



State of Illinois  
Rod R. Blagojevich, Governor

Illinois Department of Natural Resources  
Sam Flood, Acting Director



*The*  
**CONTINUING JOURNEY**  
*of the*  
**HENNEPIN CANAL**



Illinois  
Department of  
**Natural  
Resources**

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# The Continuing Journey of the Hennepin Canal

As the new towns of Rock Island, Davenport, Burlington, and Dubuque looked to similar towns in the East in the 1830s, they saw what power the canals then being built had to transform villages into industrial cities. They were also aware of how close the Illinois, Rock, and Wisconsin Rivers came to connecting with Lake Michigan and the Great Lakes traffic. It was natural that commercial interests in these towns should push Congress to consider canals between these rivers and the lakes.

A decade later they saw visible proof of the power of the canal close at hand. In 1845 Chicago had a population of 12,088; when the Illinois and Michigan Canal was completed in 1848, connecting Lake Michigan at Chicago with the Illinois River, the population grew to nearly 20,000 as the Canal brought new commerce in grain, cattle, and hogs.

There was every reason to believe a connection with the Great Lakes might do the same thing for the Mississippi Valley. Consequently, steady pressure for such an improvement developed and remained strong. Congress authorized surveys of the Rock and Wisconsin Rivers in 1866, but both these rivers presented too many problems. Pressure then grew for a canal to connect with the Illinois and Michigan Canal. In its planning stage this came to be known as the Hennepin Canal. To increase the national image of the Canal and decrease its local connotations, the name was changed in 1888 to the Illinois and Mississippi Canal.

Unfortunately, by the time the Canal was finally authorized and built, the day of the canal was long over. The Illinois and Mississippi Canal never came close to reaching the expectations of its proponents. It was a case of too little, too late.

The first recorded interest in a canal between Hennepin, on the Illinois River, and Rock Island came in 1834 at a meeting called at the Court House in Hennepin by a local citizen,

Augustus G. Langworthy.<sup>1</sup> At that meeting Jacob Galer of Geneseo, Illinois, reported on a personal survey he had made:

*In September, 1834, I took my blanket and gun and viewed the country through from Hennepin to the Mississippi River near Rock Island and thought it a natural pass for a canal as there was a depression all the way across with high land on either side. I reported my discovery but was much ridiculed for holding such ideas.<sup>2</sup>*

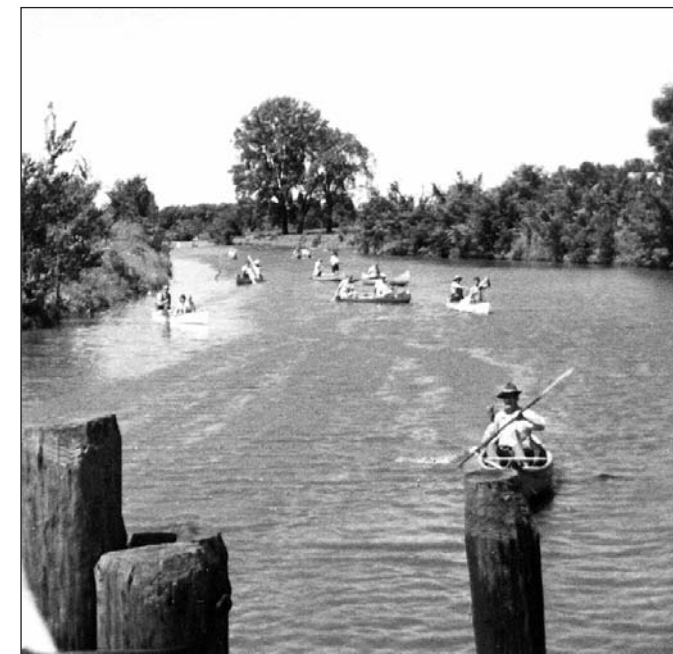
During the Civil War the need for such a route increased. England was none too friendly toward the North, and her control of access to the Great Lakes by construction of the St. Lawrence and Welland Canals caused concern.

On January 19, 1864, a meeting was held in Davenport, Iowa, of those interested in a water route to the East. A committee was appointed to secure an appropriation from the Iowa Legislature for a survey.<sup>3</sup> Another survey was called for in 1866 by the Geneseo Canal Convention. But the first survey made of the route was made by a civil engineer, J.O. Hudnutt, from subscriptions taken up by the citizens of Dixon.<sup>4</sup> Hudnutt estimated that a 60-foot channel with a 6-foot depth running 70 miles from Hennepin on the Illinois River to Watertown on the Mississippi, with a feeder to Dixon, would cost \$4.5 million.

On July 23, 1870, a Colonel Wilson was ordered to make the first federal survey for a canal from Hennepin to the Mississippi generally following the lines laid down by Hudnutt. The sum of \$12,000 was appropriated. Civil Engineer Gordon P. Low began this survey at Henry, Illinois, on September 5. Low's report contained plans for a canal 160 feet wide and 7 feet deep with 350-by-75-foot locks at an estimated cost of \$12.5 million. Congress authorized a survey for a route all the way to Lake Michigan in 1874. This was to include a canal between the Illinois and Mississippi Rivers. District engineers completed only the Illinois



*Two "eras" overlap with the horse drawn earth scrapers forming the Canal prism at Lock 5 while the iron horse steam engine brings materials to the workers at the lock.*



*Izaak Walton League canoe float near Lock 21. Fishing, hiking, horseback riding, bicycling, camping, interpretive programs, and other activities are also available.*



*Winter activities include cross-country skiing and snowmobiling.*

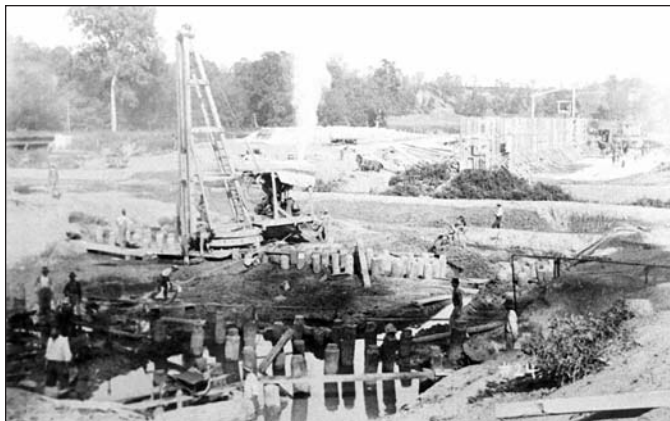
**Photos courtesy of the Illinois Department of Natural Resources' Hennepin Canal Parkway collection.**



*The work crew pushes cars on narrow-gauge railroad tracks to load a concrete mixer.*



*Many local men worked on the Canal for wages from 75 cents to \$2 day. Work camps housed men from out of the area, and hobo camps followed the work to earn enough money to continue their way of life.*



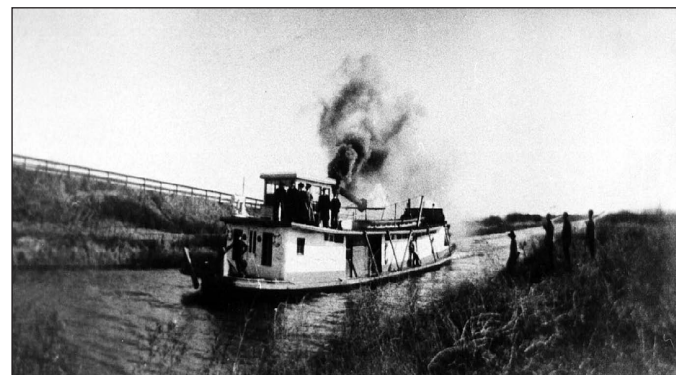
*Construction of Lock 4 and Aqueduct 1 west of Bureau on Brush Creek.*



*Construction on Culvert 41.*



*Sterling and Rock Falls celebrate turning water into the Feeder canal, October 24, 1907.*



*The Steamer Marion at Bridge 28 on the first trip through the Canal, November 13, 1907.*

and Michigan Canal portions of the survey, adopting the 1870 Low survey for the rest of the route.

Nothing came of these early surveys. During the next few years canal conventions were held throughout the area to lobby for canal authorization. Nine hundred people attended a convention at Rock Island on March 24, 1874. A similar convention at Rock Island a year later appointed delegates to lobby in Washington. Other conventions were held at Ottawa, Illinois, in 1879 and Davenport, Iowa, in 1881. This latter convention appointed a Hennepin Canal Commission which met at Chicago with groups from throughout the Midwest. The Commission created publicity stressing the national character of the project and got the Buffalo, New York, Board of Trade to pass a resolution in favor of the Canal.

A canal bill came before Congress in 1882. An original bill sponsored by the New York Board of Trade called for an appropriation of \$1 million, but this was killed by St. Louis interests who opposed the Canal. The bill that passed appropriated \$30,000 for another canal survey.

This survey was carried out in 1882 by Major W.H.H. Benyaurd of the Chicago District. From this point on, the planning and construction of the Canal came under supervision of the Second Chicago District. The completed Canal was transferred to the Rock Island District in 1911 when the Second Chicago District was dissolved.

Major Benyaurd's survey report submitted on March 31, 1883, recommended three possible routes from the Feeder canal northwest of Sheffield: the Marais d' Osier, the Watertown, and the Rock Island. Again, Congress took no action on this report.

In 1882 the state of Illinois ceded the Illinois and Michigan Canal to the federal government with the condition that the 97-mile Canal from LaSalle to Chicago be enlarged and maintained as a national commercial waterway.

The success of any canal to the west was dependent on improvement of the Illinois and Michigan Canal.

During the next three years the Canal project was supported by a resolution passed by the New York Legislature and by the Knights of Labor. In 1886 Congress appointed a Board of Engineers to examine routes and investigate the effect on commerce of a canal. The Board reported the benefits would exceed costs. Their investigation showed the Marais d' Osier ("willow marsh") was a naturally low area connecting the Rock and Mississippi Rivers upstream from Rock Island. During high-water seasons on the Rock and Mississippi Rivers, the Marais d' Osier (now called Meredosia) flooded to a depth that permitted steamboats going between the two rivers to bypass Rock Island. This route had no rock to go through, a soil easy to work, and half as many bridges as the Rock Island route. But the Board chose the Rock Island route because of its "greater military significance"<sup>5</sup> and because of commercial advantages.

Detailed plans and estimates for the Illinois and Mississippi Canal were presented to Congress in 1888. The plans by Captain W.L. Marshall routed the canal from the great bend of the Illinois River 1.75 miles above the town of Hennepin, via Bureau Creek Valley, Penny Slough, and the Rock River, to the Mississippi at the mouth of the Rock River, with a feeder from the Canal north to the Rock River near Dixon. Captain Marshall estimated the cost at \$6,925,960.6 The previous distance by water between Chicago and Rock Island (via the Illinois River) was 607 miles. The new Canal would reduce that to 188 miles.

The River and Harbor Bill in 1890 provided \$500,000 for the Canal project, but it limited expenditures to buying the right-of-way and to construction of the 5 miles of canal just above the mouth of the Rock River, where most of the population was. In November, Marshall (now a major) and his assistants L.L. Wheeler and James C. Long began the work of locating

the Canal. One immediate problem was that the Chicago, Rock Island and Pacific Railroad was already there and had taken the best route.<sup>7</sup>

Land for the Canal was acquired as it was needed: the Milan section in 1891-1892, the Eastern and Western sections in 1893-1898, the Feeder section in 1896-1901, and the land inundated by the dam at Sterling in 1905-1906. The majority of the land--3,824.94 acres--was obtained under fee-simple title, and the remaining 1,449 acres (for Lake Sinnissippi at Sterling) under flowage easements.

Marshall, Wheeler, and Long located the final route of the Canal to begin just above Hennepin. From here it ran along the valley of Bureau Creek to the summit level 18 miles west. From the summit it went to the Rock River just above the mouth of Green River, then followed the bed of the Rock River to the rapids near Milan. Here it left the stream and arrived at the Mississippi at the mouth of the Rock River, a total length of 75 miles. The feeder extended from the Rock River at Rock Falls to a point 29.3 miles south, where it met the main line.

For construction purposes the Canal was divided into five sections: Eastern, Western, Feeder, Rock River Pool, and Milan. James Long had local charge of the Eastern Section; L.L. Wheeler supervised the Feeder, Western, and Milan sections; and the Rock Island District supervised the improvement of the natural channel of the Rock River Pool.

The Milan section was to contain two



*The engineering staff, Milan, 1891*

dams and three locks. The traditional facing for such structures was cut stone, but recently several European countries had begun to experiment with artificial stone made of concrete. In 1891 Major Marshall requested that the structures at Milan be used to experiment with concrete construction because it appeared to be stronger and more durable, and less than half the price of cut stone. Marshall pointed out that the economy of concrete would permit a 5-foot increase in the width of the locks. Permission was granted on May 11, 1891, with the locks increased to 35 feet. This pioneering use of Portland cement by Marshall and Wheeler revolutionized the construction industry and set a new pattern for canal construction, especially at the Panama Canal project. Innovations in construction included not only the use of concrete, but in methods of application. The concrete for arch culverts was mixed by hand according to existing practice. But the concrete for the lock walls was mixed by machinery and put in place by workmen working three shifts a day until each wall was complete.

Work began on the Milan section in July



*Callahan's Orange Peel dredges*

1892. L.L. Wheeler turned the first sod with a spade which is now in the Davenport Museum. Wheeler established an Engineer Office in Milan to supervise both contract and hired work. The earthwork and lock foundations were built under contract, while most of the lock superstructures, including those at Milan, were built with hired labor. The earthwork was completed

it for recreation. The old gates were removed and replaced by concrete headwalls to maintain a 5-foot channel.

On August 1, 1970, the state of Illinois assumed full ownership and responsibility for



*Bridge 10 and Lock 21.*

the Illinois and Mississippi Canal. It was officially renamed the Hennepin Canal Parkway. It has since operated under the jurisdiction of the Illinois Department of Natural Resources (IDNR) as a recreational corridor affording a variety of trail and water-related recreational opportunities.

During the 1970s, restoration and modification of the Canal continued through mutual efforts of the IDNR and the Corps of Engineers. Placement of the Hennepin Canal on the National Register of Historic Places occurred on May 22, 1978. In recognition of its significance as a cultural resource, the IDNR also designated an illustrative 4.2-mile segment of the Canal between Lock 15 and Bridge 11 along the east branch of the mainline as a historic zone. Today the Canal's 1/4-mile by 75-mile strip serves as a most unique recreation area.

## Footnotes

1. L.L. Wheeler, "Construction and Operation of Illinois and Mississippi Canal, Lock at Rock Falls, and Movable Dam" (unpublished paper for second lieutenants who visited Sterling and Rock Island, Illinois, September 29, 1911), p. 1.
2. Jacob Galer, "An Old Canaller," *Geneseo Republic*, March 14, 1884, p. 3.
3. Clifford Stephens, *A History of Rock Island and Rock Island Arsenal from Earliest Times to 1954*, Vol. 1 (Rock Island U.S. Army Rock Island Arsenal, n.d.), p. 123.
4. *U.S. Army Corps of Engineers Annual Report*, 1883, p. 1755.
5. John Steinbach, "History of the Illinois and Mississippi Canal" (unpublished master's thesis, Illinois State University, 1964), p. 26.
6. U.S. Congress, House, *Illinois and Mississippi Canal*, Executive Doc. 429, 51st Congress, 1st Session, 1890, p. 2.
7. Steinbach, p. 26.
8. Major C. Riche to Chief of Engineers, August 13, 1907, Letters Sent, Chicago District, Rock Island District Historical Files.
9. Major C. Riche to Chief of Engineers, August 13, 1907, Letters Sent, Chicago District, Rock Island District Historical Files.
10. Major C. Riche to Chief of Engineers, January 2, 1908, Letters Sent, Chicago District, Rock Island District Historical Files.



*The park office at Hennepin Canal Parkway State Park at Sheffield welcomes visitors to the Canal today.*

### Most text from:

*"The Illinois and Mississippi Canal: A History of the Rock Island District Corps of Engineers 1866-1975,"* Chapter V, Ronald Tweet. Reprinted by permission of the U.S. Army Corps of Engineers, Rock Island District.

the Rock Island District.

Usage of the Canal was disappointing from the start. Event after event seemed to conspire against the project. When the Canal was begun, Rock Island had been the prime coaling station on the Mississippi River. Shipments of coal to Rock Island alone could have kept the Canal busy. But within months of the opening, the coal fields in central Illinois closed. The Morton Salt Company of Chicago projected making large shipments to the Mississippi, but the deteriorating conditions of the Illinois and Michigan Canal stopped that. Two grain elevators were built along the Canal in 1910, but the potential grain business never developed. In addition, the Canal opened just as a decline of river transportation everywhere had set in. Finally, in 1933, the state of Illinois and the federal government completed the Illinois River project from Utica to Lockport, with the same 600-by-110-foot locks as on the Mississippi. New barges were designed for this river traffic, not for the Canal.

Until 1933 the average yearly tonnage moved on the Canal was 10,000 tons. During that peak year 30,000 tons were moved, or 1/600 of the maximum planned capacity.

The Canal was always used as much for recreation as commerce. In 1911 the Rock Island YMCA was given permission to hold swimming classes in the Milan section. Fishing and picnicking became common as the Rock Island District attempted to make the Canal pleasant for area residents. The bare canal banks were planted with trees. In 1914 the District planted three bushels of catalpa seeds and nine bushels of elm in nine nurseries, and transplanted 560 walnut trees along the canal banks. During the 1920s and 30s the District sold ice-cutting rights on the Canal for \$43 per acre.

A brief chance for a new life for the Illinois and Mississippi Canal came with the River and Harbor Act of July 3, 1930, which provided for an examination and survey for a 9-foot channel from Janesville, Wisconsin, on the

Rock River to the head of the Canal feeder, then down the Feeder to the Canal, and from there to Rock Island. A preliminary report was filed the following year, but the final report submitted in 1939 was unfavorable.

The Canal experienced two periods of very depressed traffic in 1932-1936 and 1946-1951. By 1946 the Canal had deteriorated badly. During World War II International Harvester had used the Canal to ship its steel products from its plant on the Calumet River to its plant in Rock Island, but this operation ceased when the war ended. Operation of the Canal was severely reduced in 1948 to conserve the limited funds appropriated. It was kept open for all types of navigation on Thursdays and Fridays each week with prior arrangements made one day in advance. Commercial tows were permitted to go on other days with seven-days' notice.

By 1950, however, the condition of the Canal had so deteriorated that only 3.5 feet of water remained in the Rock River section, and 4 feet in the Feeder section, restricting the use to pleasure craft and lightly loaded barges. On June 30, 1951, the Illinois and Mississippi Canal was closed to traffic.

District engineers considered several methods of disposing of the Canal. They estimated that draining and abandoning the Canal would cost \$1.7 million, while putting the Canal property back to its original state would cost in excess of \$10 million. One possibility was the use of the property as a national or state park. The Canal was historically important as the last long stretch of canal in the United States, and it was ideally suited for boating and bicycling.

In 1953 the Illinois Legislature created a legislative commission of 13 members, known as the Illinois and Mississippi Canal and Lake Sinnissippi Commission. This Commission, reappointed every two years between 1953 and 1963, was to study possible recreational uses for the Canal.

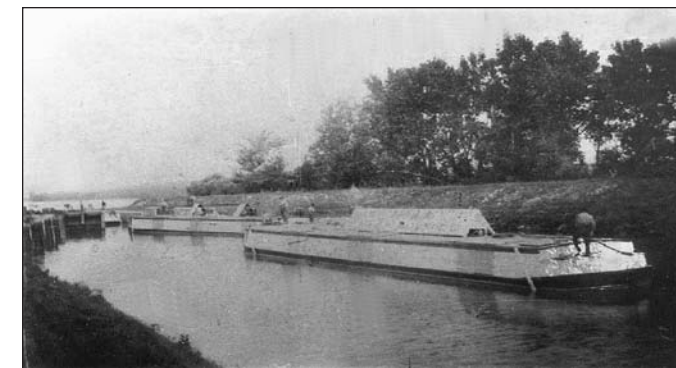
During 1961 the Corps of Engineers began modifications on the Canal to rehabilitate

in lots of 4 miles each, with each mile going to the lowest bidder for that mile. The earthwork along the Canal was done long before the gates and locks.

Contract work for the Milan section had been let in June of 1892, but on August 1 the 8-hour work law took effect, materially increasing the costs. The Chief of Engineers directed Marshall to rebid the contracts.

Work in the Milan section consisted of 4.5 miles of canal trunk, two dams, one guard lock, two lift locks, one railway drawbridge, one wagon drawbridge, one pontoon bridge, seven sluices, one culvert, three lock houses, and one office building. This section was finished and opened to traffic on April 17, 1895. The Canal had a 7-foot depth and a width of 52 feet at the bottom of the cut and 80 feet at the water surface. At the opening celebration for this section, Captain W.C. Clark, a river pilot from Buffalo, Iowa, prophesied that the Canal would not come to much. Not all of this was prophesy; Captain Clark pointed out that the Canal was already too small for a new generation of barges then being constructed for river traffic.

By fall the first coal from the coal fields of



*Coal was a major commodity transported on the Milan section*

central Illinois was coming down the Canal. On March 30, 1901, the Milan section of the Illinois and Mississippi Canal was transferred to the Rock Island District for maintenance and operation.

The Eastern section of the Canal proved

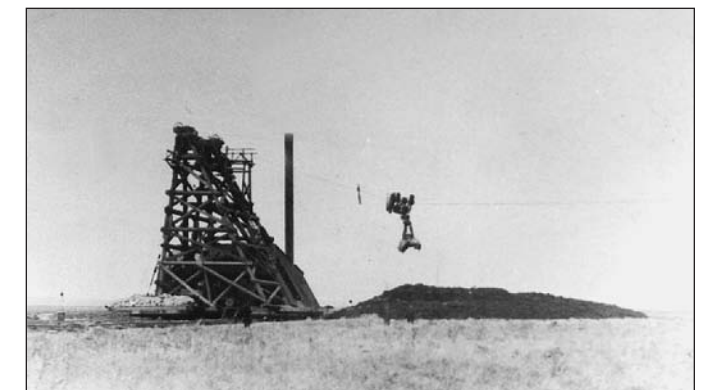
to be the most challenging. This section of 24 miles to the feeder at the summit rose 196 feet above the Illinois River and required 21 locks with lifts varying between 6 and 12 feet. Also, because of proximity to Bureau Creek, which



*Cableway buckets*

had to be crossed by three aqueducts, an especially high embankment was necessary. Between mile 20 and 23 a peat bog was uncovered beneath apparently good soil. After numerous problems with this soft, soggy ground, district engineers had to excavate the section by overhead cableways stretched between wooden towers 500 feet apart, using hired labor.

The Feeder section provided problems of



*North Tower Cableway*

a different sort. Work began on the Feeder after completion of the Milan section, with L.L. Wheeler in charge. Both Dixon and Sterling wanted the head of the Feeder located in their city limits for commercial reasons. Dixon had been the original site, but private citizens at Sterling raised money for a survey of their own. They presented this survey to the Secretary of War together with profiles and estimates, and they won. There were advantages to locating the Feeder at Sterling. It made the Canal shorter by 5.7 miles, did away with the need for a lift lock, required one less pivot highway-railway bridge,

and provided better control of flood heights.

As soon as the decision to locate the Canal feeder at Sterling was made, problems arose with the Sterling Hydraulic Company, a private power concern with a state charter, over use of the limited water of the Rock River, and the design of the Government Dam. Litigation continued for several years and was the subject of numerous reports. L.L. Wheeler, who had moved his office to Sterling to superintend construction of the Feeder, was caught in the middle of the fight. During most of the struggle the power company interests would not even speak to him. Finally, on December 6, 1906, the company and the government came to an agreement.

As soon as the agreement was effected, the Sterling Hydraulic Company approached Major C. Riche, District Engineer at Rock Island, asking to borrow the services of Wheeler to design and supervise the construction of their power station. Relations with Wheeler had been so strained, the representatives were too ashamed and embarrassed to approach him directly. This compliment was perhaps the best indication of Wheeler's ability as an engineer.<sup>8</sup>

Other complaints continued to plague the Canal project. Drainage involved in digging the Canal had lowered the groundwater in places. Farmers were able to plant on ground that was previously too swampy. When operation of the Canal brought the water table back up, this low ground returned to its original wet state. Even though the situation was not as bad as it had been before the Canal was built, the Corps of Engineers came in for a great deal of criticism for flooding fields.

People who pushed so long and so hard for the Canal before it was built seemed to have disappeared. In a letter to General Mackenzie (now Chief of Engineers), Major Riche complained:

*The canal work has been almost constantly annoyed by exorbitant claims of all kinds. It has been carried out thru a population almost hostile, so far as facilitating the work was concerned. The cus-*

*tomary course seems to have been to "hold up" the Government as far as possible. It is not improbable that the Secretary of War and his subordinate officers and employees may be enjoined from putting water in the canal after its completion.<sup>9</sup>*

Riche later requested watchmen to protect the Canal from vandals who had ceased annoying railroads in order to devote their entire attention to the Canal.<sup>10</sup>

On October 11, 1907, water was turned into the completed Canal for testing. Engineers



*Dam across the Rock river in rock Falls.*

were afraid that the embankments, having been dry for so many years, might develop cracks. But all went smoothly and on November 15, Major Riche reported the arrival of the U.S. Steamer Marion after having passed through the entire line of the Canal using steel guards to break the thin layer of ice.

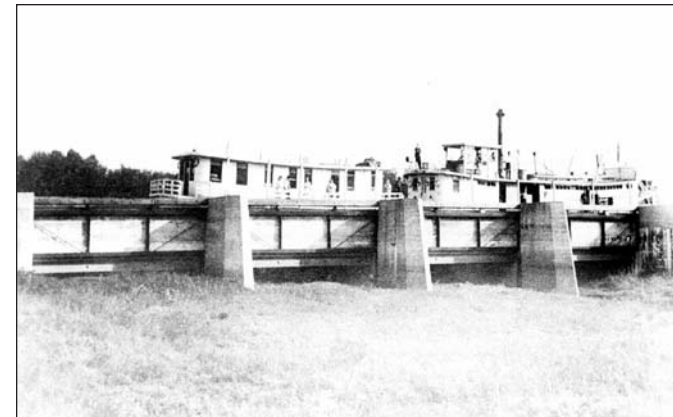
The Canal worked well from the beginning. After sediment had seeped into the minor cracks and stopped leakage, the whole Canal operation required only 1 cubic foot per mile per second to make up for evaporation, waste, lock-ages, and leaks.

The completed Canal contained 33 concrete locks with lock chambers 35-by-170 feet and walls 240 feet long and a top width of 4 feet. Ordinary miter gates placed at an angle of 70 degrees, 30 feet from the center line of the lock were used for all lower gates and for all but 14 upper gates. The remaining 14 were fitted with automatic gates with air chambers designed by Major Marshall. The locks, walls, piers, and aqueducts used 240,000 cubic yards of concrete.

Locks were filled by two tunnels, one

around each of the miter walls. A butterfly valve at the head of each tunnel was operated from the top of the wall by means of a hand wheel. There were similar valves for emptying the locks at the lower end.

Construction of the Canal required nine aqueducts at places where the Canal crossed



*The Rambler and the Marion passing in Aqueduct 7.*

waterways. These were of reinforced concrete from four to 10 spans of 35 feet each. Many bridges also had to be constructed by the engineers. The Canal was crossed by four different branches of the Chicago, Burlington and Quincy Railroad; by the main line of the Chicago, Rock Island and Pacific Railroad at three points; and once each by the Rock Island and Peoria Railroad, and the Peoria Branch of the Chicago and Northwestern Railroad. In addition to several pontoon bridges at farm crossings, the Corps built 67 highway bridges, most of which were the fixed type with a 12-foot clearance.

Total cost of the Canal and related structures to June 30, 1908, was \$7,319,563.39.

The Canal was operated by dividing it into sections of 4 to 12 miles each, under an overseer. Each overseer had lockmen and patrolmen under him and in summer a hired labor force. To provide housing for these men, the Corps built houses, barns, and equipment sheds adjacent to the Canal. A telephone system was also installed.

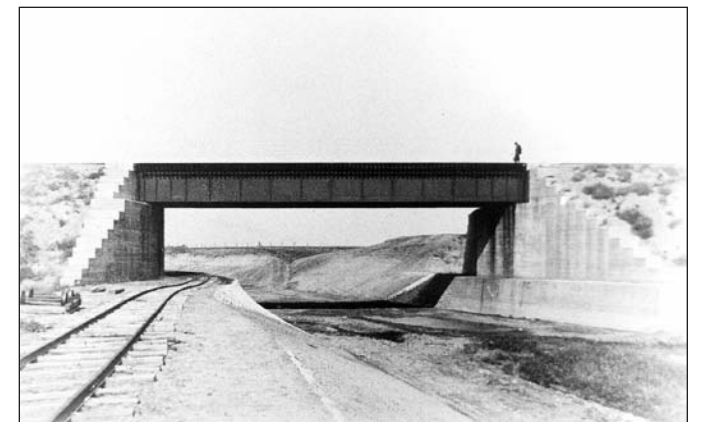
Major Marshall, who was in charge of the Canal when construction began, remained in



*Overseer and locktender houses.*

charge until December 31, 1899, when Major J.H. Willard assumed charge. Major Willard remained in charge until July 31, 1903, when the project was assigned to Major Riche. On April 20, Major Riche turned the work over to Major W.H. Bixby. Bixby retained charge until April 30, 1906, when he turned the work back to Major Riche.

At that time, Riche had been District Engineer of the Rock Island District since 1905.



*Railroad bridge crossing over the dry canal bed and the narrow-gauge railroad track used during construction.*

Major Riche remained as District Engineer of both the Rock Island District and the Second Chicago District. The duties of both offices were carried out primarily from Rock Island, although the Second Chicago District also retained a Chicago Office. On February 18, 1911, the Second Chicago District was dissolved and the operation and maintenance of the Illinois and Mississippi Canal was transferred to