

RAMSEY COUNTY
History
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**Josias King —
First of the First**

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Winter, 1992-1993

Volume 27, Number 4

**Henry Bosse and the Mississippi's
Passage Into the Age of Industry**

Page 4



St. Paul, photographed in 1885 by Henry Bosse. Photo from the St. Paul District, United States Corps of Engineers. See article beginning on Page 4.

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Henry Bosse's Priceless Photographs

And the Mississippi's Passage into the Age of I

John O. Anfinson

Two and one-half years ago Mike Conner, a Washington, D. C., antique dealer, called me concerning an album of rare, historic photographs that he had discovered. The album contained 169 large, oval, cyanotype or blueprint-like photographs. Its frontispiece read: *Views on the Mississippi River: from negatives taken and printed under the direction of Major A. Mackenzie, Corps of Engineers, U.S.A. by H. Bosse, Draughtsman, 1883-1891.*

Conner's album had belonged to Major Mackenzie, who later became a major general and chief of engineers. Conner called me because the album documented the Corps' work on the upper Mississippi during the late nineteenth century, and I am the District historian for the Corps' St. Paul District.

Conner had presented the album at a photographic show in Washington and dealers there found the cyanotypes "fabulous" and "unbelievable." One dealer offered him \$20,000 for them—an unheard of price, according to Conner, for an unknown photographer's work. Believing them to be much more valuable, Conner declined. He wanted to know if the Corps had other albums or photographs by Bosse. I told him that our office had black and white copies only.

After talking to Conner, I located the black and whites. The frontispiece to this volume matched his, but I had no idea who had shot the black and whites or whose originals had been used. After examining our copies several times, I noticed a photograph sandwiched between two others. I pulled it out and found that it was of the original album's leather cover. It read: "Presented to *U.S. Dredge, William A. Thompson* by Mrs. William A. Thompson." William A. Thompson worked for the Corps from 1878 to 1924, spending all his years on the upper Mississippi river. The *Dredge Thompson*, christened in 1937, is still the Corps' principal dredge for the upper Mississippi. As Conner's album had belonged originally to Macken-



Henry Bosse. Photo courtesy of William F. Quantaine, Moline, Illinois.

zie, I knew that a second album existed, an album that had been in the District's possession at one time.

I immediately called our river maintenance chief, who had been with the District for many years. I told him my story and asked if he had ever heard of such an album. Surprisingly, he told me that an album of photographs had been on the dredge, and the District's photographer had taken the black and whites of it some years earlier. The maintenance chief

remembered asking our photographer whether his photos of the album would turn out, because the originals were blue. Unfortunately, our photographer had retired since then. I knew now that we had an album filled with cyanotypes, potentially worth \$20,000. Would they still be on the dredge and, if so, in what condition? The dredge, however, was in St. Louis. The maintenance chief said he would call its captain.

I had continued my conversations with Mike Conner. Certain that he had discovered a collection of truly exceptional photographs, Conner brought his album to Sotheby's auction house in New York. They would judge just how rare and valuable Bosse's photographs were. Sotheby's handles thousands of photographs each year, many of them by world-renown photographers. Conner met with Denise Bethel, Sotheby's vice president for photography. The photographs' clarity and artistic quality stunned Bethel. She told Conner that the album ranked among the top nineteenth century photographic collections that she had seen. Sotheby's estimated the album's value at \$40,000 to \$60,000, and Conner placed it with the auction house for their Fall, 1990, photography auction. They would sell it for \$66,000.

When the maintenance chief called me back, he said that the *Thompson* still had an album of blue photographs onboard. The dredge was on its way back to the District's service base at Fountain City, Wisconsin, and we arranged for someone to bring the album to the office as soon as it arrived. It was bound in a heavy, burgundy leather cover. I anxiously opened it to find the ornately sketched frontispiece, followed by a sharp blue image of St. Anthony Falls. As I carefully paged through the album, I understood Conner's excitement and that of the others who had seen the originals. The black and whites had not captured the qual-

The Ramsey County Historical Society will open a new exhibit of Henry Bosse's spectacular photographs of the Mississippi River on February 5, 1993, in the Society's main floor gallery in Landmark Center.

These rare old photos were taken by Bosse between 1883 and 1891—a period in his career during which he lived for a few years at the Cosmopolitan Hotel in St. Paul. They were only recently discovered in the captain's desk of a United States Corps of Engineers dredge, the William A. Thompson, christened in 1937 and still the Corps' principal dredge for the upper Mississippi.

The photographs are cyanotypes, a type of photograph that resembles a blueprint and represents an old technique that used the chemical, cyanine, to produce images.

The exhibit will remain at Landmark Center until next July.

ity and power of the cyanotypes. To my surprise, the photographs had been superbly preserved.

On February 22, 1991, Charles Wehrenberg, a San Francisco art dealer and one of the album's new owners called me. What he said astounded me. Bosse's work had been overlooked by most at the auction, and he believed that he could sell the album that day for \$650,000 or more and that when he finished marketing it, it would bring him up to \$1,500,000. The price Wehrenberg had paid to obtain part ownership of the album proved that he was serious. Simon Lowinsky, a New York photo dealer, in partnership with a Tokyo financier, had bought the Bosse album and other lots at the Sotheby's auction. Before the sale, however, Wehrenberg had become interested in the album. When the Japanese side defaulted, Lowinsky offered Wehrenberg a deal: he could buy into the album for \$217,000. Wehrenberg agreed,



Genoa, Wisconsin, photographed in 1891. Unless otherwise noted, photographs with this article are from the St. Paul District, U. S. Corps of Engineers.

negotiating a partnership with Lowinsky to sell individual prints from the album.

Despite Wehrenberg's early success selling the individual prints, I could not believe that the album would be worth more than \$650,000. After talking to other photographic experts, I began changing my mind. One of these experts, Merry Forrester, curator of photography at the Smithsonian Institution's National Museum of American History, confirmed Sotheby's assessment. Forrester called me in April, 1991, to talk about Bosse's album. She called it "incredible, fantastic" and "truly extraordinary." That no one knows Bosse, she said, is surprising, given the quality of his work. She described his photographs as exceptionally clear and modern, and observed that they reveal the shift in American photography from romantic to industrial and geometric subjects.

Like Conner, Bethel, Wehrenberg, and Forrester, Bosse's photographs have captivated other photographic experts. H. Bosse, draughtsman, now ranks among America's great nineteenth century photographers. Besides photographing the river, he illustrated river charts, sketched improvement scenes and meticulously drew steamboat plans.

Henry Bosse's photographs are much more than art. They document the first systematic effort to transform the upper Mississippi River from a natural channel into a modern commercial highway. They present the river's working boats, the snagboats and dredges. They depict the timber industry's steamboats, log rafts and milling centers. They show the railroad and wagon bridges crossing the river, supporting the river's competition and creating dangerous obstacles to steamboats. They portray the cities and towns crowding its banks. Finally, Bosse's album captures the Midwest's first effort to link itself with the world by remaking the Mississippi river into a modern transportation corridor, an effort that would culminate in the building of twenty-six locks and dams on the upper river during the 1930s.

Mark Twain described the river in *Life on the Mississippi*:

The majestic bluffs that overlook the river, along through this region, charm one with the grace and variety of their forms, and the soft beauty of their adornment. The steep verdant slope, whose base is at the water's edge, is topped by a lofty rampart of broken, turreted rocks, which are exquisitely rich

and mellow in color. . . . And then you have the shining river, winding here and there and yonder, its sweep interrupted at intervals by clusters of wooded islands threaded by silver channels. . . . And it is all as tranquil and reposeful as dreamland, and has nothing this-worldly about it—nothing to hang a fret or worry upon.

Before the Corps began reshaping the upper Mississippi river, uncounted side channels, backwaters, snags, sandbars and wide shallows characterized it, delaying, stranding and sometimes sinking steamboats. The main navigation channel could shift with a spring flood. During low

water, no continuous channel existed. It flowed along one side of the river for a short reach and then crossed to the other. Between reaches, sandbars rose near the water's surface. The river undermined its banks, swallowing the rocks, soil and trees that fell into it, creating new bars and snags. This was the river of Mark Twain and George Merrick, the river during the heyday of steamboating. Pilots, George Merrick recounts in *Old Times on the Upper Mississippi*, had to memorize

every bluff, hill, rock, tree, stump, house, woodpile, and whatever else is to be noted along the banks of the river. He . . .

added to this fund of information a photographic negative in his mind, showing the shape of all the curves, bends, capes, and points of the river's bank, so that he may shut his eyes, yet see it all, and with such certainty that he can, on a night so perfectly black that the shore line is blotted out, run his boat within fifty feet of the shore and dodge snags, wrecks, overhanging trees, and all other obstacles by running the shape of the river as he knows it to be—not as he can see it.

Congress authorized no comprehensive program to eliminate natural obstacles before the 1850s. Not enough people lived in



Richtman's quarry at Fountain City, Wisconsin, 1891. Jacob Richtman was one of the first builders of the wing dams used to narrow the Mississippi and increase the velocity of its current.



Mechanic's Rock on the Des Moines Rapids between Montrose and Keokuk, Iowa. Steamboat pilots used this rock to gauge depth and decide whether or not to go over the rapids. If the rock was exposed, the water was too low and the boats would take the Des Moines Rapids Canal. The rock was named for a steamboat, The Mechanic, which was wrecked on this rock.

the upper Mississippi valley to justify such a program. By the end of the Civil War, however, the Midwest's population began rising, and in 1866 Congress directed the Corps of Engineers to begin improving the Mississippi for navigation through dredging, snagging or removing sunken trees, clearing or removing overhanging trees, and extracting sunken vessels. River towns especially pushed for improvement. Bosse photographed many of these towns, towns such as Minneiska and Dresbach in Minnesota, and Genoa and De Soto in Wisconsin. He captured them as pioneer

villages, emphasizing their pastoral character. Bosse also filmed burgeoning commercial and industrial centers like St. Paul. Under the 1866 project, however, the Corps made few serious changes to the river's natural landscape and it remained impassable during much of the year.

Large and small towns continued calling for river improvement, and on June 18, 1878, Congress authorized the four-and-a-half-foot channel project, a project that would fundamentally change the character of the upper Mississippi river. The first system-wide improvement program for

the upper river, this project directed the Corps to create a continuous navigation channel, four-and-a-half feet deep at low water, from St. Paul to St. Louis. The Corps based channel depth on the low water year of 1864; ideally, if another year as dry as 1864 occurred, the river would have at least four-and-a-half feet of water in it, allowing most steamboats to pass.

To achieve the four-and-a-half-foot channel, the Corps built wing dams, closing dams, and shore protection and dredged recalcitrant bars. Long, narrow piers of rock and brush, wing dams

stabbed into the river from the main shoreline or from the bank of an island. The engineers placed the wing dams in a series along one or both sides of the channel to reduce its width. In narrowing the river, they increased its velocity, enabling it to cut through sand and debris in the main channel. Moving faster, the river carried more sediment, some of which it deposited in the calmer waters behind or between the wing dams. Within a few years, the space between the dams filled with sand and vegetation. In this way, the engineers constricted the river, gradually moving its banks inward.

Wing dams depended upon the volume of water in the river. Without enough water, they could not scour the channel. To deliver more water to the main channel, the engineers built closing dams. These dams ran from the shore to an island or from one island to another. While water could flow over them during high water, for most of the year the dams directed water to the main channel, denying flow to backwater areas.

To increase the amount of water available for navigation further, Congress authorized the Corps to construct six dams at the headwaters of the Mississippi in northern Minnesota between 1880 and 1907. The headwaters project provided for the construction of the Winnibigoshish dam in 1883-84 and the building of dams at Leech Lake (1884), Pokegama Falls (1884), Pine River (1886), Sandy Lake (1895), and Gull Lake (1912). The St. Paul District stored water from the spring runoff in the reservoirs and released it as needed for navigation during the late summer and fall.

As wing dams and closing dams increased the main channel's velocity and volume, they fostered bank erosion, requiring the Corps to protect miles of shoreline. Wing dams, especially caused bank erosion by forcing the river away from one shore and against the other. For "unnumbered miles along the Mississippi," Twain wrote, "they are felling the timber-front for fifty yards back, with the purpose of shaving the bank down to low-water mark with the slant of a house-roof, and ballasting it with stones. . . ."

The engineers modified the river in other ways. In 1884 Major Mackenzie report-

ed that "The work of improvement has now reached a point where natural channels cannot always be chosen for adoption. . . ." Rather, the engineers, through dredging and channel constriction, recast a former side channel into the main channel. The engineers also removed small islands that threatened navigation and combined other islands to prevent water from flowing between them. Yet, as the project evolved, Mackenzie and the other engineers recognized that they could not "bull the Mississippi into right and reasonable conduct," as Twain had criticized them for thinking they could do. They had learned that if they used the river's natural tendencies, they could direct it in a way that met their needs. In 1885 the rafting industry asked the Corps to make the Guttenberg channel at Guttenberg, Iowa, into the main channel. Ten-mile Island split the channel in front of Guttenberg into two channels; one flowed past the town, the other along the Wisconsin side. Mackenzie responded to the industry's request, saying in the *Annual Report to the Chief of Engineers, 1885*, that "in this case, as in many others, it is necessary and proper to choose the right time for the work, a time when the river itself seems inclined to take the desired direction, and when it may be made to do a great part of the necessary work through its own volition, and by waiting for this opportunity much expense is saved."

Ironically, river traffic declined as the Corps improved the river. By 1880 the heyday of steamboating on the upper Mississippi river had passed, primarily due to railroad expansion. Two railroad lines had reached the upper river in 1854, and within the next four years seven more established railheads on the river's east bank. The Civil War slowed railroad development momentarily, but between 1865 and 1869, three railroad lines crossed the Mississippi into Iowa. By 1880 thirteen railroads had bridged the upper river.

Railroads held many advantages over waterway transport. Railroads moved their freight more quickly, giving their users greater flexibility in responding to market changes. Rail lines were generally shorter, more direct, and in covering a boarder area, created a greater gathering network. Compatibility between rail lines

made transshipment unnecessary. And trains ran when the river was high or low, and they ran when the cold of winter froze it—for the most part, they ran throughout the year.

By the 1890s timber rafting remained the only significant river traffic. Timber products dominated the upper river's commerce from the 1870s to the first decade of the twentieth century. They comprised the greatest quantity of merchandise shipped on the river, and lumbermen shipped them farther and they accounted for more of the total value of goods moved on the river than other commodities. More than passenger traffic or grain hauling—which had been important before railroads entwined the Midwest—timber shipping justified federal spending on river improvements.

Log and lumber rafts increased in size as the timber industry grew. Before 1860 large Mississippi river rafts carried 300,000 to 500,000 board feet of logs and lumber. By 1870 some rafts hauled two million board feet, and less than twenty years later, a few rafts hauled up to three and one-half million board feet. In 1895 one raft transported seven million feet of logs and lumber. While later rafts occasionally shipped up to ten million board feet, the typical raft carried less than three and one-half million feet. A raft of two and one-half million board feet contained enough lumber to build 125 houses and covered an area of three to four acres. Bosse and Twain capture the image of the rafting industry in their work, though not always in the same ways.

"Up in this region" Twain observed, "we met massed acres of lumber-rafts coming down—but not floating leisurely along, in the old-fashioned way, manned with joyous and reckless crews of fiddling, song-singing, whisky-drinking, breakdown-dancing rapsallions; no, the whole thing was shoved swiftly along by a powerful sternwheeler, modern fashion; and the small crews were quiet, orderly men, of a sedate business aspect, with not a suggestion of romance about them anywhere." Yet, Bosse's photograph of the raftboat is decidedly romantic, even if we cannot see the colorless captain and crew upon it.

Timber shipping on the upper Mississippi river lasted as long as the white pine forests of western Wisconsin and northern



Wing dams along the Mississippi at Pine Bend. The dams deflected the current to the main channel, while eddies behind the dams trapped sediment. Over time, these forces narrowed and deepened the river.

Minnesota. By 1892, the quantity of lumber expelled from Wisconsin's tributaries began declining. While the mills at St. Anthony Falls soon exceeded the output from Wisconsin mills, by the turn of the century St. Anthony, too, began declining. Overall, 1.6 to 2.1 billion feet of lumber moved into and on the upper Mississippi river between 1892 and 1900. By 1909 mills on the river generated only one-quarter of the lumber they had eight years earlier. Of more than 100 raftboats plying the upper river in 1893, fifty remained in 1904 and only four in 1912. In 1915 the *Ottumwa Belle* guided the last lumber raft down the

Mississippi from Hudson, Wisconsin, to Fort Madison, Iowa. Timber's demise left the upper Mississippi river with no important commodity and for the next two decades Midwesterners would struggle to revive it.

Through his photographs, Henry Bosse documented an important era in Midwestern history. During this era the Midwest began moving rapidly from a pioneer territory to an established agricultural and commercial region. To complete this move, Midwesterners needed a cheap and efficient transportation system. They needed a Mississippi river that could carry

bulk commodities reliably to compete with railroads and keep rates down. For this reason, they had pushed Congress to pass the four-and-a-half-foot channel project and had initiated the river's transformation from a natural stream to one that has become increasingly controlled. Henry Bosse captured the transformation of the Midwest and the river. He recorded these changes not only as cold fact and not only as a government photographer doing his job. He did it as artfully as anyone of his time.



Henry Bosse's photograph of St. Paul's old High Bridge after it opened to horse-and-buggy traffic in 1889. Because the bridge offered easy access to the Cherokee Heights neighborhood, settlement of this section of the West Side began in earnest. A modern bridge replaced the old bridge in 1985. See article beginning on page 4. Photograph from the St. Paul District, United States Corps of Engineers.

R.C.H.S.
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