

NAVIGATION IMPROVEMENTS FROM THE CIVIL WAR TO WORLD WAR II

The years following the Civil War were heady for champions of rivers and harbors improvements. From 1866 to 1882, the President signed 16 rivers and harbors bills. The consequent increase in federal river and harbor work was enormous. The 1866 rivers and harbors act appropriated \$3.7 million for 49 projects and 26 surveys. The 1882 act appropriated \$18.7 million for 371 projects and 135 surveys. By 1882, federal appropriations for all rivers and harbors projects since the beginning of the century had escalated to over \$111 million. Of that amount, approximately \$95.5 million had been appropriated in the period since the Civil War ended. Actual expenditures over the entire period totaled about \$106 million, of which over \$91 million had been expended since 1866. By 1882, also, federal appropriations for canal construction totaled nearly \$2.8 million.

There were several reasons for the post-Civil War increase. Few denied the importance of commerce on the Mississippi to the economic health of the nation, and the river had suffered from years of neglect. Indeed, the last major rivers and harbors act had been passed in 1852. Since that time, there had been little done on the river in the way of snagging and clearing operations. Problems were compounded, moreover, by Confederate efforts to block the river by scuttling vessels, and by the Union Army's destruction of levees, which created both navigation and flood control problems. After the war, commercial interests along the Mississippi, Ohio, and Missouri rivers once again gathered at river conventions to petition Congress for aid. State legislatures likewise requested aid from Congress to improve the rivers.

Although railroads opposed any significant aid for river improvements, the Civil War had demonstrated vividly that railroads alone were not adequate to handle the nation's freight and commerce. Congress expressed a general concern for the improvement of national transportation facilities, and in 1872 the Senate authorized the creation of a Select Committee on Transportation Routes to the Seaboard. Composed eventually of nine senators, the committee was headed by Senator William Windom of Minnesota and was known popularly as the Windom Committee. Its report of 1873 acknowledged the rivalry of waterways and railroads, and observed that "water routes, when properly located, not only afford the cheapest and best-known means of transport for all heavy, bulky, and cheap commodities, but . . . are also the natural competitors, and most effective regulators of rail way transportation."

The committee complained:

For the improvement of these great avenues of trade [20,000 miles of western rivers], which were designed by nature to afford the cheapest and most ample commercial facilities for the teeming millions who inhabit the richest country on the earth, we have expended an average of \$133,100 per annum; while for public buildings we have appropriated an average of over \$750,000 a year. Is it not high time that all expenditures not absolutely necessary be suspended, and that the imperative necessities of the country receive attention?

By 1907, federal rivers and harbors appropriations had climbed to over one-half billion dollars, more than four times the cumulative total in 1882. Rivers and harbors improvement work on the major rivers of the country, particularly those in the Mississippi basin, accounted for most of the expenditures. The Mississippi River Commission, created by Congress in 1879, directed Army Engineer officers in the construction of levees along the lower Mississippi. Beginning in the mid-1890s, this levee work (justified on the basis of navigation improvement, but obviously a major contribution to flood control) was complemented by dredging along selected portions of the river in order to prevent shoaling and reduce navigation hazards. In 1896, Congress not only first authorized, but required, the construction of dredges "with the view of ultimately obtaining and maintaining a navigable channel from Cairo down, not less than two hundred and fifty feet in width and nine feet in depth at all periods of the year except when navigation is closed by ice." Despite the levee-building and the dredging, disastrous floods continued to plague the residents along the lower Mississippi.

Meanwhile, in 1888 Congress authorized the extension of the six-foot navigation project down the Ohio River. This authorization came after the successful completion in 1885 of the Davis Island project, just five miles south of Pittsburgh, which employed moveable wickets and had a 100-by-600-foot lock. Following congressional authorization, the Corps began constructing other locks and dams along the Ohio. By 1904, two locks and dams had been completed, seven were under construction, and five more were funded. At this time, before further work was done, Chief of Engineers Alexander Mackenzie decided to conduct another complete review of the project (the first one had been done in the 1870s). At issue was extension of the project down the lower Ohio, particularly in view of generally declining commerce on inland waterways. The review board recommended a nine-foot channel along the entire course of the Ohio River, based upon its finding that the probable cost per ton-mile for a six-foot project would be .0653

cents, whereas for the nine-foot project it would be .0447 cents. In the 1910 Rivers and Harbors Act, Congress authorized the nine-foot project. At a cost of about \$125 million, the project was completed in 1929.

Authorizations and appropriations during this period reflect some of the worst evils of pork-barrel legislation. Projects were poorly chosen, piecemeal appropriations were commonplace, and the Corps of Engineers often gave very unreliable estimates. About the turn of the century, matters briefly took a turn for the better, mainly as a result of the work of Ohio Representative Theodore Burton. Burton, chairman of the Rivers and Harbors Committee, forced through Congress a bill establishing a Board of Engineers for Rivers and Harbors to examine "the amount and character of commerce existing or reasonably prospective which will be benefited by the improvement, and the relation of the ultimate cost of such work, both as to cost of construction and maintenance, to the public commercial interest involved, and the public necessity for the work and propriety of its construction, continuance, or maintenance at the expense of the United States." In the 1907 Act, Burton did not allow one new project to be added unless the entire cost of the project was authorized. Less than five hundred dollars was appropriated for local streams, and not one appropriation was made unless the project had the approval of the Engineers. Had this practice of avoiding piecemeal appropriations and unjustified projects continued, some of the worst examples of traditional pork-barrel legislation would no doubt have never been approved. Instead, after Burton's departure in 1909, Congress quickly reverted to its old ways. The 1910 Rivers and Harbors Act appropriated funds for projects in 226 of the 391 congressional districts.

One improvisation which took place under Burton was cost-sharing for navigation projects. Dallas, Texas, became the first political entity in the nation forced to contribute funds to a rivers and harbors project. The Rivers and Harbors Act of 1905 required the city to contribute \$66,000 toward the Trinity River project before the authorized federal appropriation of up to \$161,300 could be used. The idea of requiring local contributions to projects of essentially a local nature did not, however, entirely succeed. The promise of local cooperation induced Congress to approve many projects of dubious merit. Moreover, richer sections of the country could finance projects more easily than poorer ones. Twenty-one projects requiring local financial contributions were authorized by the 1910 Rivers and Harbors Act, and more were added in subsequent years; but no standard procedure was developed to determine which projects should entail local contributions. Partly in response to this situation, Congress in 1920 inserted a clause in the annual appropriations bill requiring Army Engineers to report the local benefits of a project as well as its general benefits, and to recommend whether local cooperation should be required.

In 1925, the policy of local cooperation for small navigation projects was discontinued. Instead, Congress declared in one of the few rivers and harbors acts passed that decade that whenever local interests advance funds for rivers and harbors work, such funds may be accepted and expended by the Secretary of War "in his discretion." Regardless, the Secretary was "hereby authorized and directed to repay without interest . . . the moneys so contributed and expended." By this time, Congress and the Executive Branch had carved out a new relationship that dramatically affected the future of rivers and harbors legislation. In 1921, the Bureau of the Budget was established. Generally, rivers and harbors appropriations were no longer considered separately. Rather, they were included in the Army Appropriation Bill as determined by the Bureau of the Budget, the President, and the Committees on Appropriations. Once the amount of the appropriations was approved, the Secretary of War and the Chief of Engineers apportioned the funds as they thought best. Under this procedure, there were annual appropriations for rivers and harbors work that ranged from \$40 million to \$60 million.

Although a significant amount was spent on navigation improvements during the last quarter of the 19th century, the general enthusiasm for internal waterway improvements actually declined. One major reason for the decline was railroad competition. However, by the turn of the century renewed interest in navigation improvements developed. The railroads continued to be inadequate for the country's growing needs, and a number of railroad companies were riddled with corruption and mismanagement. This was also a time when advocates of multipurpose river development first gained attention: rivers should be developed in a manner best suited to serve power, irrigation, water supply, and flood control, as well as navigation, needs. President Theodore Roosevelt, an active conservationist, appointed an Inland Waterways Commission in 1907 to study the issue of river development. Not unexpectedly, considering the commission's members and Roosevelt's own predilections, the commission strongly favored multipurpose development in its 1908 preliminary report to Congress. A National Waterways Commission, appointed in 1909, developed a more detailed plan for national waterways improvements. The Chief of Engineers, Brigadier General Alexander Mackenzie, opposed multipurpose river development because he felt that navigation must remain the paramount federal interest.

Waterway advocates pushed two grandiose schemes at this time. One was a deep intercoastal waterway from Boston to the Rio Grande via a sea-level cross-Florida canal. The other projected a deep channel from Chicago to the Gulf of Mexico capable of being navigated by ocean-going vessels. Although neither of these plans was fully realized, the interest they generated resulted in the expansion of the intracoastal waterway on the Atlantic and Gulf

coasts and, as we have noted, the 1910 authorization of the nine-foot Ohio River channel.

Of all U.S. navigation projects constructed prior to World War I, certainly the most impressive was the Panama Canal connecting the Atlantic and Pacific oceans. With Colonel George W. Goethals as chief engineer, Lieutenant Colonel William L. Sibert supervising construction on the Atlantic side, and Lieutenant Colonel David D. Gaillard in charge of construction on the Culebra Cut, Corps of Engineers officers were vital to the construction effort. However, final responsibility for building the canal rested with the Panama Canal Commission and not the Army Corps of Engineers.

After 11 years of effort, the Panama Canal was opened to traffic on 15 August 1914. The cost of construction was \$352 million, including \$10 million paid to Panama and \$40 million paid to the New French Panama Canal Company. If one were to include the expenditures of the two unsuccessful French companies that had attempted to build the Canal in the 1880s and 1890s, the total investment would climb to \$639 million. Although a relatively small sum by today's standards, the cost of the Panama Canal was four times more than for building the Suez Canal and far more than for any other previous American construction effort. Had Congress realized what the ultimate cost would be, it probably would never have approved building the canal. The excavating of the Culebra Cut alone cost \$90 million, or \$10 million per mile. Still, the final cost for the canal was \$23 million below what engineers had estimated in 1907.

By law, the Panama Canal is designed to be self-sustaining. Expenditures cannot exceed revenues. In 1914, about \$4 million was collected in tolls. By 1970, tolls exceeded \$100 million, even though the rates had remained unchanged. In 1973, the Panama Canal Company suffered its first loss as a result of rising operating and maintenance costs. Consequently, the following year the company raised the toll rate from 90 cents per cargo ton to \$1.08, a 20 percent increase. In the late 1970s, annual revenues from tolls exceeded \$140 million.

World War I deepened government concern with waterway development. Wartime exigencies demanded that rail transportation be supplemented by a reliable barge fleet on the major U.S. rivers. The Federal Control Act of 1918 authorized the government to commandeer vessels on the Mississippi and Warrior rivers and the New York Barge Canal. It also provided \$12 million for new construction. The Railroad Administration ran the barge fleet until 1920, when it was turned over to the Secretary of War. However, the War Department was no more successful in showing profits for the fleet, and in 1924 Congress authorized the creation of a wholly government-owned operation, the Inland Waterways Corporation (IWC), to run the barge fleet. The IWC made important advances in the

design and size of barges. It also successfully promoted the establishment of nonfederal terminal facilities. From 1924 to 1935, when the program ceased, the IWC loaned some \$1.1 million to states, municipalities, and private industries to support terminal construction. Most of this aid went for facilities on the lower Mississippi. Perhaps most impressive, the IWC actually showed a profit for the first 15 years of its existence. Its operations complemented Corps of Engineers river improvement projects and attracted private carriers to the Warrior, Mississippi, and other rivers. In a sense, its very success doomed it. Private barge companies and railroad interests began to oppose it vehemently. The expansion of private barge and railroad facilities did, in fact, beg the question of the necessity for the IWC's continued existence. In 1953, the entire fleet was sold to the Federal Waterways Corporation, and the name was changed to Federal Barge Lines, Inc.

It had taken over a hundred years for the federal government to spend the first half-billion dollars on river and harbor improvements. In the 13 years from 1907 to 1920, however, the government doubled the amount, so that by 1920 the total appropriations for river and harbor work exceeded one billion dollars. Within 13 years, this figure doubled again. By 1936, the cumulative appropriations figure for navigation improvements was \$2.1 billion. By that time, another \$800 million had been spent on flood control and nonnavigation related activities. During World War II, as part of the military construction program, several million dollars was spent on port improvements, including terminals, warehouses, docks, and wharves. This construction was not part of rivers and harbors work, although the facilities built under this program, justified in the interest of national defense, obviously benefited commerce after the war ended.

Expenditures by states and nonfederal interests are exceedingly difficult to calculate. One estimate places the total figure for state support of canal construction and maintenance alone at over one half million dollars by 1930. This figure, evidently, does not include any nonfederal monies spent for flood control and drainage.

The Great Depression ended hopes that the number and cost of navigation improvements might be reduced. In 1926, the Chief of Engineers reported that 139 projects had become obsolete or had never developed sufficient traffic to justify their maintenance. He recommended their abandonment. Congress did not respond to this recommendation at that time or any time thereafter. Three years later, when the depression began, both Congress and the administration sought ways to create jobs, although President Herbert Hoover opposed deficit spending for additional public works. In 1930, Congress increased the Corps' civil works budget, not only because of commercial demands, but "to carry out the purposeful plan of the administration to alleviate unemployment."

Although unable to give specific numbers, Chief of Engineers Lytle Brown maintained that Corps projects had "furnished employment to thousands of people who otherwise might have been idle." Pursuant to the 1930 Emergency Construction Act, the first public works legislation of the depression era, the Corps received \$22.5 million for rivers and harbors work and an additional \$3 million for the Mississippi River and Tributaries project, a flood control project initiated two years earlier. In the three years 1931-1933, the Corps received over \$270 million in work relief funds. With the beginning of the New Deal, this sum--and the number of projects funded--expanded considerably.