my part of the State. Come out and see our coal-fields, our coke-ovens, our fire-brick works, our lumber-yards, our mills, our agricultural wealth, our furnaces and rolling mills run by natural gas welling up from the bowels of the earth; our oil wells, making wealth to the State and the country. Come, travel a little and learn what your state needs."

"That is the way they slipped in so easily," interjected Ellis of Louisiana, "being so well oiled."

Newspapers round the nation played the debate for all it was worth, using the survey of the Kiskiminetas as a prime example of grease oozing from the pork barrel. The *Philadelphia Ledger*

suggested that Hendrick Wright look out the car window next time he crossed Pennsylvania by rail to see the Kiskiminetas in all its glory. The *Pittsburgh Gazette* commented: "The idea of improving the roaring Kiskiminetas and babbling Conemaugh does not seem to be received by the press of the country with the seriousness that is absolutely required. At all events, if they are not navigable, that is exactly what it is intended to make them." Editors of the *Chicago Tribune* were outraged by the appropriation for the "unpronounceable creeks," the Kiskiminetas and Conemaugh; they reported:

In the spring freshets the mountains furnish them with a temporary supply of water. At other seasons the farmers use them as highways. No bridges are needed, as an ordinarily athletic person can jump over either of the three creeks or all together. They do not rise to the dignity of trout streams, as trout require running water several inches deep and water the year round. An ordinary catfish could not dive in them, because he would not have room to turn around. If they were ever navigated, it must have been by those steamers of which Mr. Lincoln used to tell, that could sail where it was a little damp.

Jealousy and envy were the principal reasons for the "pork barrel" appellations in the opinion of Captain Frederick A. Mahan, deputy to Colonel Merrill at Davis Island. "So long as the press of one city regards the work in its neighborhood as all-important, and denounces all work done elsewhere as robbery, as a political job, as unnecessary to the commercial interest and development of the country, just so long will Congress be hesitating in the matter of appropriations," Mahan said. "Then, too," he admitted, "it must be acknowledged that much is included in the appropriations which would better be left out. Members of Congress are but human after all, and so long as the services of any one of them are judged by the amounts of money obtained for his district, just so long must unworthy measures clog the completion of those which are good."

Congress appropriated in 1882 for sixteen rivers that had never been surveyed by the Engineers and for eighteen on which the Corps had reported unfavorably. The Chief of Engineers was once forced to report he could not complete an authorized stream survey because, after "diligent search and inquiry," he had been unable to find it. "Pork barrel" surveys and projects were few, however, in the headwaters district in comparison to other areas.

Though ridiculed in Congress and by newspapers, the 1878 survey of the roaring Kiskiminetas and babbling Conemaugh had genuine value. Farm organizations, that thought themselves victimized by high rail rates and railroad monopolies, lobbied in the 1870's for canals and waterways to handle farm produce shipments, primarily of grain for export markets, in the hope that low cost waterways transportation would allow American grain to be competitive in world markets. The 1878 survey of the two streams was a response to that public demand.

Colonel Merrill appointed James Worrall, former assistant to William Milnor Roberts on the Pennsylvania Canal, to study restoration of the slackwater project on the Kiskiminetas and reconstruction of the Pennsylvania Canal. Worrall planned rebuilding the canal from Pittsburgh to Havre de Grace for 280-ton boats, replacing the Allegheny Portage Railroad with a 5.5 mile tunnel, at an estimated cost of \$40 million. In his review of the Worrall report, Colonel Merrill declared the restoration feasible but too costly. Worrall estimated the cost of slackwater navigation on the Kiskiminetas and Conemaugh to the Johnstown industrial district at \$3.6 million, and Merrill thought that work might become desirable after slackwater had been provided on the Allegheny.

Merrill also sent Worrall to examine Redbank Creek and Clarion River as alternate canal routes and sent other engineers to look at Tionesta Creek and Youghioghny River. The report on each was that they carried floated forest product commerce that could be benefited by channel clearance work,

but, though state government and private corporations did improve the streams for navigation, Congress never approved the projects. Not a single tributary of the Allegheny, not even the "roaring Kiskiminetas," was improved for navigation by the Corps of Engineers, but the Corps did work on two tributaries of the Monongahela.

Buckhannon River Project Improvement of Buckhannon River navigation was apparently the brainchild of D. T. Farnsworth, governor of West Virginia from Buckhannon. Farnsworth told Colonel Merrill in 1882 that the Buckhannon and Western Railroad was building into Buckhannon and people wanted boulders cleared from the stream so they could float their logs to the railhead for market. "Unless our river can be some improved, and that in a reasonable time, that this lumber can be safely gotten out," Farnsworth declared, "it will be burned up and destroyed by the fast-increasing settlers."

Colonel Merrill learned that lumberjacks had floated logs since 1852 from Elkins, Buckhannon, and Philippi down Buckhannon and Tygart rivers to the B. & O. Railroad at Grafton. He saw logs lodged in jams 20 feet high against boulders in the

Unimproved stream





Buckhannon River

streams, and he calculated that a few thousand dollars worth of dynamite would blast open a channel. After Congress appropriated \$1,500 for the Buckhannon River in 1885, Merrill sent a few workmen to begin at the town of Buckhannon and blast their way about 25 miles upriver to the juncture of the right and left forks. The men waded up the channel at low water, breaking apart the log jams and blasting boulders out of the way to create a 30-foot wide channel with a minimum depth of two feet during logging season rises.

About 900,000 feet of logs, eight times the previous annual record, floated the Buckhannon River to market in 1885, and in 1886 the total jumped to 8 million feet. Two coal mines on the river above Buckhannon began flatboating coal down to the town. Timber and coal with aggregate value of \$150,000 gained access to market via the Buckhannon River before a railroad was built on the riverbank in 1890. The Engineers then stopped work on the Buckhannon River and recommended that no further appropriations be made.

Cheat River Project "Look out for yourselves, men!" shouted the pilot. "I've lost all demand of'er. She's a-goin' to Hell." The pilot, Steve Warman, was a mechanic at Prideville iron works on the Cheat River who had built himself a tiny sternwheel steamboat on the Cheat. He launched it on a natural river pool and set out downstream when a flood came, only to ram into Rudes Island, where tree branches swept him and his crew off the boat into the river. Steve did not hold a Cheat River pilot's license; nor, for that matter, did anyone else.

Steamboating on the Cheat, a tributary that joins the Monongahela at Point Marion, Pennsylvania, was never a major factor in Cheat valley economic development, but steamboats did navigate the stream on occasion. The 70-ton sidewheeler *Reliance* was built on the Cheat River in 1833; the *Izaak Walton* ascended the Cheat seven miles in 1841; and in 1879 Captain E. D. Abrams got the little *Juno* five miles up the Cheat.

Emigrants had sometimes flatboated west via the Cheat River, and by 1809 Samuel Jackson, owner of Cheat Neck iron works ten miles above Point Marion, was shipping manufactured iron downriver: some went to Commodore Perry on Lake Erie in 1813 and some to General Andrew Jackson at New Orleans in 1814. Boats and nail kegs built at Quarry Run floated down to the Jackson iron works where the kegs were filled with nails for shipment to Pittsburgh at the next high water. Cheat River flatboating was so important that in 1834 Joseph Eniex, Isaac Crow, and James McCartney spent \$500 appropriated by Pennsylvania to clear the stream of snags and boulders.

By 1888, development of forest resources along Shavers, Glade, Laurel, and Dry Forks, four more or less parallel streams in Randolph and Tucker counties that join at Parsons to form the Cheat River, was underway, chiefly by firms that had booms near the mouth of the Cheat to catch logs dropped into the river and its tributaries at upstream points. Logs from the four forks, however, jammed in the 30-mile stretch of the Cheat below Rowlesburg where it broke through Laurel Hill;



Log rafts
Carnegie Library
of Pittsburgh

and because access into the gorge was limited the logs lay in the stream until they rotted. Lumbermen cleared away some obstructions on their own, then asked Congress to send the Corps of Engineers to clear a 50-foot channel.

Colonel Merrill said he could clear a logging channel through the Laurel Hill gorge for about \$13,000 and said the benefits would be "a thousand fold." "I have strong personal feelings in the matter," he said, "on account of the great difficulty I experienced in getting suitable timber for the lock-gates at locks 8 and 9 on the Monongahela River, while I knew that millions of feet of exactly the timber needed were growing on the Cheat River that could have been rafted directly to the locks in question had the river been reasonably clear of obstructions."

When Congress appropriated the \$13,000 in 1890, Merrill sent Philip Golay to Rowlesburg. Golay built a flatboat to carry tools, camping gear, and dynamite, hired 22 men, and began blasting his way down the gorge. By the end of the first season, Golay had used 4,600 pounds of dynamite to excavate 5,626 cubic yards of rock from Laurel Hill gorge and had placed the rock fragments in low dams to close back channels. By January 1892, he had spent the appropriation to remove a total of 10,058 cubic yards of rock and had established a fairly clear channel for running logs on six-foot rises. The Corps did no further work for benefit of Cheat River navigation, but lumbermen spent more than \$6,000 of their own funds to keep the channel clear and log traffic on the stream continued until the best timber was exhausted in the early 20th century.

When a power company first planned Lake Lynn Dam near the mouth of the Cheat River in 1910, the Corps of Engineers required installation of a chute through the dam to pass floated logs. There was even some interest in navigation locks at the dam to permit coal barging from points on Lake Lynn to Pittsburgh. But by 1926, when West Penn Power Company completed Lake Lynn Dam, Cheat River commercial navigation was at an end.

The "Pork Barrel" Projects Opponents of waterways projects relegated even work on the Ohio, Monongahela, and Allegheny rivers to "pork barrel" status, but assuming that "pork barrel" projects were those on streams with limited capacity for navigation whose benefits went chiefly to local interests, the Corps of Engineers spent only about \$20,000 on clearly "pork barrel" projects in the headwaters district. The Engineers opened channels for floated logs on the Buckhannon and Cheat rivers at minimum cost, and thousands of logs dashed down the channels to market. The logging industry on Cheat and Buckhannon rivers was, after all, just as important to area economic development as coal barge traffic on the Monongahela. Logging provided perhaps the greatest source of cash income for mountaineers during the 19th century, and the product went into sewing machines, furniture, and fine homes throughout the nation.

In fact, projects like those on the Cheat and Buckhannon rivers reaped quick and substantial benefits. Colonel Merrill said:

In my judgment, the small sums heretofore expended on the rafting rivers of this section of the country have produced relatively larger returns than the vastly greater sums expended on rivers that are navigable by steamboats; and I am decidedly in favor of the continuance of this policy within reasonable limits..... The beds of the streams are more or less choked by huge boulders and it is practically impossible to drive timber, even when there is an abundant supply of water. In my judgment, the removal of these boulders and the general clearing up of the beds of the streams, so as to permit the free passage of logs whenever there is a supply of water, is a public benefit that fully justifies the very small outlay required to attain it. To assist in bringing this timber to market is to increase the national wealth, as otherwise a large part of this particular product will mature and decay without benefit to anyone.

Economic historian Edward L. Pross, after analysis of pork barrel projects, concluded that if the deficiencies of waterways funding policies had been as negligible as those of the Engineers, river and harbor bills would never have earned the sobriquet "pork barrel." Pross agreed with the editors of *American Engineer* journal, who wrote in 1885:

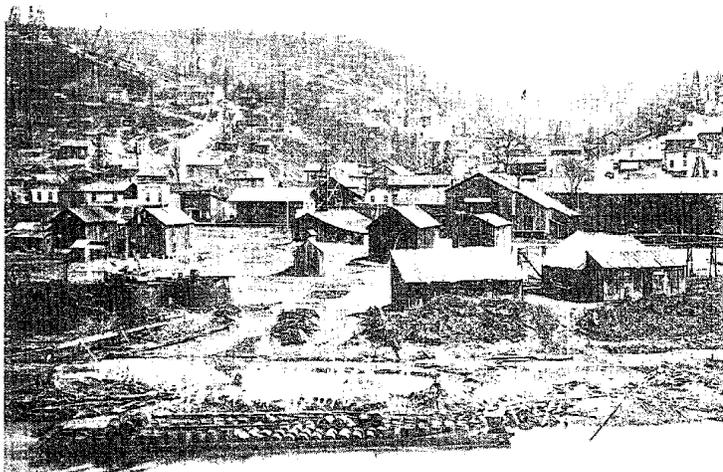
It is very natural for those who see the results of our river and harbor expenditures to charge those results to the United States Engineer Corps. That body has ample sins of omission and commission. In fairness to the Engineer Corps, it must be said that it is working under a system of appropriations so abominable that we may well wonder at any results.

The Allegheny Oil Boom "Pond freshet!" the men shouted, as they pulled boards from the splash dams to start a wave down Oil Creek in December 1862. A thousand crewmen cut 200 boats laden with 20,000 barrels of oil loose from the banks of Oil Creek to race downstream on the flood crest created by opening the splash dams.

The boats dashed downstream in twos and threes with crewmen sparring off bars and rocks and pushing to get out of the creek before the artificial wave subsided. The lead boats scraped on a bar, then

Oil boom on the headwaters district

Drake Well Museum



grounded, sending crewmen sliding toward the bow and headlong into the greasy barrel-filled cargo holds. The men on boats following lanced their setting poles firmly into the creek bottom, trying to avoid collision with the lead boats, but to no avail. They crashed into the stranded boats, oars and poles splintered, crewmen fell overboard, and smaller boats were run down by larger boats that followed. When the wave subsided, 56 wrecks were counted, 10,000 barrels of oil worth \$100,000 had been lost, and Oil Creek was a greasy mess.

Chief Cornplanter and the Senecas had used the oil skimmed from creeks in the Allegheny basin for ceremonial purposes; Thomas Hutchins had inscribed "Petroleum" across his 1778 map of the Allegheny near the future site of Oil City; and Marcus Hulings and other pioneers had collected the oily substance, "Seneca Oil," for sale as liniment. Samuel M. Keir founded the first oil refinery at Pittsburgh about 1850, using a one barrel still, but oil for lighting during the early 19th century was extracted chiefly from whales or cannel coal—"coal oil"—mined on Coal River in West Virginia and at other points. By 1857, people had learned that Seneca Oil was an economical illuminant, and in 1858 Colonel Edwin L. Drake organized the Seneca Oil Company. He brought in the first oil well at Titusville on Oil Creek in August 1859, launching the rush for quick fortunes on Oil Creek and an unsurpassed boom in Allegheny River commerce.

The oilmen first wagoned the product of Oil Creek to the Allegheny for shipment to Pittsburgh refineries, of which there were 7 in 1860 and 58 in 1866, but when roads became impassable the oilmen turned to the creek for transport. Loggers throughout the Allegheny basin built splash dams of boards that could be removed to release a wave, or "pond freshet," to wash logs to deeper water for rafting to their destination. Oilmen organized Oil Creek Navigation Company, slapped a 2¢ toll on each barrel shipped to defray project costs, built splash dams along the creek and cleared away the most dangerous rocks. They hauled flatboats up the creek, loaded them with oil, and sent them to market



on the twice weekly freshets, but with indifferent results. In May 1864, for example, boats jammed six deep against McClintock bridge near the mouth of the creek and boatmen lost 15,000 barrels of oil.

Between 1860 and 1867, the heyday of the oil boom, about 2,000 flatboats, guiphers, keelboats, bulkboats, and steamboats were used in the Allegheny oil trade, hauling empty barrels, drilling equipment, and passengers upstream and oil down to Pittsburgh refineries. "Guiphers," unique to the Allegheny River, were very large flatboats towed upriver by five horses when steamboats could not run. The largest was the *Elephant*, owned by Captain Daniel Fry, that hauled 3,000 oil barrels up to the oilfield in 1864. Bulkboats were special craft, forerunners of petroleum tank barges.

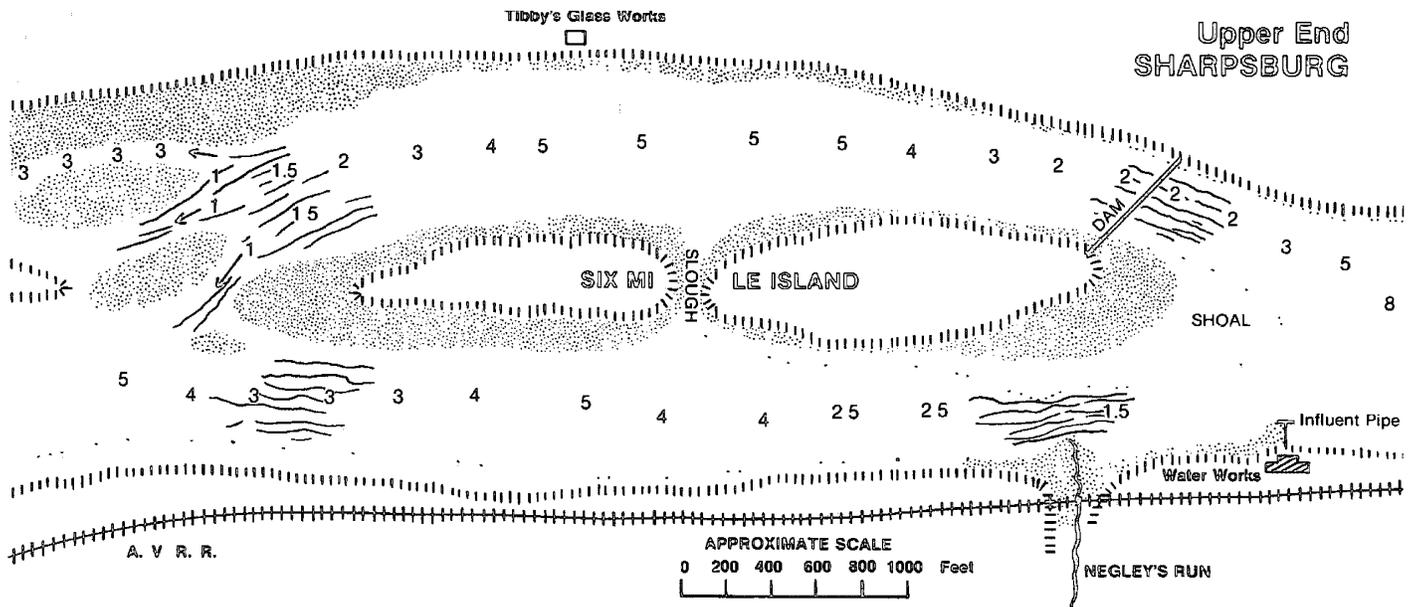
Richard Glyde in 1862 invented the bulkboat, a simple oblong wooden box into which oil was directly pumped to save barrels. Captains J. J. Vandergrift and Daniel Bushnell, the men who had launched the Monongahela coal towing business about 1850, in 1861 became the first men to use petroleum tows. They built twelve of Glyde's bulkboats, each 80 feet long and 14 feet wide with 400 barrel capacity, and towed them back and forth between Pittsburgh and Oil Creek: the first petroleum tank barge tows on the inland rivers. They made \$70,000 their first season and profits remained high. Vandergrift became a director of

Standard Oil Company and built the Conestoga Building, named after his steamboat, in Pittsburgh.

In 1865, the *Ida Rees* took a 2,700 barrel shipment to St. Louis and the *Oil Valley* took a petroleum tow to New Orleans, the first petroleum tows to reach those cities, and the Allegheny oil trade peaked: 441,570 barrels of oil arrived at Pittsburgh in 1865 by river; 380,200 pounds of pig iron, 3.5 million feet of lumber, and 903,000 shingles also landed that year at Pittsburgh's Allegheny wharf.

The Allegheny Valley Railroad began to divert traffic from the river in 1866 and when it reached Oil City in January 1868 steam packet service on the river stopped, but petroleum barging continued. When the Chesapeake and Ohio Railroad reached Huntington on the Ohio River in 1873, the Standard Oil Company, which thought rates charged by railroads from Pittsburgh exorbitant, arranged petroleum shipment down the Allegheny and Ohio to Huntington for rail shipment east to Richmond. The trade was handled by the *Ella Layman*, *C. W. Hornbrook*, and *James Jackson*, generally towing three barges with 7,500 barrels of oil on each trip. Twenty-four petroleum tows, transporting 263,000 barrels of oil, went to Huntington in 1877.

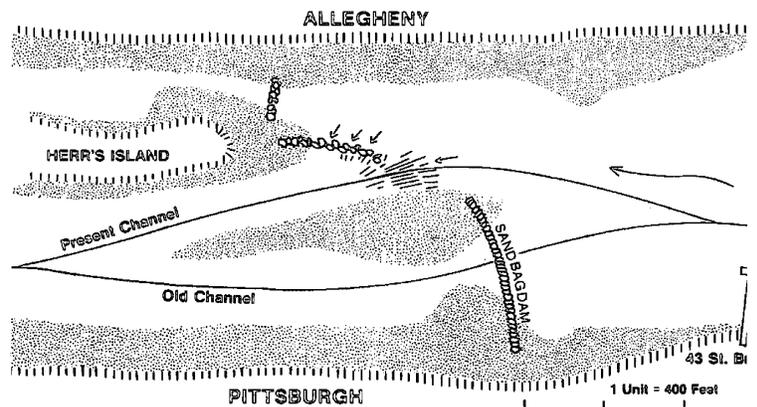
The Allegheny Project "Steamboat commerce on the Allegheny has almost been extinguished by railroad competition, by natural obstructions in the



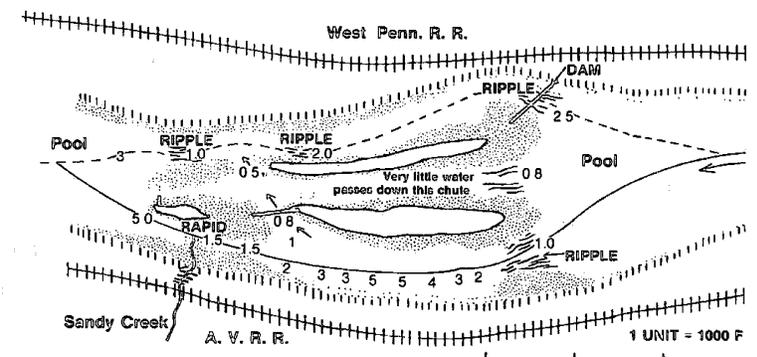
river, and by obstructions that man has put there in the shape of low bridges, with narrow spans badly located. There is hardly any river that shows more clearly the utter inadequacy of state laws to protect river commerce from wanton injury," complained Colonel Merrill. "Rock obstructions are larger and more numerous," he said, "in the Allegheny River than in any other that is now or has ever been under my official charge."

General Harry White of Indiana County had won an appropriation for the Allegheny in 1878, same year he obtained a survey of the roaring Kiskiminetas. Like Merrill, he had spent time at Libby Prison in Richmond during the Civil War. He ran for governor of Pennsylvania in 1872 and lost. General White took intense personal interest in the Allegheny project, even joining Thomas P. Roberts at times during the 1879 survey of the Allegheny. Roberts, assigned to the survey by Merrill, flat-boated from Olean to Oil City in 1879, locating and mapping 190 ripples, or shoals, on the stream. He completed the survey to the mouth of the river in 1880, updating the maps drawn in 1830 by Colonel James Kearney. Roberts reported the river was obstructed by 32 low bridges below Olean that would have to be raised before regular steamboat navigation could resume. For the immediate benefit of rafters, flatboatmen, and occasional steam packets and petroleum tows, he recommended

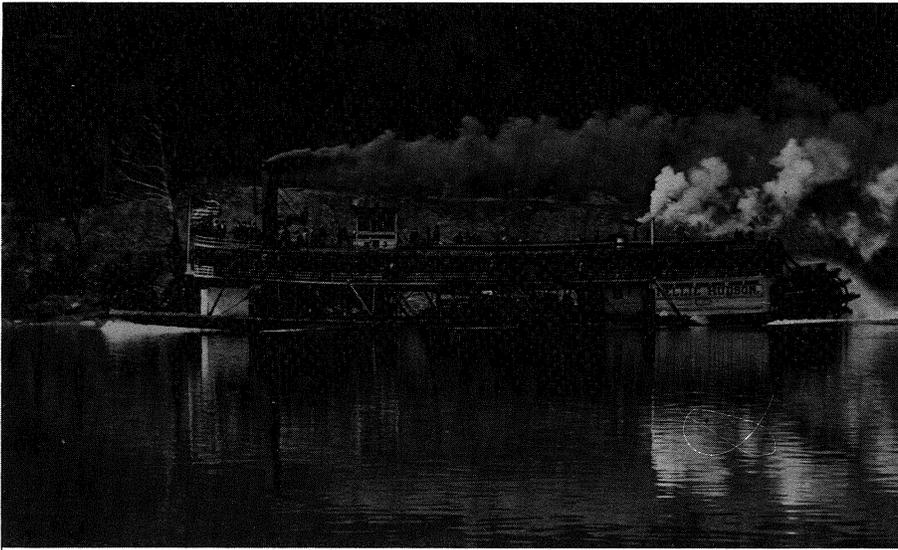
Six Mile Island



Herr's Island (Garrison Ripple)



Nine Mile Island



Packet boat *Nellie Hudson*

Captain Fred Way



Allegheny River improvement - Redbank dike

clearing the channel and building wing dams, and Colonel Merrill approved the plans.

Roberts and General White met oilmen and rivermen in Pittsburgh, who wished the project to begin with improvements at Garrison Ripple, a shoal that obstructed traffic to and from Allegheny Arsenal. The editor of the *Pittsburgh Chronicle-Telegraph* commented: "No spot in the entire United States has contributed so much to the fitting out of its armies and navies as the locality interested in the complete opening up of the Allegheny river for its first ten miles. This is a strong statement, but one that can be verified any time it may be questioned. Jackson, at New Orleans, and Com. Perry, at Put-in-Bay, fought their victories with supplies derived from this city. More than 2,500 cannons and mortars have been cast in the neighborhood."

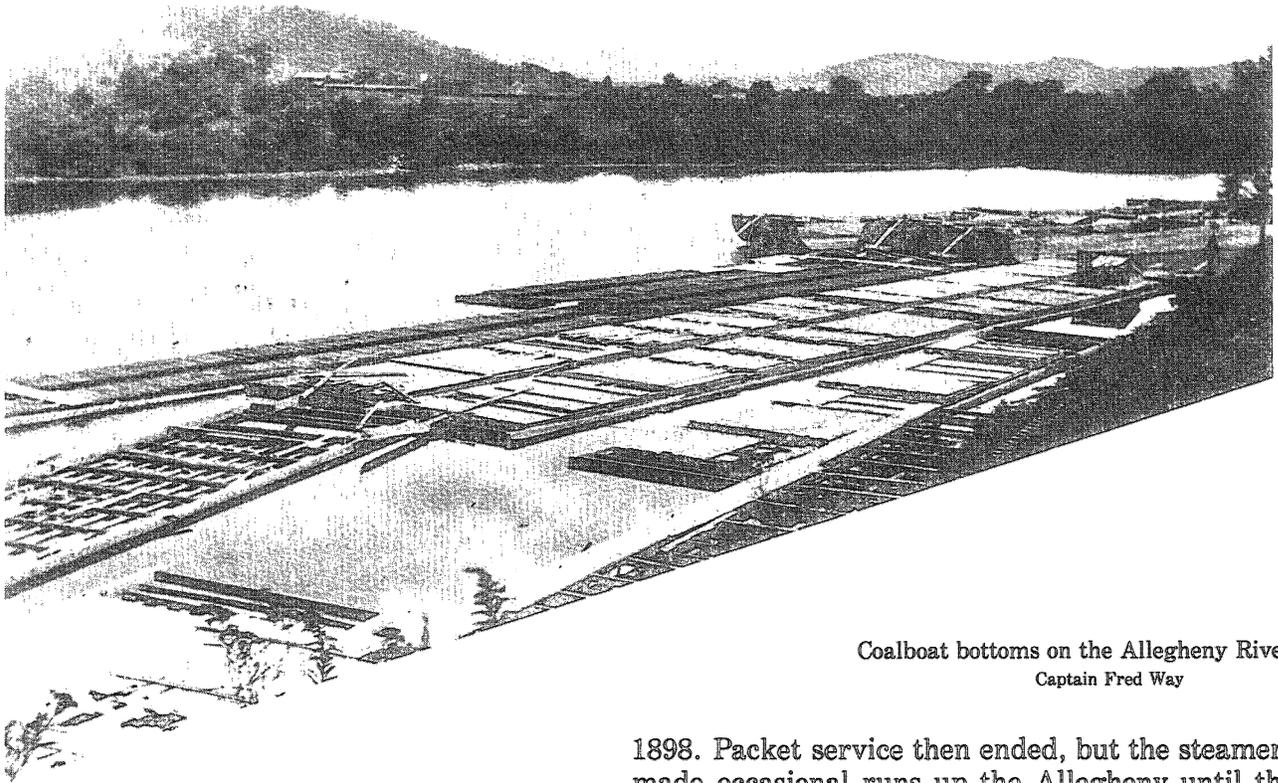
Roberts asked Merrill where work should begin, and Merrill responded: "If General White recommends the improvement of Garrison Ripple, undertake it. I am willing to give you *carte blanche*

as to the points selected as it is impossible for me to more than glance at the Allegheny. I reported to the Department that I had too much to do & hope to get relief at some time in the future." Put the \$10,000 appropriation, Merrill directed, "where it will do the most good."

During the 1879 working season, Roberts sent a craneboat and crew down the Allegheny. It removed 503 boulders, 109 snags, and 1 wrecked boat. He employed other crews to build a stone-filled timber-crib dam closing the right hand channel at Six Mile Island, a riprap dam closing the left channel at Nicholson's Island, and a temporary sandbag wing dam to deepen the channel at Garrison Ripple. Near the end of the season, Roberts found himself in a pickle. General White met the craneboat and crew at Freeport and, as congressman who sponsored the project, took it upon himself to hire more labor to remove the stone piers of the old canal aqueduct, a job that was needed, but Roberts was not advised of it until the craneboat reached Pittsburgh. He had to stop dam construction to save enough money for pay of the extra workers hired by General White. Roberts thereupon resigned from the Allegheny River project, and General Moorhead hired him as chief engineer of the Monongahela Navigation Company.

Colonel Merrill transferred Israel V. Hoag from the Ohio to the Allegheny project and replaced Hoag with John W. Arras in 1887. Arras, a native of Coacopolis, had begun his service with the Corps in 1877 at \$1.70 a day; he had a hand in building 34 dams in the Pittsburgh District before his retirement in 1932.

Each summer, Hoag and Arras dispatched crews up the Allegheny to clear the channel. Work parties



Coalboat bottoms on the Allegheny River
 Captain Fred Way

on the lower river used craneboats and decked flats; those on the upper river used dragsleds pulled by horses. After drilling holes in boulders with steel drills and sledgehammers, they inserted dynamite in the holes and reduced the boulders to portable fragments, which were loaded on the flatboats or the dragsleds and moved out of the channel. By 1898, the Engineers had removed 1,400 snags and more than 150,000 tons of rock from the river below Olean. Similar work continued well into the 20th century.

The sandbag wing dam and channel dredging kept the river open at Garrison Ripple near the Arsenal while John Arras and Colonel Merrill were planning a lock and dam for the site. Arras completed dams across back channels at Six Mile Island, Nicholson's Island, Pithole, Tionesta, Hickory, and Cornplanter, spur dikes at Cowanshannock and Red Bank, and a log chute in Corydon mill dam. The Cowanshannock dike was riprap stone; the remainder were timber cribwork filled and paved with stone. By 1898, Arras had established a 150-foot wide channel with minimum depth of a foot at low water from Pittsburgh to the New York state line on the Allegheny at a cost of about \$197,000.

After the clearance project had begun, the Hudson brothers put the *Nellie Hudson* on the Allegheny, restoring steam packet service, and operated it and the *Florence Belle* on the river until

1898. Packet service then ended, but the steamers made occasional runs up the Allegheny until the *Florence Belle* was sunk by ice at Creighton in 1910 and the *Nellie Hudson No. 3* went down at Ford City in 1913.

The open channel project also benefited raft and coalboat traffic. Lyman and Louis Cook, who piloted coalboat bottoms for T. D. Collins from Tionesta Creek to Pittsburgh, said it took them ten days to make the trip in 1887 because they could not run at night and made frequent stops to clear a channel through ripples, but by 1899 they were able to make the run without stops and reach Pittsburgh in less than five days. Coalboat bottoms, that were converted into coal barges at Pittsburgh, floated down the Allegheny from Tionesta, Clarion, Redbank, and West Hickory in droves until the 1920s, when steel barges began to replace the wooden coalboats.

Captain Frederick Way of Sewickley reviewed the record of the open channel project in his 1942 saga of the Allegheny River, and he concluded:

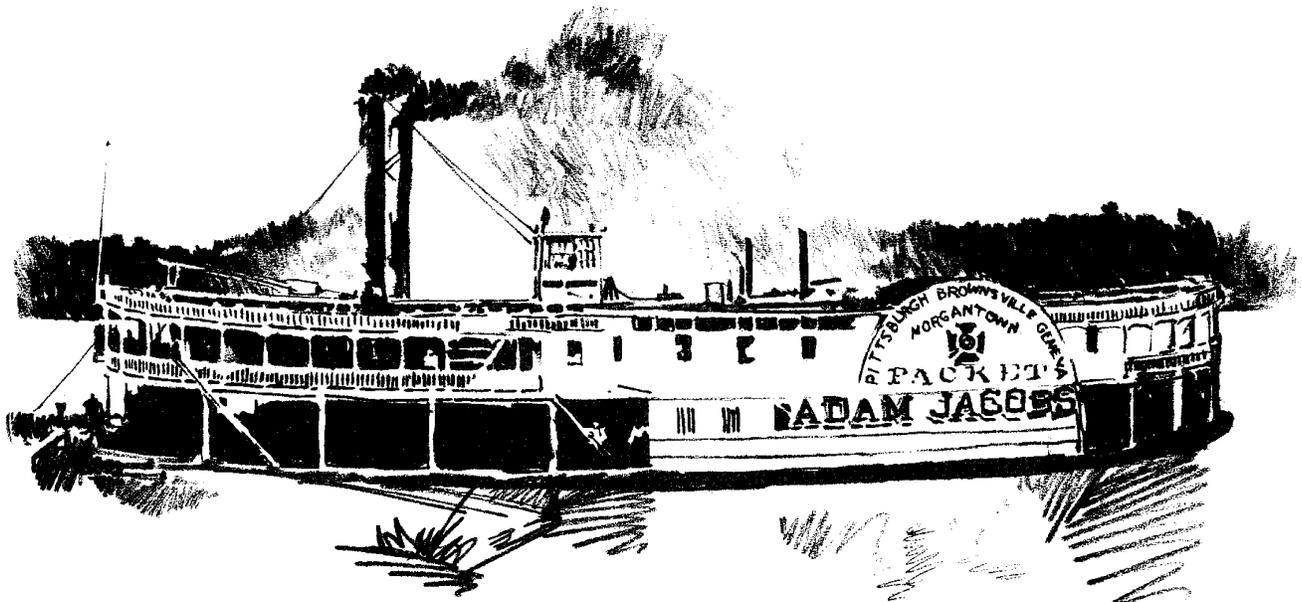
A person cannot go over the history of the performance of this group of the United States Army service without gaining an admiration for the methods and policies of this Engineer Department. Ever since Colonel T. P. Roberts started wading around the Allegheny River water with a surveying instrument, every task that has been handed those engineers has been performed diligently and successfully. There is only one trouble with them; they are hard to get started on a job. Once they get started, it is doubly hard to get them stopped.

On to Morgantown "Since 1850, steamboats have reached Fairmont only ten times," Colonel Merrill reported in 1872. "The *Globe*, *Eclipse*, *Lindsey*, and *Thomas P. Ray* made the trip at unusual high water, and in 1871 the *West Virginia*, specially built with 12-inch draft, managed the trip from Morgantown to Fairmont five times." He reported that Morgantown received most of its supplies by wagon over bad roads from rail heads at Uniontown and Fairmont, or by flatboats towed by horses sixteen miles upriver from the head of slackwater at New Geneva. He thought extension of slackwater up to Morgantown badly needed, and he recommended federal construction of locks and dams 8 and 9 which, with construction of No. 7 by the Monongahela Navigation Company, would do the job.

Colonel Merrill learned that commerce on the lower Monongahela had burgeoned after the Civil War and people of Morgantown and Fairmont were eager for regular packet service to their cities and for the mining and industrial development that slackwater navigation might permit. James Rees had organized the People's Line of packets in 1865, put the *Chieftain* and *Elector* into runs on the

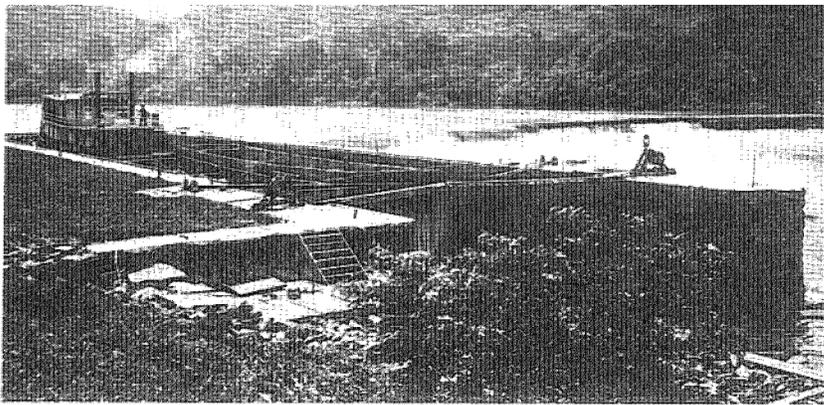
Monongahela, and, after a few years of cutthroat competition, merged his firm with the older Pittsburgh and Brownsville Packet Company. Monongahela coal shipment had grown from 4.6 million bushels in 1845 to 37 million bushels in 1860, paused when war closed the New Orleans market, then resumed its upward spiral, reaching 57 million bushels in 1870.

With the aid of lobbyists from the Morgantown Board of Trade, Congressman James McGrew of Kingwood obtained a small appropriation in 1872 for planning slackwater extension to Morgantown. Colonel Merrill located the sites of locks and dams 8 and 9 at the mouth of Dunkard Creek and at Hoards Rocks, designed locks that were 200 feet long in the chamber, ten feet longer than the navigation company locks at Nos. 5 and 6, and, at the recommendation of "Old Slackwater" Moorhead, designed a stonemasonry arch dam instead of a timbercrib structure. Stonemasonry construction was selected because the 15.5-foot lift at Dam No. 9 would be nearly double that of the downstream timbercrib dams and because a masonry dam would be tighter and hold more water during droughts. The chief engineering innovations at No. 9 were the use of

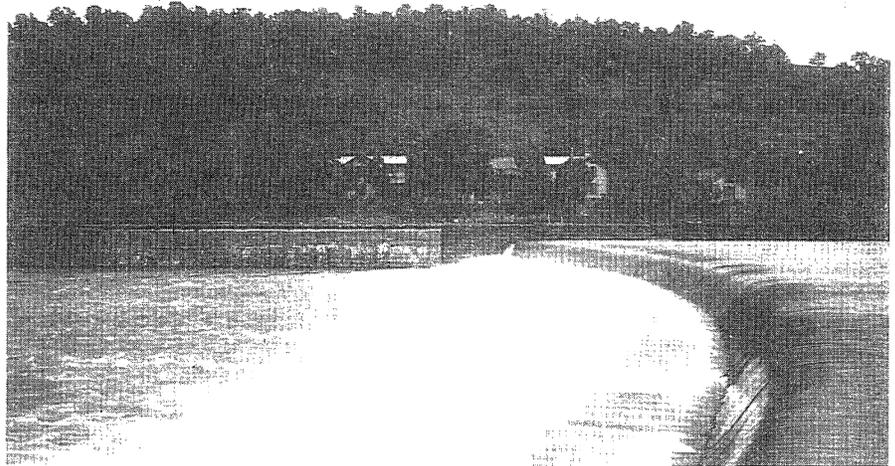


Packet boat *Adam Jacobs*

Sketched from photo belonging to Captain Fred Way



Lock and Dam 9, Monongahela River



culverts through the lockwalls for emptying and filling the chamber, instead of valves in wooden lockgates; and first use in the United States of Stoney valves, a combined slide and roller valve invented by English engineer F. G. M. Stoney that allowed one man to open and close the valves in the emptying and filling culverts.

Contractors Smith and Hawkins won the contract for construction of No. 9 in 1873 and began work under supervision of resident engineers S. Petitdidier and J. E. Bell, but they worked slowly, frittering away the prime working seasons, so Colonel Merrill terminated their contract in 1876 and employed hired labor to finish the job. He thought contractor delays at No. 9 had cost the government about \$20,000 and vowed never to let another contract for the Monongahela project. He finished No. 9 in late 1879 and during the drought of that year found that the masonry dam held a full pool while the company timbercrib dams stood four feet out of water, but No. 9 would be of little value to navigation until locks and dams 7 and 8 below it were finished.

In 1881, Merrill began construction of Lock 8 and General Moorhead began No. 7. Moorhead and engineer James H. Harlow completed No. 7, four miles below No. 8, in 1883, but Merrill had to stop building No. 8 for lack of funds. Merrill protested

the funding failure as a breach of faith on the part of the United States, asked General Moorhead to "put in his oar" with Congress to obtain another appropriation, and complained that the funding freeze would greatly increase costs. "When work drags over many seasons," he said, "the expense of general administration is much increased, floods damage unfinished parts, cofferdams and plant must be repaired or renewed from time to time, and innumerable petty expenses add greatly to the ultimate expenditure."

After more funds were provided, construction of No. 8 resumed in 1887 under direction of resident engineer Philip J. Schopp, who saved the project from complete disaster during the record July 1888 flood by lashing derricks, tramways, and construction equipment to trees so they could be recovered after the water subsided. On November 8, 1889, Colonel Merrill rode the packet *Adam Jacobs* up to Morgantown to celebrate completion of No. 8; the *Jacobs* and the *James G. Blaine* were the first to make the run to Morgantown on slackwater, and they began daily service between Pittsburgh and Morgantown, carrying 17,000 passengers and 24,000 tons of freight in 1891.

"Padre" Merrill, responsible for projects throughout the Ohio River basin, hoped opening

slackwater into Morgantown would reduce his workload, but he soon learned that operations required as much attention as construction. Floods and runaway boats caused structural damages that had to be repaired each year; he had to build flatboats equipped with derricks to clear the pools of snags; and dredging channels and lock approaches was necessary on a nearly annual basis. Politics also consumed his time.

Congressman William L. Wilson of Morgantown complained that B. F. Hoard, first lockmaster in Pittsburgh District, at Lock 9 delayed river traffic because he finished his meals while boats waited. Rumor was that Hoard once told a boat captain he would lock him through, but not until he had finished milking his cow. Colonel Merrill told the congressman that politics had nothing to do with Hoard's job, that he had hired Hoard because he lived near the lock and because his father had donated the land on which the lock was built. "I object," Merrill said, "to removing men who have done their duty, for political reasons; but nothing would induce me to retain a man who has failed in that respect." Yet, Merrill investigated the case and exonerated the lockmaster when he learned the charges of negligence came from a man who wanted Hoard's job and went to the congressman to get it.

Political and public support was also increasing for extension of slackwater on to Fairmont. Congress ordered a survey between Morgantown and Fairmont in 1875 and Thomas P. Roberts made the study for Merrill. Roberts found that river traffic above Morgantown consisted chiefly of rafts and flatboat shipments of lime and brick, but people were distressed by high rail rates charged for the 70,000 tons of coal shipped annually from Fairmont and wanted slackwater to reduce transportation costs. Roberts thought construction of six locks and dams, numbered 10 to 15, would extend slackwater to Fairmont and encourage the development of the resources of Marion, Monongalia, Harrison, Tucker, Taylor, Preston, Barbour, Randolph, and Upshur Counties. Colonel Merrill thought the project had merit, but Congress, which even had dif-

ficulty finding funds to complete Lock 8, did not appropriate funds to carry the slackwater on to Fairmont until about twenty years after the 1875 survey.

Pittsburgh District Reopens William Merrill had moved his office from Pittsburgh to Cincinnati in 1871 to obtain a more central location, for his work was scattered from Pittsburgh to Cairo on the Ohio and on many tributary streams. By 1888, the increasing number and complexity of projects under Merrill's supervision made the burden of paperwork alone overwhelming, and Merrill was forced constantly to travel from dredge to snagboat to construction site to field office and back to Cincinnati. He died aboard a train in 1891 while traveling to inspect work on the lower Ohio.

For the relief of Colonel Merrill and the many officers working under similar conditions, the Corps began administrative decentralization in 1888, creating new Engineer Districts and establishing Engineer Divisions. Prior to 1888, the Engineer officers had reported directly to the Office of the Chief of Engineers (OCE). The Chief divided the nation into five Engineer Divisions in 1888, and thereafter the District officers reported through the Division officers.

Engineer Districts in the Ohio River basin were first placed in the Southwest Division under Colonel Cyrus B. Comstock, and later moved to the Northwest Division under Colonel Henry M. Robert, author of *Robert's Rules of Order*. In 1901, Divisions were reorganized with boundaries generally following watershed lines, and the Ohio River basin, including the Pittsburgh District, fell to the Central Division with offices at Cincinnati. The Central Division became the Ohio River Division (ORD) in 1933.

The Second Cincinnati District was established to relieve Colonel Merrill of responsibility for some tributary streams in 1888, and Colonel Merrill's office, still responsible for the entire Ohio River, became the First Cincinnati District. Decentralization continued with assignment of Captain Richard

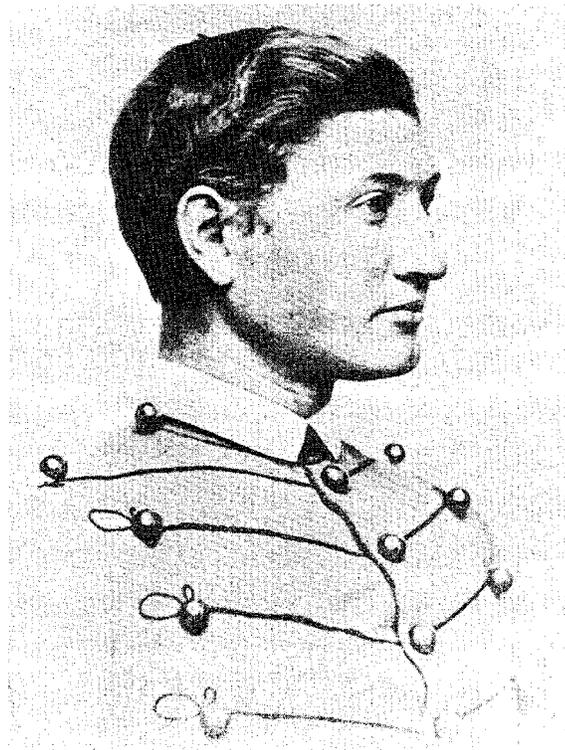
L. Hoxie on November 10, 1893, to open an Engineer District office at Pittsburgh.

Captain Hoxie found John W. Arras directing the Allegheny River project from an Engineer suboffice, a single room fairly plastered with maps off the main lobby of the Hotel Boyer in Pittsburgh. Hoxie moved the District office in February 1894 to four rooms on the fourth floor of the Federal Building at the southeast corner of Fourth and Smithfield to make space for the draftsmen and clerical force assigned to the Pittsburgh District. Captain Hoxie and his executive staff occupied one room, the engineers and draftsmen another, the clerks a third, and records files and maps the fourth. The blueprinting, or "reproductions branch," was located in a large closet.

Captain Hoxie's command in 1893 included three active projects: channel clearance on the Cheat

River, an open-channel project on the Allegheny River, and construction of locks and dams on the Monongahela. The Ohio River was not added to the District until 1902. The Cheat River boulderblasting project was closing down, but John Arras was planning the first lock and dam on the Allegheny at Herrs Island and Captain Hoxie began planning for construction of locks and dams on the Monongahela to extend slackwater on to Fairmont.

The case of the United States versus the Monongahela Navigation Company, the largest condemnation suit in American history before 1900, was dragging through the courts at the time Captain Hoxie opened the Pittsburgh District. In fact, the House Rivers and Harbors Committee was inspecting the Monongahela by boat on the day Hoxie arrived at Pittsburgh. Captain Hoxie was in for an exciting tour of duty in the new Pittsburgh Engineer District.



Captain Richard L. Hoxie