

**BICKEL
NOTEBOOK
COLLECTION**

**BRIDGES &
RIVERS**

Covered Bridge on Dike Has History

This Served Once to Replace Span Knocked Out by War Eagle and Then Was Moved Piece by Piece to Its Present Location

THE KEOKUK, IA., GATE CITY AND CONSTITUTION-DEMOCRAT



Back in the early days in Keokuk, communication with neighbors in Hamilton across the river was by means of a ferry boat, and it was not until 1868 and 1869 that a bridge was built across the river to connect these two communities. During the Civil war returning soldiers to Keokuk were often forced to spend the night in their trains at Hamilton, because there was no way to cross the river except by daylight.

When the Keokuk and Hamilton bridge was erected in 1868 and 1869 it was a single deck structure, but in 1916 it was rebuilt, on the original piers, into a double deck crossing. At the east end of the dike, a covered bridge spans the slough at this point, and this bridge has almost as much of a history as the main bridge. For two years it was part of the big bridge, then it was taken apart and re-assembled to span the slough.

Dike, Old Road to Ferry.

When the ferry company was in operation, its boats left from the Illinois shore at a point near where the dike road makes its biggest bend. The crooks and turns in the dike were the result of changing stages in the water of the Mississippi. When the stage was low, and the ferry could not approach close to the Illinois side, the road was built out into the water. This winding road was purchased by the bridge company when the bridge was built and made part of the system.

The first stone for the piers of the new structure was cut by John

Young of Lockhaven, Pa., March 20, 1869, according to one old record. In 1870 this same record says that high water interfered with the completion of the bridge. The first record of a train crossing the bridge is April 19, 1871. The original bridge was promoted by Andrew Carnegie, Thomson, the Patons, Leighton and Theodore Gilman of New York, who seemed to feel that Keokuk was destined to become a great city of the middle west. They figured the cost of the structure at \$850,000.

Accidents on Bridge.

On July 4, 1871, records show that there were 1,050 foot passengers over the bridge, 474 two horse vehicles carrying 3,200 people and 120 one horse vehicles with 500 passengers. In April of 1876 three boats hit the bridge piers, the "A. D. McDonald," the "B. F. Weaver" and the "LeClaire." On October 14, 1881, the boiler of a Wabash switch engine burst on the bridge near the Illinois shore, with the noise of the explosion heard clear to Ninth street in Keokuk, one historian has noted. The damage was placed at \$500 to the bridge.

Then on November 4, 1881, came the accident to the bridge that stands out in the minds of old timers as one of the most serious, and which brought into existence the present covered bridge. The War Eagle became unmanageable in the current and swung against the bridge, taking out one of the spans, and damaging the boat. To

replace the span, a temporary one was built, while the original one was being refabricated. This temporary span served for two years, when the original span was put back, and the temporary one was removed.

Its pieces were numbered and it was placed in position in its present location.

No Cost for Boats.

Many people, the bridge company officials say, ask the question, "What does the bridge charge boats for letting them through?" There is only one answer of course to this—the channel was there first, so there is nothing for the bridge to do but to open and let the boats through. Each year a complete report of boats and barges up and down the river, which pass through the bridge draw is kept for records of the company.

A toll house at the west or Keokuk end of the bridge handles the collection of tolls from passengers, and the draw of the bridge is electrically operated from the control house located on the draw span. R. D. Edsell of New York, is the president of the company now owning the bridge, and James M. Fulton of Keokuk, is the superintendent. He succeeded John H. Cole, who was for years the bridge superintendent.

In 1926 the dike of the bridge was raised and covered with bitulithic surfacing. Only once since then has the bridge been forced to close during the dike high water.

DAILY GATE CITY
—FRIDAY, JAN. 11, 1952—

**18 Covered
Bridges Left
In Illinois**

SPRINGFIELD, Ill.—(UP)—Eighteen old-fashioned covered bridges ranging from 83 to 112 years old still stand in Illinois.

The state highway division, which located the ancient spans, says they are a "testimonial to the stability and craftsmanship of a pioneer era."

But time is catching up. Half of the bridges are in poor condition and the remainder from fair to good.

The state maintains a few of the bridges while others are maintained by local, township and county authorities.

The oldest of the bridges is over Henderson creek in the county of the same name. It was built in 1840, and, like the others, was hand-hewn out of timber and joined together with tree nails. The first roof over the bridge lasted about 50 years.

Three of the rustic spans are located in Brown county; two each in Bureau, Henderson, Sangamon and Warren and one each in Adams, Hancock, Knox, Pike, Randolph, Shelby and Vermilion.

All of the bridges were built at a cost of less than three-thousand-dollars each, in sharp contrast to

the multi-million dollar steel and concrete spans erected today.

Why the bridges were covered still draws many answers. The division says one answer given some credence is that the covering prevented horses from shying at running water. Another says it was difficult to drive cattle across open

water and the covering simulated a barn.

In reality, the division says, the covering protected the bridge proper from the elements and increased its life from 20 to 40 years.

THE masonry work on the Keokuk bridge is now progressing finely. One pier is already completed, another is eight feet above water, and soon a third will be showing itself above the surface. Four and perhaps five piers will be completed by the first of August.

7/8/1870

"THE GREAT DUST HEAP CALLED HISTORY"
E. L. BICKEL KEOKUK, IOWA



DAILY GATE CITY
ANNIVERSARY OF
COVERED BRIDGE
ON EAST DIKE
NOV. 5, 1936

It Was Fifty-five Years Ago Last Night That War Eagle Struck Bridge, and This Span Replaced Damaged One.

Fifty-five years ago last night, the War Eagle struck the draw span of the Keokuk and Hamilton bridge, knocking it into the river, and causing the boat to be beached at the shore as it was sinking. Today there is one concrete memento of that tragedy still in existence, although few people perhaps realize the significance of the covered bridge at the east approach of the Keokuk and Hamilton bridge.

This was the span which replaced the torn out span on the big bridge after the War Eagle rammed it. After the new span was put in place, the temporary span was taken down and numbered and transported on a barge across the river to the dike and then re-assembled on its present foundations. It has served about fifty years as the covered bridge, one of the few in this section.

Jerry Wood was the captain of the War Eagle and the pilot on duty that night was Beadle. The War Eagle was damaged to the extent of \$150,000. The Gate City of November 5, 1881, says:

"Captain Jerry Wood who was in command of the War Eagle said he was having her backed up to get out of an eddy above the bridge when the current whirled her against the bridge. She struck the bridge with terrific force, breaking the larboard wheel and knocking out one span of the bridge. The hull struck the pier and let the water rush in."

DAILY GATE CITY

COVERED BRIDGE ACROSS RIVER LAST OF KIND

FRIDAY, APRIL 22, 1932

The fifty-one year old covered bridge at the east approach of the Keokuk and Hamilton bridge, is believed to be the last of the covered bridges in this section, still in use, fire yesterday destroying the old bridge below Lima, Ill. This structure was said to have been built in 1851.

The bridge at the Illinois approach was built in 1881 after the War Eagle struck the Keokuk and Hamilton bridge and carried out the draw span. This covered structure was the temporary span which served for two years while the main span was being repaired. It was then taken down, piece by piece and transferred in 1884 to the present site where it has done duty since.

The Lima bridge was believed to have been set on fire by tramps. It was ninety feet long and sixteen feet wide. It spanned Bear creek and was not in actual use since the new steel and concrete bridge was constructed for the new state highway.



THE GREAT DUST HEAP CALLED HISTORY
BY BICKEL KEOKUK IOWA

Hamilton Would Like to Retain Dike for Recreation Purposes

In connection with their activities to assure the construction of a new and direct approach to the Keokuk Municipal bridge, Hamilton men are also working to preserve the old dike road for its recreational and scenic possibilities, Mayor John Buss has revealed.

The new bridge approach, approved by the Illinois highway commission, will come in a more or less direct route down the hill from Hamilton and by-pass the curving dike road which is subject to overflow and cuts off bridge traffic every time the Mississippi river reaches an 18-foot stage—an annual occurrence nowadays.

Used by Many Fishermen.

The old dike, however, not only offers many scenic possibilities but has been used for years by hundreds of Illinois and Iowa pole and line fishermen who find some of the best fishing on the river in the swift water below the dam.

In this connection the Union Electric Power Company is working to create a fish preserve in this area and, through the cooperation of the conservation officials of Iowa and Illinois, restrict this part of the river to pole and line fishermen and bar commercial activity.

Fish naturally work their way up stream into the swift water below dams where they find an ample food supply and, with all this water at their disposal, almost every freshwater variety except trout can be found—and caught, at least by the skillful.

200 Fishing Sunday.

Last Sunday, for example, more than 200 pole and liners were at their choice stations along the rip-rap of the dike—and they were pulling in fish.

With the new bridge approach, the Hamilton group would have no intention of maintaining the old dike as a two-lane road such as is the case at present, nor in keeping up the blacktop surface. Instead all that would be necessary would be a one-way travel road along the dike from the Hamilton shore to the foot of the bridge where a turn-around drive would be constructed.

When the new approach is built it will be impossible to get on the bridge from the dike because the bridge at that point will be seven or eight feet higher than the old road.



FROM AS FAR AWAY AS BUSHNELL, ILL., and even farther, come many pole and line fishermen to follow their favorite pastime from a point of vantage on the dike approach to the Keokuk Municipal bridge. This is one of the reasons Hamilton residents would like to retain the old dike when the new approach is built to the bridge. In the upper picture Ed Madison of Bushnell was testing his luck yesterday afternoon. The lower picture is another scene along the rip-rapped dike which is one of the most scenic spots in this party of the country —Daily Gate City Photos

This will make it necessary to build a circular drive at the end so that cars may be turned around for the trip back over the dike. Maintenance of a one-lane gravel road could easily be handled through Hamilton by the Miller Construction Co., Buss said.

Buffer for New Road.
In addition to its scenic and rec-

reational facilities, the old dike, as its name implies, will serve as a buffer against flood damage to the new approach which will reach the bridge over an elevated dirt fill.

Hamilton's plans for retaining the dike also call for the preservation of the old covered bridge, one of the few still remaining in this area and dear to the hearts of many persons, both in Hamilton and Keokuk. Under

the proposal it would remain as a part of the dike road.

W. A. Logan, president of the Keokuk municipal bridge commission, said this morning that he heartily approves the Hamilton plan and, once the new approach is built, sees no obstacles which would prevent turning the dike road over to such purposes.

Boundary dispute

**Bridge hot topic
in Press of 1893**

Would you believe "ye olde bridge" was a warm subject of dispute in May, 1893?

Among the property of her late aunt, Mrs. Hazel Ackley, 1810 Laurel found an old copy of the Hamilton Press, dated May 11 of that year.

The paper contained reprints of a Gate City article refuting a Carthage Gazette item backing Hamilton's claim on the bridge.

The Gazette cited a Supreme Court ruling establishing the

boundaries of states along navigable rivers as the center of the main channel.

Under such interpretation, Hamilton claimed all the portion of the bridge up to the main channel which was close to Iowa. It meant nine spans, instead of six of the 11, as the Gate City claimed.

A lengthy Press editorial credited the Gate City as "an ably edited journal," whose lawyer-trained editor was a "possessor of that rare faculty

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

KEOKUK & HAMILTON BRIDGE.

The First Crossing Made Yesterday.

DESCRIPTION OF THE WORK.

The subject of a Railroad and Wagon Bridge across the river at this point was first agitated in February, 1865, at which time articles of incorporation were drawn up and approved, under the name of the Hancock County Bridge Company.

In January, 1866, the present organization, known as the Keokuk & Hamilton Mississippi Bridge Company was incorporated.

Preliminary surveys looking to the location and construction of the Bridge were made in March, 1867, by Col. Otley, of the D. V. Road, assisted by Mr. J. S. Smith, under the direction of T. C. Clarke, Engineer-in-Chief of the Quincy Bridge. The idea was to get an estimate of the probable cost of the structure.

From this survey preliminary plans were made and submitted to the city authorities of Keokuk in 1868, upon which an Ordinance granting the right of way across the levee was passed and approved May 25th. Final plans, estimates and report were submitted by T. C. Curtis, Esq., to the Directors of the Keokuk & Hamilton Bridge Company in June, 1868. Then the prospect became a fixed purpose. The contract for constructing the bridge was let to the Keystone Bridge Company of Pittsburg, Dec. 6th, 1868, for \$350,000.

Mr. Smith, with his corps of assistants, came in the early season of 1869. He began surveys in March, continued until June. Then the bridge was definitely located. The terminal points are nearly the same as those determined upon in the Clarke survey.

From frequent accounts of its progress in the GATE CITY, our readers are familiar with the history of the enterprise from that time to the present. Its completion has been very materially delayed on account of the unfavorable stage of the water in the river during the first season. The first stone was laid on the 12th of August, 1869, and on the 19th of the same month the high water flooded everything, and interruptions and delays occurred all through the balance of that season.

At last, however, the structure is completed, and Keokuk can boast of the finest and most practically useful bridge that at present spans the Mississippi river. Within the past few days several attempts have been made to effect the first crossing, but owing to the high wind that has prevailed this was not

accomplished until yesterday, when a locomotive and train of cars from this side made a successful trip to the opposite side and back. The locomotive selected for the occasion was the "Iowa," Jake Colter, Engineer, belonging to the D. M. V. Road.

Attached to the locomotive were two passenger coaches. These were well filled with excursionists. Among the party were: Hon. D. W. Kilbourne, President of the Valley Road; Gen. H. T. Reid, President of the Bridge Company; Col. C. H. Perry, Vice-President; and Col. Wm. Leichter, Secretary; Col. John Givin, Superintendent of the D. V. Road; Gen. Bridgman, Secretary; Geo. E. Kilbourne, Paymaster; James Barker, General Passenger agent; Geo. Ogilvie, General Freight agent; Morris Sellers, Master Mechanic; C. M. Hicks, Chief Clerk, John Fyffe Walter Katte, Engineer of the Keystone Bridge Company; Joseph E. Smith, Resident Engineer of the Bridge; W. H. McDoel, of the T. W. & W. R. R.; Geo. W. Backus, of the T. P. & W. R. R., and a large number of our citizens. The excursion train left this side about 10 o'clock, stopped long enough on the other side to shake hands and chat a little while with our Illinois friends, and then returned, arriving here about half past ten. But one defect has thus far been discovered in the Bridge, and that was in a part of the patent pivot center which was broken into three pieces by the passage of the train over it yesterday. The pivot center in question is a large casting located in the middle of the draw span, and was furnished by a Philadelphia manufactory. This defect does not damage the bridge in any way. It simply prevents the operation of the draw for a few days until a new casting can be supplied. One has already been sent for, and it is expected that the delay will not be of any considerable length.

DESCRIPTION OF THE BRIDGE.

The Bridge has the longest draw span on the river; 160 feet on the square; 376 1/2 feet from center to center. Then there are two spans 250 feet each in the clear of the masonry; three spans 163-9 from center to center of piers; one span of 151-4, and four of 164 feet, 7 inches, center to center of piers. The pivot pier is 32 feet in diameter on top. The first pier, 7 feet by 29 on top and 10x51-9 at bottom. All the other piers are 6 by 29 at top and 10 by 51-9 at bottom.

There are thirteen in all including the pivot pier, the average height of which is thirty-five feet. They reach ten feet above the high water mark of 1851. The superstructure is 2,192 feet in length, and in width twenty feet in the clear. There is a wagon track of sufficient width to accommodate all kinds of vehicles on either side of the railroad track.

The passage way for footmen is not yet completed, but will be ere long. It will be five feet in width, and will be built on the outside of the superstructure.

The western terminus of the Bridge is at the foot of Blondea; the eastern at the depot causeway. At the time of the location the tide was upon this side, and the velocity nearly 5, decreasing to about 2, on the other side. The work done upon the canal has changed the situation entirely. The velocity is greatest upon the other side; and the bar that was there has been taken away.

The Bridge contracts the water way only about one-sixth. Length of dirt approach—embankment—on the west side 384 feet. The Levee opening is 20 feet on the square. Masonry wall approach of 211 1/2 feet to first pier. The eastern embankment is 750 feet long and 36 feet wide on top. On both sides the embankment is protected to above high-water mark by a substantial rip-rap.

The work has been done under the personal supervision of Mr. Joseph S. Smith, Resident Engineer. Mr. S. is a gentleman of experience, skill and ability in his profession, and under his management the work has been well and faithfully performed. He has been ably assisted by Mr. F. S. Kaufman, Foreman of the ten permanent spans; Mr. H. M. Shotts, Foreman of the draw span, and Mr. Frank Reeder, Machinist and Foreman of the steam engine and hydraulic works.

For a further description and history of the Bridge we refer our readers to Mr. Smith's detailed Report, which will be published in a few days.

P. S. Since writing the above we understand that the damage to the pivot center has been temporarily repaired, and that the regular passage of trains over the bridge will not be interfered with. Messrs. Sample, Armitage & Co. are making a new casting which will be put in in a few days.

THE GATE CITY.

KEOKUK, IOWA 1869

FRIDAY MORNING, JULY 16.

The Mississippi on the Rampage.

RAPID AND CONSTANT RISE.

DAMAGE TO THE RAPIDS IMPROVEMENT.

The rise in the river which commenced on Thursday continues with resistless force and a marked degree of regularity and rapidity. A very large area of real estate is now occupied by the "Daddy" of all small streams, which, though it may be legally within the limits of his jurisdiction, isn't used by him upon ordinary occasions. The ferry dyke on the opposite side is entirely submerged, and the water is within fifty feet of the depot building. The ferry boat Toledo, by a cir-

cutious route, lands teams and passengers within a stone's throw of Hamilton.

The river is now fourteen feet and seven inches above the low water mark of 1864, and a little more than six feet below the high water mark of 1851.

The rise during the twenty hours preceding noon of yesterday was one foot and seven inches, making a total rise of more than five feet. For the above information we are indebted to Mr. Ward, Assistant Engineer on the Keokuk & Hamilton Bridge.

The rise, although very rapid, has been very regular, the average being about one inch in every hour. The flood will be the cause of direct and indirect damage to the Rapids Improvement, as well as a loss to the contractors to a very considerable extent. In passing along the line yesterday morning we had an opportunity of surveying the works in their almost inundated condition. It would be impossible, however, for even a scientific eye to estimate the amount of damage that the rise will produce.

The water is overflowing and washing away the embankment along a very large portion of the line. The Nashville pit is out of danger, but work on it has of necessity been suspended. At the Sandusky pit the water had nearly reached the top of the guard embankment. Workmen were busily engaged in filling in with earth, to prevent, if possible, an overflow.

The coffer dam at the lower lock is wholly submerged, and the embankment will be very greatly injured by the powerful force with which the water passes over it.

One or two bridges have been washed away at the upper end of the North Road, but our friend Ed. Buell has been up there superintending repairs, which are being speedily made. It is expected that the trains will run through on to-morrow. Conductor Blackburn—a mighty good conductor he is, too—was at his accustomed post of duty.

The Des Moines bottom is in a state of inundation, and the water is running rampant in the streets of our neighboring town of Alexandria.

The bridges on the Valley Road which were swept away have been replaced, and a through train was expected last evening.

DAILY GATE CITY.

FRIDAY MORNING, JULY 2, 1875

Fencing the Dyke.

The Keokuk and Hamilton Bridge Company have recently fenced a portion of the dyke on the opposite side of the river. We understand that this action on their part has created the impression to some extent over there that it is purely spite work to prevent the people from bringing their teams to the east end of the bridge, hitching them in the open ground there and coming across the bridge on foot, a practice that has been indulged in to a large extent ever since the bridge was built.

We are told that indignation meetings

have been held, and that threats of tearing down the fence have been made. A few words of explanation will, we trust, place the matter before the public in the proper light.

The dyke, including the bridge over the slough on the opposite side, is the private property of the Bridge Company, it having been purchased with the franchise from the Ferry Company. Since then about \$20,000 have been expended in improving and keeping it in repair. It is as much a part of the bridge as the bridge itself.

Several accidents have occurred on the dyke and the Bridge Company have paid several heavy bills for damages. Only last week two of our citizens met with an accident, by which they narrowly escaped serious injury. The fencing of the dyke is therefore, essential to the safety of the public, as well as to the protection of the Company. It is neither fair or just that the public should use the property of the Bridge Company without paying anything for it, as has been done to a large extent, and still hold the Company responsible for any damages that may occur. It is the purpose of the Company, as soon as the material and means can be procured, to fence the entire dyke, thus rendering it perfectly safe from accidents. Besides this, the owners of the land lying along the dyke desire to enclose it as a pasture and it has been partially with a view to this that the fences have recently been erected.

The Bridge Company entertain no hostility toward the people of Hancock county, but they are compelled to protect their own interests and provide for the safety of the public. **JULY 2 1875**

KEOKUK CONSTITUTION

KEOKUK, SATURDAY, JANUARY 1875

COLE'S REPORT.

Facts Relative to the Keokuk and Hamilton Bridge.

J. H. Cole, superintendent of the Keokuk and Hamilton bridge makes the following report for the year 1871:

The season opened March 28th and closed December 31st, and will be long cited as one of almost continuous high water, closing with a before unknown stage of water in the fall of the year. July 18th the water stood 16 feet one inch above low water of 1879, and on October 30th, at 19 feet 7 inches above the low water of 1879, and within 23 inches of the great flood in the spring of 1851, which two floods mark the highest water ever known at Keokuk. The first ice appeared in the river Nov. 23d, but soon disappeared.

During the season the "draw" has been swung 2,746 times, admitting the passage of
Steamboats of all kinds.....2,746
Barges.....1,932
Rafts.....439

In comparing this, it must be remembered that the government was dredging in and below the canal, and that a large

per cent. of the increase over former years, is chargeable to that, although business of all kinds, particularly rafting, has shown a marked increase.

The War Eagle disaster, occurring at 7 p. m., Nov. 4th, was by far the most serious matter in the history of the bridge, as it not only destroyed the property, but interfered with trade already established to such an extent that some time will be needed to bring it back again to the old channels.

J. H. COLE,
Superintendent.

The Daily Constitution.

KEOKUK, IOWA :

THURSDAY, JAN. 28, 1875.

THE BRIDGE.

\$15,000 Appropriated to Assist the City to Build the Proposed Bridge Over the Des Moines River.

For the information of citizens of this city and of Clark County Missouri, who are anxious to know what action the Board of County Supervisors of this county adopted at the adjourned meeting at Fort Madison, yesterday, in reference to the application by this city for pecuniary aid to help the city to build a bridge across the Des Moines river—we state that the Board of Supervisors unanimously agreed to appropriate from the bridge fund of the county \$15,000 to aid the city to build the proposed bridge—the money to be paid in three instalments as follows: Five thousand dollars as soon as the stone piers upon which the bridge is to be erected are completed, five thousand dollars in Feb. 1876, and the remaining five thousand in Feb. 1877.

This statement is reliable. We are informed that it is the intention of the mayor to take steps immediately to ascertain from responsible bridge builders what it will cost to build a substantial iron bridge upon stone piers across the Des Moines river at the place the city council shall designate, with the intent to have the structure commenced at as early a day as practicable. We now consider it settled that the bridge will be speedily built.



ABBOTT BUGGY CO., CHICAGO, ILLS.,

Wholesale Sleigh Manufacturers of Wood Knee Swell-body Cutters Abbott's Patent Malleable Knee Portland and Swell-body Cutters, the strongest Sleigh in existence; also, Abbott's Patent Runner Attachments for Wheeled Vehicles, the only successful device of the kind made—fit any axle, have been perfected and are practicable. Wide Track for city use; Narrow Track for country use. For sale by

LOURIE, BOWMAN & BOYER,
Keokuk, Iowa.

THE GATE CITY

KEOKUK, IOWA

THURSDAY MORNING, JUNE 24, 1869

CITY NEWS.

The St. Louis Board of Trade and our Keokuk Bridge.

Report of the Committee Appointed to Investigate the Matter.

The Bridge, as Described by Capt. Griffith.

OPINION OF JUDGE CULLEN.

He Advises Against the Institution of Legal Proceedings.

From the St. Louis Democrat, of the 22d.]

There was a full attendance of the members of the Board of Trade last evening at the Southern Hotel, and business was put through with a deal of animation. The proceedings were opened by a report of the Committee sent up to Keokuk to examine the plan of the bridge now in process of construction there. Only two of the Committee visited Keokuk, namely: Captain Griffith and Judge Cullen, who reported as follows:

MR. GRIFFITH'S REPORT.

St. Louis, June 18, 1869.

L. R. Shryock, Esq., President St. Louis Board of Trade:

SIR: On the 10th instant, your delegation, appointed to report on the bridge proposed to cross the rapids at Keokuk, left this city and promptly commenced their duties.

DESCRIPTION OF THE PROPOSED BRIDGE.

The railroad bridge proposes to cross from Hamilton, Illinois, to Keokuk, Iowa, on a line oblique to the course of the river and conformation of the shores—in fact, seventeen degrees fifteen minutes divergent from a right angle, or directly across the river.

The line of the bridge between abutments, shore to shore, is about 2,191 feet; directly across would be about 2,100 feet; the original area or water space at, say medium stage (five feet at low water), was about 24,135 feet; the masonry of the bridge and adjuncts will reduce the same, say to 20,135 feet, a difference of 16 per cent., necessarily accelerating the velocity of the current. There are to be eleven piers, located in the river, giving 12 water passages; counting from the eastern shore, and measuring on the axis of the bridge, the width of the first four passages is about 106 feet 3 inches each; the next four about 154 feet 5 inches each; the next two about 244 feet each—all these permanent, continuous spans. The next and last two water passages are those provided for steamers and other large water crafts, and are spanned by the swing span, pivoting by means of a truck on a pier about 400 feet

long, the other piers being only about 56½ feet in length; the swing span, when closed, covering the two westernmost water passages, the extreme western end resting on the Iowa shore abutment; the width of these two water passages measured, at low water, on the line of the bridge, the line oblique to the course of the current, is about 167 feet 6½ inches; the lines of the slides of the piers being placed parallel with the line of the current, which there is tolerably straight, the width, if measured at right angles or directly across, give a measurement of nearly 161 feet. The width of the pivot or long pier is but little less than 17 feet.

It is to be noted that the measurement given of the ten eastern openings are on the line of the bridge, so that the line directly across, the true measurement, is necessarily shorter; the pertinent, main fact of obstruction I intend to confine to the two western openings, especially apportioned to navigation.

The drop, or distance from the lowermost, or bottom chord of the bridge, to high water mark, is ten feet; the depth of water at a low stage, approaching and through the eastern, the main draw passage, is but little over four feet. It embraces the course vessels usually follow; the velocity of the current during high or low water is always swift, rapid; at low water troubled with boils and wales; the depth of water insufficient for a rudder to attain power of leverage on; it is, in fact, the tail of the rapids.

In aid of this verbal description I submit a plat of the location, embracing shores and line of bridge, generously rendered by the bridge company.

The courteous attentions of the Keokuk and Northern Line Packet companies, who franked your delegation, were most commendable. General H. T. Reid, President, and Mr. Smith, resident engineer of the bridge, prepared and furnished you the map of the location, furnished all required data of their work frankly, promptly; untiringly aiding the delegation with kind, courteous, considerate attention. No information was denied or evaded; in personalities all was generous and commendable.

DISCUSSION OF POINTS AT ISSUE.

With regard to the effect the bridge will have on navigation, it will be greatly obstructive, highly dangerous. Crossing unfordable streams is undoubtedly vastly beneficial to the mass, the public; but in so doing it should injure navigation in the least possible manner; a vested, time-honored right should not be taken from any party without an equivalent, a compensation never taken unnecessarily. Since bridges can, have been, are thrown over navigable streams not materially obstructive to navigation, such only should be permitted.

Over the Ohio no bridges are now permitted which do not at low water mark provide a water passage of four hundred feet centering in the main channel, with a drop of fifty feet from the bottom chord to high water mark.

The upper Mississippi river is a superior river both in width and volume of water. Now and always the Father of Waters, are we right to ask that our navigation be protected equally with citizens using the Ohio? or are we and our interests of no import or consideration? Congress has granted untold millions of acres of the public domain to railroad corporations; by them sold; civilization is spread, industry increased, the public benefited, but is it just or wise that Congress should grant railroads any privilege whereby they may obstruct, injure, or even virtually destroy navigation, simply because a bridge materially, dangerously obstructive can be built cheaper than a bridge not materially obstructive, one that can be navigated with ordinary safety? The mere paucity of means is no more palliative, extensible than burn

ing down a neighbor's house to roast eggs for breakfast.

From the foot of the lock, down the shore, and through the west draw passage, will be eddy water. Some current pouring in on the west chamfer of the long pier, and spreading across the passage, more or less of the current will incline to the shore; it cannot be rapid. Near the foot of the long pier will be eddy water. Steamers and barges must enter the locks and debouche by this passage, a distance of pierage 400 feet, thence 750 feet to rear abutting wall of lock. Total, 1,150 feet, a cross current flowing over from the west chamfer of the long pier.

In the east draw, or main channel passage, the legal right of way, navigation, will be difficult and dangerous. The current, naturally rapid, will be greatly accelerated by the space taken up by the long pier. Sweeping along the sea wall of the lock, and violently precipitated against the east chamfer of the long pier, rebounding thence toward the side of the short pier, forming an eddy at the lower end of the long pier, at a different parallel, the chamfer of the short pier, next east, will throw its cross current in. The direction of the cross current and size of the eddies will necessarily vary with the velocity of the current and stage of water; incontrovertibly, there will be great risk, many losses and damages to vessels and their cargoes.

The subject of bridging navigable waters calls for prompt, energetic action. A law should be framed protecting the navigation of Western inland waters. As matters now stand, the Government improvements at the two rapids, even when finished, will be more than obliterated in benefit by the obstructive bridges now in existence. The Mohawk and her tow of barges, carrying 3,000 tons; lost over five days in working through the bridges; the rapids at that stage of water being wholly unobstructive, she could have, save for the bridges, safely taken down twice that amount.

If a bridge can legally cross a river at an angle of 17.15 degrees, what is to debar another from crossing at an angle of 77? what to debar building piers a mile long, or locating piers in the sharpest curve the current describes, or in any location most injuriously detrimental to public interest and navigation? why should Government expend millions to improve navigation, yet grant charters to obstructions which infinitely more than extinguish the value of the beneficial improvement? nay more, donate money to place a material obstruction in the river, in plain view of the Governmental improvements at Rock Island, endangering the safety of public property shipped from the United States armory at that location.

The general practice is to throw bridges across running waters at right angles with the current and shores, ranging the heads of the piers parallel with the axis of the bridge. Consequently, though the chamfers of the piers deflect the current from the pier sides, yet the same condition occurring on opposite sides, the effect is in a great measure compensated, equalized, when the current in immediate approach is uniform. Where the axis of the bridge is an oblique line from shore to shore, the current, in striking the chamfer of the pier highest up the current, necessarily rebounds toward the next pier below, forming a cross current, rendered still more difficult to control a vessel in by the cross current from the opposite chamfer coming in at a lower parallel of the water passage, rendering navigation more embarrassing and dangerous. Equitably, any obliquity in the axis of the bridge should be compensated by a much greater per centage, ratio of width of water passage, measured at right angles with the current. Bridging navigable currents obliquely is strange and unusual, and should not be permitted without liberal compensation.

At Keokuk the west bank is abrupt—abutting so closely to the water's edge that the bridge in run oblique to attain a curve at that bank, the curve now planned being as sharp as possible consistent with safety, rendering a low rate of speed and short train imperatively necessary, in fact, the location is most suitable for a high bridge with permanent spans.

Emphatically, the whole scheme, the nucleus of the plan, is to economize every dollar possible, accomplishing the same at an enormously disproportionate cost of public rights and interests, inflicting a continuous, onerous burden on millions, as long as the obstructive features of the bridge exists—unnecessarily so. Only bridges unobstructive to navigation are permitted over the Ohio. See to it that the same rule hereafter exists here.

What are the conditions of our bridges? That at Dubuque on a sandbar, with no terminate channel. Those at Clinton, Rock Island and Burlington, where the current curves in the immediate approach to the piers; that at Quincy, having not only a current curving in approach to the piers, but a shifting bar working down on it, now and always impedimental, none navigable during a strong side wind, each, all dangerous difficult to pass, unnecessarily delaying, impeding, endangering navigation; losses, damages occurring at all; every experienced pilot confessing that the dext voyage may possibly sink the craft under his charge. Have we equal rights with the people on the Ohio? or are wholly at the mercy of a mere pinch of individuals?

A bridge should be located where the current is slacker than the average velocity of the river. At Keokuk they locate on the tail of the rapids—should be located where the current is straight and uniform at all seasons of the year. At how many is this condition observed? Should have the heads of all piers on a line parallel with the axis of the bridge, that axis at right angles with the shores. Do any of them observe this condition? Should have one water passage centering in the channel four hundred feet between piers: should, as near as possible, in a reasonable degree, be safely navigable for all licensed craft, by day and by night, during wind or storm, when the ordinary part of the river is navigable. Should, as near as possible, be safely navigable as at that location before the bridge was built. Do bridge builders take these questions into consideration?

Let an act be drawn up regarding bridges, defining the conditions strictly necessary to preserve the right of free navigation on our rivers, and through our representatives continuously, unceasingly urge Congress to guarantee our just, equitable rights, till our most righteous purpose is accomplished.

Under monarchical governments the masses are onerously taxed, but any outside attempt to hamper the industry of the masses is promptly checked. Palpably it materially lessens the ability of the people to pay taxes, the tribute exacted by their rulers. Had not our rulers better weigh this point carefully? Cheap, bulky commodities are the medium by which our taxes are earned. Destroy water carriage, the cheapest possible transportation, agricultural, mining, manufactures droop, and we have little wherewith to pay.

Respectfully submitted as marine expert.

JAMES F. GRIFFITH.

JUDGE CULLEN'S REPORT.

Major Lee R. Shryook, President, and the members of the St. Louis Board of Trade;

GENTLEMEN: At your last meeting a committee of four was appointed to visit the city of Keokuk, Iowa, and investigate the proposed plan for building the railroad bridge, now in process of construction, to span the Mississippi river, and report the result of the examination to you.

Two members of that committee, Captain J. F. Griffith and the undersigned, at an early day, repaired to the point designated. Captain J. F. Griffith, by much industry, and the courtesy, of Generals Reid and Wilson, collected valuable statistical material, which he presented in his report. I take great pleasure in referring you to that report for all the details connected with the erection of the bridge. I found by the plan of the bridge shown us by General Reid, the President of the Bridge company, that the company intend extending their bridge from Keokuk, Iowa, to Hamilton, Illinois, spanning the Mississippi river.

The bridge is to be constructed so as to cross the river *obliquely*, diverging from a right angle 17 degrees 15 seconds. The piers are to be erected parallel with the current.

The law under which the company operates dated July 25, 1866, is silent in this respect—it does not declare that the bridge shall be at a right angle with the river, but by the rules of construction I am satisfied the law makers intended the bridge should be built in the usual way, and any hurtful deviation from the usual way, which is to cross at a right angle, will be a fatal deviation from the law, and will subject the structure to abatement as a nuisance.

The law requires the company to make the adjoining spans to the draw not less than 250 feet wide. By this plan the longest span is to be only 244 feet.

This is a violation of the letter of the law, and may subject the company to an action.

The erection of piers in the river, on which the track is to cross the river, diagonally, although the piers are built "parallel with the current," disinterested engineers assert, must cause greater obstruction to the navigation than if they are built in the usual way, i. e., at a right angle with the river; and, if such is the fact, they are illegal, and may be removed.

This oblique and unusual mode of crossing the river was adopted to enable the company to make a curve at the shore, thereby saving the expense of excavation on one side and work upon the other side of the river. It has been adopted in disregard of the ancient rights of the people in the use of the greatest highway of the nation—the commercial aorta. It is in principle an interference with the rights of the public to subserv the interests of a few private individuals.

Common sense, supported by the opinion of experts, convinces me that the precedent about to be made by the Keokuk Bridge Company, if followed by other companies, will seriously embarrass the navigation of the river. In this instance the deviation from a right angle is not very great, yet, if the principle be established or tolerated, where will the practice end?

The arm of the law might now successfully be invoked to stop the proceedings of the Bridge Company, and stop the erection of the pier, by which it is proposed to shorten the span adjoining the draw to 244 feet.

As I have been requested to state whether or not, in my opinion, legal proceedings should be instituted at once, I advise, for the present, against that step. The company may alter the plan and make the span the width required by law, and obviate the necessity of an action.

I do not advise legal action to prevent the Bridge Company from placing their piers diagonally over the river, because the establishment of the fact of their causing an "unreasonable obstruction" would depend on the opinion of experts, and when such is the case, it is easy to obtain almost an equal number of different scientific opinions. I do not wish to entail expense on your board unless I feel certain you can obtain the facts to apply the law to. The better course will be, it seems to me, in the event the company in-

creases the span to 250 feet, as the law directs, to wait until a disaster shall be the means of establishing the fact that the oblique bridge is more dangerous to navigation than one going directly across the river, and therefore an unreasonable obstruction. When that is the case the result must be in favor of navigation.

I believe, with my colleague, that the proximity of the bridge to the rapids and canal around them, will interrupt navigation very much, and it is strange Congress did not positively provide against that in the law.

The law is extremely loose, and shows great adroitness on the part of the friends of railroads, and extraordinary negligence on the part of the friends of the whole country and navigation especially.

The work on the canal at the rapids progresses slowly, for the want of sufficient appropriations by Congress. Gen. Wilson, of the United States army, an energetic officer, is very much embarrassed by the non-appropriation of funds, as he is anxious to complete the canal as soon as possible. The importance of its early completion is patent to every one, and needs no further commentary from your committee.

The most singular matter connected with the subject is, that Congress should propose to open the navigation of the Mississippi river, and at the same time permit an obstruction to be built at the end of its own improvements, as in this and other cases.

I have the honor to be, yours, very respectfully,

MATT. R. CULLEN,
Attorney at Law.

THE GATE CITY

KEOKUK, IOWA

FRIDAY MORNING, JUNE 25.

NAVIGATION AND THE BRIDGE.

We published yesterday, in full, the report of the Committee sent by the St. Louis Board of Trade to examine and report upon the location and probable obstruction to navigation of the Railroad and passenger bridge now being built across the Mississippi river at this place.

Had this Commission and consequent report been the offspring of mere captiousness, on the part of St. Louis, in its nascent but vigorous efforts to attract to itself by water lines the trade of the northwest, we should have no sympathy with it. We are no party to the suit of Water vs. Rail. One cannot supercede the other; the security of the public welfare is in the maintenance of both.

The Mississippi with its tributaries, the main water lines of the inter continent are chiefly North and South. Artificial transport lines, then, must meet the necessities and demands of East and West trade and travel. It must also be borne in mind, that the naturalness and importance of our inter-relations East and West are so marked that even in our Courts judicial cognizance is taken of them. The mass of freight East and West is vastly greater than that North and South. The amount of travel East and West is vastly greater than that North and South. This fact, so patent in this country, is not merely a local or temporary peculiari-

ty of our times. The philosophical historian finds that the development of the world from the beginning has been upon parallels of latitude, rather than upon meridional lines; has been East and West instead of North and South—men follow reversed the path of the Earth in its orbit. We can conceive of no time when trade and travel in this country will not be largely greater counter to the currents of our great streams than along the course of those streams. We must have highways East and West. We have these in the railroads. And railroads will never be less a necessity than now.

A complete competing system of railroads; the unobstructed navigation of our navigable rivers. That is what the material interests of the country require, and what the people should demand. In so far as the St. Louis Board of trade, without hostility to railroads, desires that no prejudice should be done to the easy and safe navigation of the Mississippi river, we heartily favor its precautions in watching the bridge being built here, and every other bridge that may be erected across a navigable river.

It is idle—it is foolish for the Government to expend money in ridding the river of natural obstructions, if railroad companies may at pleasure fill the river channel with far more serious impediments to navigation than those removed at so much expense of labor and money.

We are confident that Mr. Smith, Engineer, and Gen. Reid, President of the Bridge Company, will aim, in building the bridge, to make it as little as possible an obstruction to navigation. The people of Keokuk will demand that they do this. With no practical or scientific knowledge to fit us for the task, we shall not undertake here to discuss the correctness or erroneousness of the views submitted by Mr. Griffith in his report. We remit that task to the gentlemen building the bridge, confident that they will show that the objections of Captain Griffith are unfounded, or that they will change the plan of the bridge.

Thus much we may say, that the difficulties and hindrances to navigation, found by Messrs. Griffith and Cullen, in the proximity of the bridge to the lower line of the canal lock, have no existence in the opinion of Gen. Wilson's corps of engineers—gentlemen whose only interest in the premises is to do a good job for the Government, and to open the Mississippi at Keokuk to unrestricted navigation.

There is one cardinal and patently erroneous assumption in the report of Messrs. G. and C. It is that the river current is parallel with the shores at the place where the bridge is located, and that the obliquity of the bridge, as now designed, to the shores, necessitates obliquity to the current, and will beget eddies and cross currents. As technicalities, even of bridge building are not clear to the mass of readers, we will before saying more in this connection make this precise and definite extract from the lectures on Bridges, of Fairman Rogers, of the University of Pennsylvania. "The piers of a

bridge contract the water-way, and cause eddies and currents, oftentimes very disturbing to the navigation, and the engineer must endeavor to use as few as possible, with a due regard to the cost" (he should have said *safety*) "of the structure that he is designing. Modern practice has exhibited much fewer and thinner piers than were used by the ancient builders. * * * Where the current is swift the piers should be in its direction as nearly as possible, since any obliquity to the current will give rise to violent eddies, which serve still further practically to contract the water-way, as in the case of the Rock Island bridge, on the Upper Mississippi, at which the navigation, especially for rafts, is made exceedingly dangerous by such an arrangement of the piers."

So it is in the direction of the current the piers should be; parallel with it, not with the shores. The mistake made by Captain Griffith is his assumption—we say it again—that because the bridge does not go directly, but obliquely, from shore to shore, that the piers reflect the same angles to the current. The fact is, however, that the bridge is in obliquity as to the river banks in order to get it parallel with the river current. This cardinal point then in his report loses its force.

As to the diminished difference in the width of the spans we know nothing. We hope the "nominations of the bond" on that score will be adhered to the letter.

Mr. Engineer Smith is now at Kansas City, examining the bridge there, whose relation to shores and current is the same as that proposed here. He will there satisfy himself if there really be objections to the plan, and if so, he will make alterations in the plan of the Keokuk Bridge. He can build the bridge straight across, as suggested by Griffith, and save ninety feet of construction thereby.

DAILY GATE CITY.

WEDNESDAY MORNING, DEC 1, 1875

The Keokuk Bridge Company.

EDITOR GATE CITY: The numerous patrons of the Bridge Company were highly pleased the past summer when they saw that steps were taken by the company to fence up the dyke extending from Hamilton to the toll gate. But great was their surprise when they saw that the fence was first built up where accidents were least to be feared; that is, in the places where the dyke was on a level with the surrounding grounds, and not in the places where a runaway or a frightened horse might endanger the life of persons and the safety of vehicles.

The good people of the neighborhood did not know that the Keokuk Bridge Company cares a great deal more for the almighty dollar than for the life of its patrons. They did not know that the numerous accidents that have happened along the dyke for lack of a fence had not at all been taken in view by this Company. They did not know that the only thing that caused the Company to build a fence was

the hope of making a few more dollars by preventing the farmers from hitching their horses on the bottoms near the bridge and forcing them to cross with their team and pay fifty cents in many instances, when they would have crossed on foot and paid only ten cents.

They did not know,—the good people of Keokuk, Hamilton and vicinity,—that, this being the only aim of the Company, the fence would be built only in the places where no accidents could be feared and not in dangerous places.

But now they begin to see that it is a fact and they begin to talk about it. Moreover, we have been told by respectable people that one of our farmers having gone to Keokuk for a few moments, and having hitched his horse to the fence near the toll gate in an out-of-the-way corner, his horse was turned loose by the Superintendent of the Company. Although this fact was stated to us by a person of whose veracity we can not well doubt, we can hardly believe such a thing. The Superintendent of the Bridge Company, whom we have not the honor of knowing, must be a gentleman, and the scamp who turned the horse loose was certainly anything but a gentleman.

We think that if the Superintendent of the Bridge Company wanted to forbid the hitching of horses near the toll gate he would politely put up signs warning the people against it.

We are told, however, that the employes of the bridge at the toll gate have orders to turn loose any horses that are hitched to the fence. This seems to us so unlawful and improper that we would like to ask Mr. Griffin whether it is true or not that such an order was given, and whether he does not think that in case of an accident happening to the horse thus turned loose, he would not be liable to be severely paid back in return.

Enough of this. Permit us only to say that the Company will find that their fence will not pay, for a farmer who has fifty cents' worth of eggs or butter to sell, will prefer selling them in Hamilton to paying forty or fifty cents for toll.

The only thing gained by the Bridge Company in this affair will be the withdrawing of a little trade from Keokuk in favor of Hamilton, and the ill will and contempt of all those who have the bad luck of being patrons of such a Company. Let it be understood by the readers of this that the undersigned takes the whole responsibility of the above article. C. P. DADANT.

HAMILTON, Ill., Nov. 27, 1875.

DAILY GATE CITY.

SATURDAY MORNING, MARCH 20, 1875.

ITEMS IN BRIEF.

—The wages of the employes of the Keokuk and Hamilton Bridge Company have recently been reduced thirty-three and one-third per cent.

Notice.

The Keokuk and Hamilton Bridge Company having given notice to the undersigned, as Receiver of the Toledo, Peoria & Warsaw Railway, that unless a large sum of money alleged to be due to said Bridge Company, from said Railway Company, for tolls and deficiencies incurred in the operation of said Railway, for the year 1874, is paid by the end of the present week, said Bridge would be closed to the trains of said Railway Company; and there being no funds in my hands to make such payment—*Public notice* is hereby given that on and after the 21st day of March instant the use of the Keokuk and Hamilton bridge by the trains of the T. P. & W. R'y will be discontinued.

The freight and passenger trains on said road will leave Hamilton and Warsaw as usual, and freight will be received at the depot of the Company in Keokuk for all points East, to be carried by the way of Burlington. Arrangements have been made with the Omnibus Company for the conveyance of passengers and baggage to and from the terminus of the road at the east end of the bridge. A. L. HOPKINS, PEORIA, March 17, 1875. Receiver.

DAILY GATE CITY.

SUNDAY MORNING, MARCH 21, 1875.

The T. P. & W. and the Bridge Company.

CAUSE OF THE DIFFICULTY.

Receiver Hopkins' Statement of the Case.

Through an official notice published in yesterday morning's GATE CITY, our readers have already been advised that on and after to-day the Toledo, Peoria & Warsaw Railway will discontinue the use of the Keokuk and Hamilton Bridge, for reasons therein stated.

Receiver Hopkins arrived in the city yesterday morning, and with the view of ascertaining the precise facts in the matter, a reporter of the GATE CITY

called upon him at the Patterson House and requested him to state the case in detail. Mr. H. very readily complied with the request, and stated that he was anxious to have the public understand the situation, in order that the responsibility for their action may rest where it belongs, viz: with the Bridge Company. He says that some days since he was notified as Receiver of the T. P. & W., that unless certain sums of money, alleged to be due the Bridge Company for tolls and deficiencies were paid by the 20th inst., the Bridge would be closed to trains, of the Railway Company. This indebtedness amounting to between \$15,000 and \$20,000, is for tolls and deficiencies principally for the year 1873, for which the Bridge Company had accepted the notes of the Railway Company in settlement in 1874. The Railway Company is now and has been for the past year, paying its tolls monthly in cash. The January bill was paid sometime in February, and the February bill, amounting to between \$2,500 and \$3,000, will be paid in a short time. It is not, therefore, on account of any failure to keep up its tolls that the Railway Company is denied the use of the bridge, but for the purpose of compelling it to pay this old indebtedness. Mr. Hopkins says he considered the demand a very unreasonable one, and, as he had no money in his possession with which to pay off the notes, and no authority to borrow any, his only alternative was to discontinue the use of the bridge. Had the Railway Company failed latterly in the payment of its tolls, he should not have been surprised at the action of the Bridge Company. He proceeded at once to provide for the re-opening of the Burlington Branch, which had been abandoned because it was unprofitable, and made arrangements with the C. B. & Q. to carry its freight between Keokuk and Burlington. Except for this demand of the Bridge Company the Burlington Branch would not have been re-opened.

Mr. Hopkins states that the Company is doing a large business at this point, and that the action of the Bridge Company in denying it the use of the bridge will damage this business very materially. The course that he has pursued was the only one that was left him under the circumstances. He says the company will resume direct connections with Keokuk as soon as the Bridge Company will permit it to do so. Meantime the bus line will carry passengers to and from trains at the terminus of road at the east end of the bridge, and freight will be carried by way of Burlington.

This is the substance of Mr Hopkins' statement of the case, and from it the public will be able to get a correct understanding of the matter. The demand of the Bridge Company seems upon its face to be a very arbitrary and unreasonable one, and instead

of accomplishing the object sought, will result in the injury of all parties concerned, as the loss to the Bridge Company in tolls will be in the neighborhood of \$3,000 per month.

It is proper to state, in this connection that A. L. Griffin, the newly appointed manager of the bridge, had nothing to do with the transaction.

The order was issued from New York, and he had no knowledge of it until he saw the announcement in yesterday morning's paper.

Mr. Griffin started for New York last night, and will try to get the order revoked.

DAILY GATE CITY:

April 3, 1875

THE T. P. & W. AND THE BRIDGE COMPANY.

A BLUNDERING ATTORNEY THE CAUSE OF THE DIFFICULTY.

Probable Resumption of Traffic at an Early Day.

Mr. A. L. Griffin, Manager of the Keokuk and Hamilton Bridge, returned Thursday night from New York, whither he went on business connected with the recent breach between the T. P. & W. R'y and the Bridge Company. On his arrival in New York he discovered the situation to be about as follows:

Some time in January an attorney of the Bridge Company, named Crawford, who lives in Chicago, obtained from Mr. Carnegie, the President, a letter, instructing Mr. Cruger, the Superintendent of the Bridge, to obey orders from him, the attorney. It was not Mr. Carnegie's purpose to delegate to the attorney any power to interfere in the traffic of the bridge or annul any contracts that existed between the Railway Company and the Bridge Company, and never supposed for a moment that he would transcend his authority to the extent of denying the Railway Company the use of the bridge under any circumstances. But that attorney happened to be a smart Aleck. He knew how to run the Bridge Company's business better than the Company did it self. He would illustrate the interesting process of extracting blood from a turnip—a feat in legal legerdemain performed only by Chicago lawyers. So, without consulting the President of the Bridge Company or any one else, he sat down and wrote a peremptory demand upon Receiver Hopkins for the immediate payment of the old indebtedness of the Railway Company, which had been contracted long before Mr.

THE GREAT DUST HEAP CALLED HISTORY

Hopkins took charge of the Road, and which had been settled by notes, and had no more to do with the existing contract between the Railway Company and the Bridge Company than it had with the national debt. But the smart attorney didn't know that the Company could easily secure another outlet, and imagined that he could compel the payment of the indebtedness in question, notwithstanding he knew, or might have known, that the Receiver had no money with which to pay the claim. Mr. Hopkins adopted the only alternative that was left him under the circumstances, and abandoned the bridge.

The first knowledge that Mr. Carnegie had of what had transpired was conveyed to him by Mr. Griffin on his arrival in New York. Mr. C. immediately telegraphed to the Chicago attorney to revoke that order at once, and it was done.

From this it will be seen that the Chicago attorney acted without consultation or authority, and that by his blundering assumption of power that did not belong to him, he has involved the Bridge Company and the Railway Company in a needless conflict that will result in loss and damage to both by the interruption of business and benefit to no one.

There is therefore really no difference between the Companies when the matter is rightly understood, and it is to be expected that traffic will be resumed at an early day. Mr. Griffin has been authorized to act for the Bridge Co. in restoring amicable business relations. He started for Peoria for that purpose last evening.

DAILY GATE CITY.

WEDNESDAY MORNING, APRIL 14, 1875.

COMING BACK.

The Bridge Difficulty Settled.

And the T. P. & W. Will Commence Running Into Keokuk Again this Morning.

The traveling and shipping public and our citizens generally will be gratified to learn that the difficulty between the Keokuk and Hamilton Bridge Company and the Toledo, Peoria & Warsaw Railway Company, has been adjusted, and that the Railway Company will commence running its trains into Keokuk again this morning. Mr. George W. Backus, the Company's Agent at this place, received a dispatch yesterday from Mr. D. K. Smith, Assistant Superintendent of the Road, informing him of that fact and instructing him to hold all freight for his own Road.

The mail and express will leave here at 9:45 a. m. and arrive at 4:20 p. m.

We are not advised as to the terms agreed upon, but that does not matter.

The difficulty was, as our readers have already been informed, precipitated by a Chicago attorney, acting without authority or consultation. Mr. Griffin, the Manager of the Bridge, went to work with his accustomed promptness and energy to have the matter adjusted, and has, we think, brought about the desired consummation in a very short space of time.

The temporary abandonment of the bridge has been a source of inconvenience to the public and a loss to the Bridge Company, the Railway Company and the city, and it is a matter of general congratulation that the difficulty has been settled.

There is every probability that terms will also be arranged with the Wabash Road, and that that Company will also resume the use of the bridge in a short time.

DAILY GATE CITY.

THURSDAY MORNING, APRIL 15, 1875

HERE IT COMES.

THE WABASH WHEELS INTO LINE.

And will Commence Crossing the Bridge Again Next Week.

Mr. A. L. Griffin, Manager of the Keokuk and Hamilton Bridge, returned yesterday morning from Chicago, where he succeeded in securing a conference of all the parties to the recent controversy which resulted in the abandonment of the bridge by the T. P. & W. and T. W. & W Roads. He informs us that the matter was adjusted with all the different interests, and that the Toledo, Wabash and Western will also commence running its trains into this city over the bridge again next week. This will be another gratifying item of information to the public generally, as all the former traveling accommodations and shipping facilities will then have been fully restored.

Mr. Griffin deserves much credit for his promptness in bringing about a settlement of the difficulties, and securing a resumption of the traffic over the bridge.

The T. P. & W. commenced running its trains over yesterday, as announced that it would.

DAILY GATE CITY.

WEDNESDAY MORNING, JUNE 23, 1875.

CITY NEWS

THE DES MOINES RIVER BRIDGE UNDERMINED.—The recent freshet has so undermined the railroad bridge over the Des Moines river at Buena Vista as to render it impassable. No trains passed over it yesterday. We understand that the bridge has sunk about a foot in some places.

"THE GREAT DUST HEAP, CALLED HISTORY"
B. J. BICKEL KEOKUK, IOWA

TUESDAY MORNING, AUGUST 9, 1870.

OUR NEW BRIDGE.

Its Character and Progress.

THE STRUCTURE TO BE COMPLETED IN NOVEMBER.

"Are we ever to have a Bridge?" is a question that has been very many times propounded to us during the Spring and early Summer. Our own citizens, however, can no longer be in doubt on this point, or they should not be, having the daily evidence before their eyes of its rapid progress toward completion; but, for the benefit of those living at a distance, we will say, not only that we are going to have a Bridge, but that we are going to have it, completed in all its details, with rail, wagon way and footwalks, by the month of November next, and pretty certain in the forepart of that month.

The western approach to the Bridge commences in the track of the D. V. Road, near the foot of Main street, and curves to the right on a radius of 603.8 feet, or what is called a $9\frac{1}{2}$ degree curve, the length of which is 600 feet, and ends at a point in the retaining walls, before coming on to the Bridge proper. From this point a tangent of about 3,200 feet strikes into the T. W. & W. track on the Illinois side. The western embankment approach is completed, and well protected with carefully laid dry slope walls. On the face of the levee, and for the accommodation of traffic, there is a passage-way twenty feet wide on the square, and faced on each side with a massive abutment, both completed. The bridge for this small span is to be of iron, and we understand it is now being made in the forges of our enterprising townsmen, Messrs. M. Sellers & Co. This span leads on to the retaining walls of the approach, which do not lack more than a week's work of completion. These walls are about two hundred feet in length, and braced with substantial cross-tie walls at intervals of about nineteen feet, from center to center. This splendid pile of masonry is but in keeping with the rest of the work, which is massive and elegant in appearance. On the Illinois side of the river, the eastern approach is almost completed. The embankment has been raised up to grade, and a very few days work on the dry slope wall which protects it, will make it finished. This approach is 750 feet long, and is a rising grade to within fifty feet of the eastern abutment, a piece of masonry that reflects the highest credit on engineers and workmen alike, and presents a magnificent appearance from the river. Coming out into the river, we find one, two, three, four, five piers finished, standing

some 27 feet high above the present water level. Stark and grin they stand there with their sharp ice-breaker noses cleaving the old father of waters as he hurries along on his vast stretch down to the sea. Fender cribs are placed for two more piers and the masonry will be commenced on these in a day or two. The coffer-dam for the pivot pier is sunk and being puddled. The masonry will be commenced in it before the end of the week, and here we may say that there is an opportunity offered those of our citizens who do not understand the method employed by engineers for placing masonry solid on the bed of a swift and heavy body of water. The operation may, during this week, be observed from the eastern extremity of the retaining walls on this side of the river. The stone used in the bridge is furnished by the Sonora Quarry Co. It is an excellent magnesian limestone. A gang of stone cutters dress the stone at the quarries, whence it is shipped on flat boats and towed down the river and delivered alongside the piers. Steam power is applied to the hoisting derricks for raising the stone, and by this means the masons are enabled to lay upwards of 50 cubic yards per diem. From the Illinois side of the river the "iron men" are commencing the superstructure; one span is almost completely raised, and before the close of this week we expect to see their false works shoved forward to the next one. They will follow the masons close enough to be on their heels at the finish. The eight spans, commencing from the east end of the bridge, will be about 150 feet each in the clear, till about the middle of the river, where there will be two spans of about 250 feet each. Then comes the "draw" span, which will give 160 feet clear on the square between each side of the pivot pier and the "rest" piers. The superstructure is turned out by the Union Iron Mills, of Pittsburg, Pa.

The work is progressing carefully and rapidly, and we advise those who would ask, "are we ever to have a bridge?" to go down to the river and see what is going on. Mr. Quinn, the energetic contractor for the substructure, has a force of 160 men employed, and masons, stonecutters, carpenters, blacksmiths and laborers, are shoving work through their hands with a will. The "iron men," as they are called, are keeping things moving pretty lively too. It is creditable to the management of the contractors that so far there has been no serious accident to any of the hands employed, and creditable also to the hands themselves, when we see so many at work, often in squads so close together as to give barely elbow room, that there is so much harmony and good will amongst them. The first quarrel is yet to be recorded.

The intense hot weather of July and latter part of June has been very hard on all employed on the work, but they have

"weathered" it through without a single case of sunstroke or sickness.

The engineering is in good hands, pushing and energetic. Mr. Jos. S. Smith and his assistant, Mr. G. D. Ansley, will keep it "booming along;" and, from the care and skill employed, we are confident the Bridge will be an ornament to the engineering architecture of our country.

Upon the completion of the masonry work of the Bridge, yesterday, the workmen were jubilant and cheered vociferously—cheers that must have aroused some of our old fogies from the Rip Van Winkle nap which they have been indulging in of late years. Does the prospective early completion of the finest bridge on the Mississippi river signify anything? Does the fact that Keokuk is the terminus of four thriving railroads now in operation, and of three projected ones that are certain to be completed at an early day, indicate anything but growth and prosperity? Think of these things, and don't croak any more about Keokuk being a slow town.

The Daily Gate City.

SUNDAY MORNING, SEPTEMBER 4, 1870.

THE BRIDGE AND THE FERRY Co.—The question of right of way does not seem to be settled between these two parties. The ferry boat has, since low water, been running through the second span from the Illinois side, and now that Mr. Kauffman is preparing to raise the superstructure on that span, the ferry boat continues to run through it, claiming the right to cross the river at any place she pleases between her landings on either side of the river. Mr. Kauffman understands that he also has the right to raise his works on the line of peers as located. The misunderstanding is awkward, and should not exist at the present state of the works. Some folks seem to think that Mr. Kauffman should have blockaded the passage to the boat, but he chose to suspend operations until the question shall have been legally settled.

We are not sufficiently advised as to the facts in this controversy to say which party should yield, but a decision will probably be arrived at ere long through the proper channel.

KEOKUK CONSTITUTION

KEOKUK, MONDAY, AUGUST 28, 1882.

THE CITY.

—The new span of the Keokuk and Hamilton bridge now being made to replace that taken out by the War Eagle, is nearly ready to ship from Pittsburg, Pa.

THE BRIDGE.

The Last Stone in Place.

The stone work of the bridge was completed yesterday. The superstructure is going forward very rapidly. Work has already commenced on the pivot span, or "draw." If no delays should intervene the work will be pressed forward with all possible speed, so that ere many weeks this great structure, a model of engineering skill, and a monument to the enterprise of the railroad interests centering here, will be thrown open for the passage of trains, vehicles, and footmen.

Keokukians have watched with no small degree of interest the progress of this work, and when the last bolt is made tight, the last nail driven and the structure is pronounced finished, then should we celebrate the event in a manner customary on such occasions. We look back retrospectively to 1855. Not long ago to be sure. But then the only mode of crossing the river here was by an apology for a steam ferry which bore the title of "Salina." In those days the individual who would have even suggested that a magnificent bridge would in time be thrown across the river here would have been scouted as a fit subject for pity on account of mental derangement. But only fifteen years have rolled away, the "Salina" long ago has passed from service, almost from memory. Better boats for the ferry business,—perhaps the largest and finest of the kind on the river—took her place, but these will shortly be superseded by the bridge—the more modernized method of crossing streams. It is true, our city hasn't shot forth like an arrow to greatness, but we have been growing substantially, as the improvements everywhere indicate and as the business of the city surely exhibits. Fifteen years have done much for us, remembering that ten of those years are memorable for financial reverses the most terrible as well as for a civil strife which shook the nation from center to circumference. Surely we should not croak, and fret, and grumble, and make ourselves believe that "the good time coming" is not almost here, for the next fifteen years, if they be years of peace and prosperity to the nation, will bring to the Gate City of Iowa a large increase of population, of wealth and of commercial prosperity. Judging from the past ours is a hopeful future.

THE BRIDGE.

Formal Crossing to Take Place April 10.

The Bridge has so nearly reached completion that its progress is watched with the utmost interest by our citizens. The draw span is now about finished, except the work of locating the engine and laying the floor. The span east of the draw, which is the last one, is going forward rapidly.

Zeno Secor, President, and W. H. Cruger, Vice President, together with all the Directors of the T. P. & W. Railway, which road is largely interested in the Bridge, were in the city yesterday, and we understand that they decided upon the 10th day of April as the time for the first formal crossing.

We are also told that the occasion will be celebrated with a grand ball, to be given by our citizens.

The event will be an important one in the history of our city.

MAR. 24, 1871

Keokuk and Hamilton Mississippi Bridge Company.

NOTICE is hereby given that the undersigned have formed themselves into an incorporation under the general incorporation laws of the State of Iowa, under the corporate name and style of the Keokuk and Hamilton Mississippi Bridge Company.

The principal place of business of said Company is the city of Keokuk, in Lee county and State of Iowa.

The object of said incorporation is to build and maintain a railway, wagon and foot bridge across the Mississippi river at or near the city of Keokuk.

The amount of capital stock authorized is one million dollars, to be increased if necessary by a vote of the Directors, and to be paid in installments of not more than 10 per cent, and not oftener than one installment in 60 days.

Said incorporation is to begin on the 15th day of January, A. D. 1869, and to continue fifty years, and its affairs are to be conducted by a Board of seven Directors, which may be increased to nine, to be elected on the first Monday in June of each year.

Said Company may incur an indebtedness equal to not more than two-thirds of its capital stock. The private property of stockholders is exempted from liability for debts of the company, except to the amount of their unpaid stock.

- R. F. BOWER, H. T. REID, HENRY STRONG, JAMES F. COX, WM. LEIGHTON, D. W. KILBOURNE, GEO. C. ANDERSON, SMITH HAMILL, WM. THOMPSON, C. H. PERRY, H. K. LOVE.

At a meeting of said Company the following officers were elected:

- H. T. REID, President. GUY WELLS, Vice President. GEO. C. ANDERSON, Treasurer. J. H. BARKER, Secretary. Keokuk, January 16th, 1868.

THE DAILY GATE CITY.

DECEMBER 1, 1898.

BRIDGE BUSINESS.

Statement of the Passage of Boats, Rafts and Barges.

The business done at the draw of the Keokuk and Hamilton Bridge company has been figured up by the keeper of the records at the draw, James L. Wilson. The volume of business done has been large and especially so with the raft boats.

The number of times the different

packets went through the draw was 324 times, the Silver Crescent passing through 10 times, the Sidney 7 times, the St. Paul 6 times, the Quincy 26 times, the Dubuque 26 times, Mascot 44 times, Hock White 20 times, Van Metre 192 times and the Columbia passed 2 times.

The total number of times excursion and pleasure boats passed was 49 times, the Irene going through twice, Ottumwa Belle 20 times, Eva once, Wanderer twice, Flying Eagle 20 times and the Eddie and Ada once each.

There were 38 passages of tow boats through the draw. The Pilot passed through twice, the Vulcan once, the Zip McCoy passed once, the Innovater passed twice, the Comet six times, Josie four times, Artemus Lamb twice, the Monarch once, Climax 14 times, the Eillen twice, the Joe Long once and the Percy Swain twice.

The vessels of the government fleet made 615 trips through the draw. The General Barnard passed 12 times, the Lucia 98 times, the Louise 126 times, the Vixen 362 times, the Stella 6 times, the Lily 6 times, the J. G. Parke once and the Minnetonka and Mississippi twice each.

The ferryboats that passed through were the J. P. Gage once and the City of Warsaw twice.

The total number of times the raft boats went by was 690. The Will Davis passed through once, the Zalus Davis once, the J. K. Gray passed once, the Cyclone 37 times, the R. J. Wheeler 5 times, the Satellite 40 times, the Kit Carson 60 times, the George S. 66 times, the Bart E. Linchan 58 times, the Lafayette Lamb 8 times, the Bella Mack 21 times, the Mountain Belle 40 times, the Mary B. 68 times, the Lumberboy 58 times, the Hennepin 36 times, the Saturn 32 times, the Quickstep 43 times, the Inverness 28 times, the Pauline 6 times, the Lizzie Gardner 18 times, the F. Weyerhaeuser twice, the Lady Grace once, the Park Bluff 14 times, the Sam Atlee 4 times, the Reindeer 4 times, the J. H. Douglass 10 times, the Pathfinder 10 times.

During the season the draw has opened 1,716 times for boats to pass through between the opening and closing of the navigable season.

In addition to this number of boats passing through, 603 barges passed down stream and 611 passed up stream. Ninety-two rafts passed down the river during the season. This makes a grand total of 3,022 steamers, rafts and barges passing up and down through the draw. During 1897 there were 2,420 openings for boats, rafts and barges, there being 1,628 openings for steamers, 691 barges and 101 rafts.

This report shows an increase in the number of steamers and barges and a dropping off in the number of rafts passing, although the number of additions to the steamers and barges is greater than the number of decrease of rafts passing down.

THE GREAT WESTERN PAPER CALLED BY THE NAME OF THE DAILY GATE CITY, KEOKUK, IOWA

The Daily Gate City.

FRIDAY MORNING, MAY 19, 1871.

FORMAL TEST OF THE NEW BRIDGE.

The Result Satisfactory.

The formal test of the new Railroad and Wagon Bridge at this place occurred yesterday, under the personal supervision of Mr. J. S. Smith, engineer of the Bridge, and Mr. Pettit, one of the engineers of the Pennsylvania Central Railroad, who was sent here to represent the Railroads and capitalist's interested in the Bridge. The test was made with five locomotives belonging to the D. V. Road, as follows:

- No. 1, Keokuk, John Stoddard, Engineer.
- No. 3, no name, Geo. Kirkwood, Engineer.
- No. 19, Crawford, William Ferguson, Engineer.
- No. 20, Geo. B. Smyth, A. Carl, Engineer.
- No. 22, John Givin, E. Skinner, Engineer.

The average weight of these locomotives is about fifty tons, making in the aggregate something over 250 tons.

The test was made by placing the locomotives in different positions on the various spans until they reached the opposite side, and finally by running them all over together. The time occupied was something more than an hour.

Gen. H. T. Reid, President of the Bridge Company, and Col. C. H. Perry, Vice-President, were present to witness the test. A large number of our citizens also assembled to see the *modus operandi*. The test, we believe, was entirely satisfactory to all parties interested.

We are unable to give an official report of the test, as we had expected to do, on account of having been disappointed in procuring a copy of it.

The Daily Gate City.

WEDNESDAY MORNING, JUNE 14, 1871.

THE BRIDGE OPENING.

Wagons and Footmen to Cross to-day.

Trains commenced to cross regularly on the bridge yesterday. The first one over from the other side was the 10:50 a. m. passenger train on the T. P. & W. road, drawn by locomotive "Canton," No. 13. Mr. G. W. Backus, the agent of this road, was busy all day superintending the arrival and departure of the regular trains. There was increased activity on the levee. The appearance of the fine passenger coaches of the T. P. & W. road, attracted much attention.

Messrs. Barry & Browning shipped the first car of grain over the new bridge by this Road and the National Line to Baltimore.

Mr. J. S. Smith, the Superintendent, informs us that the bridge will be thrown open to the public this morning, so that vehicles and foot passengers can commence to cross at once.

The following are the rates of tolls, chargeable according to Ordinance No. 110 of the city of Keokuk, passed May 25th, 1868:

For each foot passenger.....	5 cents.
" hog or sheep.....	5 "
" head loose cattle.....	10 "
" yoke of cattle.....	25 "
" led horse or mule.....	15 "
" horse or mule and rider..	15 "
" vehicle drawn by 1 horse or mule.....	20 "
" vehicle drawn by 2 horses or mules.....	25 "
" vehicle drawn by 3 horses or mules.....	40 "
" omnibus drawn by 2 horses or mules.....	50 "
" wagon drawn by 4 horses or mules.....	60 "
For each additional horse, mule or ox attached to wagon or other vehicle.....	15 "

The Daily Gate City.

TUESDAY MORNING, APRIL 18, 1871.

HOW WE DIDN'T CROSS THE BRIDGE.—

The elements took all the blowing into their own hands when our Railroad Bridge was first crossed, and prevented the demonstration that was to have been. So the affair wasn't according to programme. But how could a poet, away down East, know that? He discoursed of it as it was to be. And his lines are worth giving here as an account of how our Bridge might have been crossed, but wasn't.

The following note, native to Keokuk, accompanied the poem:

"MR. EDITOR: A foreign poet, hearing of what was going to happen to us on the 10th, allowed the muses to get hold of him to the following extent. Though his gushing is somewhat at variance with the facts of the case, still it may be well to see what "might have been" if that poet had had the ordering of things." * * *

THE CHARGE OF THE D. V. ENGINE.

Dedicated to the First Train that Crossed the Bridge, drawn by the Des Moines Valley Engine, "Hugh T. Reid," at Keokuk, April 10th, 1871.

Half a span, half a span,
Half a span, onward;
Right through the Iron Bridge,
Rode the first hundred.
"Forward the Hugh T. Reid,
Charge for the draw with speed!"
Onto the Iron Bridge,
Rode the first hundred!
"Forward the Hugh T. Reid!"
Justly was it decreed
This mighty work to test!

No one had blundered.
Span into span did fit,
Rod unto rod was knit;
Loud was the praise of it,
As through the Iron Bridge
Rode the first hundred.

Engines to right of them,
Engines to left of them,
Engines in front of them,
Whistled and thundered;
Cheered on with shouts of pride,
Swiftly and bold they ride
Right through the Iron Bridge!
Safe on the other side,
Land the first hundred!

Flashed all the ladies' eyes,
Flashed, as they heard the cries,
Which seemed to rend the skies,
As through the Bridge they rush,
While all the town wondered!
Grand was the shout that broke,
When the "D. V." Engine's smoke
Floated o'er Illinois.
"These ties shall form a yoke
Ne'er to be sundered!"
Then they rode back, and more,
More than one hundred.

Engines to right of them,
Engines to left of them,
Engines behind them,
Whistled and thundered.
Cheered on with shouts of pride,
High o'er the waves, they glide
Safe through the Iron Bridge,
Back from the other side,
And O! the toots they gave—
Gave, the first hundred!

When can the glory fade,
Of that first trip they made,
While all the town wondered!
May they be well re-paid,
Who this grand Bridge have laid
High, the first hundred.

The Daily Gate City.

SUNDAY MORNING, APRIL 30, 1871.

THE KEOKUK SENSATION.

The Wonder of the Nineteenth Century!

From the Carthage Republican of the 27th.

The beautiful iron bridge at Keokuk is at last so nearly finished as to present in its general outline those admirable and grand proportions which will constantly be the wonder and pride of Keokukians. The great draw, which was temporarily deranged through a defect in its machinery, is now perfect, and works easily and smoothly, and the incomplete parts are being rapidly finished, so that but a few days, or weeks at most, must elapse before it can be said "It is finished!" and the satisfaction and pride of Keokuk will be complete.

This great bridge is the wonder of the 19th century—at least to the people of Keokuk—thousands of whom may be seen daily gathered at accessible points on the bluffs, canal and levee, gazing with wrapt admiration upon this huge and lovely creation of man's genius and handiwork. When the draw was first completed an attempt was made to pervert the object of the bridge by running a locomotive and train over it. This instantly met a stunning rebuke from the citizens of Keokuk, and no one has since exhibited the temerity to attempt a like liberty. Some rafts have attempted to

pass under the bridge, but they were very promptly smashed for their pains, and the contemplated insult was fully avenged. A few steamboats have exhibited the brazen effrontery to go through the draw, but the alarm in every such instance was duly sounded by a man with a tin horn, and thousands of excited citizens rushed to the bluffs and levee to witness if not oppose the daring feat.

The railroad men have had the assurance to request permission to run their trains over this bridge, but Keokuk, true to her dignity and renown, declined to have her property thus trifled with. In the first place the bridge is a grand and beautiful structure, built for Keokuk to sit upon the bluffs with folded hands and watery eyes to gaze upon forever! To run over it with cars would mar its beauty and debase it to ignoble purposes. In the second place, to run cars across the bridge would necessitate their crossing a portion of the beautiful park fronting on the river at Keokuk. This park is also one of the wonders of modern civilization. In some river cities it would be called a levee, and would be devoted to the ignoble uses of commerce. Not so at Keokuk. This elegant park or levee is to be laid out with serpentine walks, bordered with soft blue grass, redolent with flowers, shaded by gorgeous trees so arranged as to afford glimpses here and there of lovely vistas terminating at the bridge; statuary and fountains will be interspersed throughout this wilderness of quiet and vernal loveliness, and songs of birds (imported) will add a delicious charm to the bewildering beauty of the oriental scene!

Meanwhile, the railroad people will be permitted to build their depot on the Hancock county side, or at Warsaw, as suits their convenience, so long as they do not attempt to meddle with the great bridge, or dump their dirty cars on the sacred soil of Keokuk's grandeur. Those little unessential matters of trade, &c., are welcome to go elsewhere. Carthage, which don't go much on dignity and style, will take the most of it, and Burlington and Quincy will get the balance!

certainly removed, while connection with the B. & M. west—or the other roads east is more certain. Whatever may have been the burlesque references to the pride of Keokuk in the matter of this bridge, none of the several great highways spanning the Mississippi are more securely built or conveniently and beautifully designed. It crosses the current of the river at an angle of about 72 deg. 45 min., and has a total length of track of 3,569 feet, furnishing a safe transit for cars, teams and foot passengers. The sidewalks for the latter are supported on cast iron brackets, outside the masonry, affording a total width over all of thirty-four feet, corresponding with the superstructure of the main bridge. On each side of the railway track, through the center, is a wagon track. The entire floor is planked with oak, with tram rails for the tread of vehicles, thus keeping each line of travel in its own direction. The ties are of square iron, with a welded loop at the lower end passing around the pier. The approaches to the bridge are nicely macadamized, the eastern embankment being about 750 feet long and 30 high. Both approaches are fenced with iron railing and gates for closing the bridge to travel of all kinds—when the draw span is open for the passage of boats. The piers consist of fifteen pieces of masonry, 13 of which stand in the water, averaging 25 feet high, and are parallel with the thread of the current of the river, the main channel of which is on the Iowa side. The draw span from center to center of rest pier is 378 feet, leaving a clear water way of 160 feet, constituting the largest draw span on the Mississippi. The two adjoining fixed spans are about 256 or 257 feet each, leaving a clear water way of 250 feet for the passage of rafts; three spans are 162 feet each, one 151 feet, and three 164, and one to the center of each abutment of 463, making the total length of the superstructure about 2,180 feet. The posts are of wrought iron (Linville and Piper make), the intermediate ones resting on cast iron pedestals, with a gib-block between the pedestal and floor beams. The end posts rest on cast iron pedestals, and these on cast iron wall plates, extending across the pier. At one end of each span a set of rollers is placed between the pedestal and wall plates, to provide for the expansion of the material.

An idea can very readily be formed of the amount of labor required in the construction of crossings on the Mississippi, by a glance at the following quantities contained in this superstructure, which I was very courteously permitted to extract from an official report not yet published, viz:

Cubic yards of embankment in approaches	47,000
Cubic yards in dry slope wall in approaches	4,500
Square yards McAdamizing in approaches	4,700
Cubic yards of masonry in piers, abutments and approaches	9,100
Tons of iron in piers, pier rests, and protection to pivot pier	60
Feet B. M. oak and pine lumber in permanent works	200,000
Feet B. M. pine lumber in temporary works	300,000
Cubic yards of Crib filling	2,900
Tons wrought iron in fixed spans	1,174
Tons cast iron in fixed spans	548
Tons draw span	410
Feet B. M. oak lumber in permanent works	290,000
Feet B. M. pine lumber and shingles, permanent works	153,205
Feet B. M. pine lumber in false works in erecting spans	125,000

A week in Keokuk convinces me of the hospitality of the people of that ancient burg—which it seems has not been lost in their pride of office and dignified position. Although the city has been heavily burdened with debt, and thereby deterred from making many liberal expenditures for local improvement,

she is now on the road to an adjustment of her embarrassment, and is beginning anew. Improvements are the rule, rather than the exception.

THE GATE CITY

KEOKUK, IOWA

FRIDAY MORNING, JULY 9.

THE BRIDGE.—Mr. Smith, chief engineer on our prospective Railroad bridge, informs us that the plan for the structure has been changed so that the spans on either side of the pivot pier will be 250 feet in the clear instead of 244 feet as announced in the report of the committee appointed by the St. Louis Board of Trade to visit our city and investigate the matter, which report was published in full in the GATE CITY not long since. As this was the only violation of the law under which our bridge is to be built and the only foundation upon which the St. Louis Board of Trade could base a reasonable objection to it we are glad the change has been made. The spans when completed will be wider than those of any other bridge on the river. Mr. Smith also informs us that there isn't the least possible foundation for the belief that the bridge crossing the river as it will diagonally, will deflect the current so as to obstruct navigation in the leastwise, or in other words that the assertion on the part of the committee that such will be the case is all bosh. Mr. Smith deduces this conclusion from practical observations, The bridge which spans the Missouri river at Kansas City was built on about the same angle that it is proposed to build ours on. Mr. S. has been to that place for the purpose of determining whether or not this plan of constructing the piers will effect the current so as to cause any obstruction, and his decision is that it will not. These two objections were about the only ones the committee could find to our bridge, and as one has been legally and the other professionally answered, we presume no further effort will be made at interference.

The Daily Gate City.

THURSDAY MORNING, MAY 18, 1871.

THE BRIDGE TO BE TESTED.

Nine O'clock the Time.

Gen. Reid, President of the Bridge Co., informs us that the Railroad Bridge across the Mississippi will be tested at 9 o'clock this morning. It will be done under the supervision of Mr. Smith, Engineer of the Bridge, and Mr. Pettit, an Engineer of the Pennsylvania Central, to whom Edgar Thompson has delegated the trial on the part of the railroads. A train of locomotives will be used.

It will be interesting to the public to see how the great structure stands the work that it is expected to do.

The Daily Gate City.

SUNDAY MORNING, MAY 28, 1871.

KEOKUK AS OTHERS SEE US.

The following extract from the correspondent of the Davenport Gazette sets forth our bridge accommodations across the Mississippi with great clearness, and pays a handsome compliment to the hospitality of our people:

"At Keokuk the completion of the new Iron Bridge furnishes another link to the commerce of our rich valleys with the east, and renders the transit of freight and emigration over the Mississippi on the roads terminating at Hamilton much more convenient and desirable. The great traffic of those roads, (the Toledo, Wabash & Western; Toledo, Peoria & Warsaw, and C. B. & Q.) emptying into the lap of Iowa, either for Keokuk or to be continued over the Des Moines Valley Railroad, and distributed along the beautiful country and towns of this route; and of the Burlington & Missouri Railway intersecting the D. M. V. at Ottumwa, is very materially advanced by this structure. A great barrier to travel by way of Keokuk is now most

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

KEOKUK CONSTITUTION.

KEOKUK, MONDAY, OCTOBER 30, 1876

The Keokuk Bridge.

Judge Thayer of the Clinton Age was in Keokuk recently and inspected our bridge. He speaks of it as follows in his paper:

We spent one day last week at Keokuk and we took occasion while there to obtain all the information at hand about the wagon bridge across the river at that point. To say that we were surprised at the amount of wagon business done over the bridge would be putting it very mildly. Could the people of Clinton see and learn what we did that day, they would not be three days raising all the money necessary to build a pontoon at this point.

The bridge at Keokuk was opened for business in 1872. The railroad track is in the centre, and each side is planked for wagons. Teams can cross in both directions at once and not use any part of the railroad track. The distance from one gate to the other is about 3,800 feet. Everything about occupying the bridge by both trains and teams, is so systematized that neither are discommoded, but both are accommodated at all times. We saw a train of cars on the bridge and twenty-two teams, all at the same time—the teams following right in behind the trains, and the only delay at all is for teams wishing to go in one direction, waiting a few moments for a train going in an opposite direction. There has not been an accident on the bridge since it was built.

The first year the bridge was operated the earnings for wagon business was about \$10,000. The increase has been gradual, reaching last year about \$17,000, and the earnings for this year will come up to \$20,000. Of course these figures do not include the receipts for railroad business.

BIG MOUND, Jan. 9, 1870.

Dear Gate: Will you be so kind as to let us country folks up here in Cedar know a few days before the bridge is finished so we can go down to Keokuk and see the people of Suckerdom and the Hawkeye State shake hands. Truly, H.

The above will serve to demonstrate the fact that the interest manifested in our bridge is not strictly a local one but that the people along the Valley road as well as in other localities are watching its progress and looking forward to its completion with no small degree of eagerness.

We are glad to be able to state, in this connection, that Mr. Smith, the Chief Engineer, expects to finish the entire structure by the first of March; provided the weather and the river do not interfere with his present plans. The work is now being prosecuted with vigor. The spans are all completed except the draw span and one other. This latter can be finished in four days, in case the ice becomes sufficiently solid to form a substantial foundation for

the trestle work. It is estimated that there are yet but six weeks work upon the draw span.

The completion of the bridge will be attended with a big celebration, due notice of which will be given in the GATE CITY, so that all of our readers who choose can come and witness the union at this place by means of an iron band, of Illinois with Iowa.

The Daily Gate City.

THURSDAY MORNING, JANUARY 12, 1871.

BREAKING UP OF THE ICE.**DAMAGE TO THE BRIDGE.****The Lower Lock and Section Work Unharmed.**

On Tuesday evening between eight and nine o'clock the ice in the river moved down about two hundred feet, taking with it the trestle work which had been located for that span of the Bridge adjoining the "draw."

Yesterday afternoon about 3 o'clock the ice commenced to move out in a body. The result produced was somewhat tumultuous. Additional damage was done to the bridge, so that altogether the company will sustain a pretty serious loss.

The ice first commenced to break loose and pile up, above the bridge on the opposite side. Failing to get through the piers on that side, the entire mass was forced over to this side, and went through the draw span with a crash, tearing out ten bents of the trestle work on the upper side of the pivot pier. It is estimated that \$3000 will not repair the damage done to the bridge. This loss is much to be regretted, especially so since the company has already suffered largely by the eccentric freaks of the river.

The noise produced by the crash was heard in various portions of the city, and a large number of people assembled on the levee abutment to witness the breaking-up process.

The section work and lower lock of the Rapids Improvement escaped unharmed. The officers in charge put a force of about one hundred men at work on the lock yesterday morning, filling in with loose stone the places that were unprotected, and by this means prevented the ice from doing any damage.

The river has fallen more than four feet since the ice commenced to go out.

The ferry boat will doubtless be able to make trips to the other side to-day.

The Daily Gate City.

THURSDAY MORNING, MARCH 20, 1871.

THE DRAW SPAN OF THE BRIDGE SWUNG ROUND.**Keokuk and Hamilton Shake Hands.**

The announcement that the draw span of the Bridge would be swung round yesterday, attracted a large crowd of our citizens to witness the operation. Four o'clock was the time fixed for the event to take place. At that time the approach to the bridge was pretty well filled with spectators, beside quite a number who had gone down in carriages. Everything was got in readiness and at half past four the structure began to move. Slowly, but uninterruptedly it was swung round to its proper place. As the end of the draw neared the approach everybody was on the tip toe of curiosity to know the result. This curiosity was shared by the officers and employes of the Bridge Company, as well as by all of the spectators. The draw, we are glad to be able to announce, fit into its place with the utmost precision. There isn't the least discoverable discrepancy. Everything works like a charm. This is due to the superior skill and efficiency of Mr. J. S. Smith, Chief Engineer of the work, and his competent corps of assistants.

Just as the draw was swinging into place, two locomotives standing at the depot of the D. V. Road gave vent to loud and prolonged whistles as an indication of their delight at the prospect of an early crossing. The ferry boat, too, although conscious that its occupation is now practically gone so far as this particular locality is concerned, joined in the demonstration and whistled loud and long, thus recognizing the superiority of the Bridge and signifying its willingness to retire from the field notwithstanding it has performed active and valued service.

It seems that our friends over the river were also celebrating the event. After the draw had been swung round, several came from the other end, and some going from this end, Keokuk and Hamilton shook hands over the new bridge.

The span from one extreme to another is 384 feet in length. Through the center it is 376 feet and five inches.

Nothing remains now but the work of laying the track and floor on the draw span, to enable the first train to pass over. There is every prospect that the formal crossing will take place on the 10th of April, the time fixed by the officers of the Bridge Company.

The Daily Gate City.

THURSDAY MORNING, APRIL 13, 1871.

In our report of the Bridge yesterday morning we gave a partial list of those who have taken an active part in the construction of that work. Since then we have obtained the *personelle* in full, and as the list published yesterday was not altogether correct, we give it below, in order that our readers may know who superintended the building of the Bridge:

J. H. Linville, President of the Keystone Bridge Company, by whom all the plans of the work were designed, has also acted in the capacity of Consulting Engineer of the Keokuk & Hamilton Bridge Company.

Joseph S. Smith is Resident Engineer in charge of the sub-structure.

The superstructure was contracted to the Keystone Bridge Company, and erected under the supervision of the Engineer, Walter Katte, whose foremen are as follows:

F. S. Kaufman on the ten permanent spans.

H. M. Shotts on the pivot span.

Frank Reeder, Machinist for erecting steam and hydraulic apparatus.

P. H. Quinn was the contractor for the substructure, and we believe did his work to the entire satisfaction of the company.

The Daily Gate City.

SATURDAY MORNING, MAY 20, 1871.

THE NEW BRIDGE.

Official Report of the Formal Test Made on Thursday.

We were unable to give in yesterday morning's paper any official report of the formal test of the new bridge which took place on Thursday last, owing to the fact that it was not made out until yesterday. Through the kindness of Mr. J. S. Smith, the Engineer, we give our readers this morning a report in detail of the manner in which the test was made and the result of the investigation.

The test was made in the following manner: A locomotive was placed at one-quarter the span length, and the deflection over the whole span taken at three different points on the span at equal distances from each other. The span was then loaded one-half the length, three-fourths the length, and the entire length—the deflections taken in a similar manner each time.

The first span tested measures 159 feet 9 inches from center to center of end pins, and was loaded at the east quarter with one

locomotive, weighing 44 tons, equal to one and one-tenth ton per foot lineal:

East 1/2 deflection.....	1-4	inch.
Center do	5-16	do
West 1/2 do	9-16	do

Span half loaded with 95 1/2 tons equal to 1.19 ton per foot lineal.

East 1/2 deflection.....	7-16	inch.
Center do	11-16	do
West 1/2 do	14-16	do

Span three-quarters loaded with 147 tons, equal to 1.22 ton per foot lineal.

East 1/2 deflection.....	10-16	inch.
Center do	1	inch.
West 1/2 do	13-16	inch.

Span fully loaded with 153 tons, equal to .90 ton per foot lineal.

East 1/2 deflection.....	12-16	inch.	
Center do	1	1-4	inch.
West 1/2 do	1	5-16	inch.

The next span tested was the Eastern long span, being 253 feet 6 inches, from center to center of end pins.

Span 1/4 loaded with 68 tons, equal to 1.07 ton per foot lineal.

East 1/2 deflection.....	1-4	inch
Center do	1-8	do
West 1/2 do	1-27	do

Span 1/2 loaded with 147 tons equal to 1.16 ton per foot lineal.

East 1/2 deflection.....	9-16	inch
Center do	12-16	do
West 1/2 do	6-16	do

Span 3/4 loaded with 198 1/2 tons equal to 1.04 ton per foot lineal.

East 1/2 deflection.....	15-16	inch	
Center do	1	6-16	do
West 1/2 do	14-16	do	

Span fully loaded with 243 1/2 tons equal to .96 ton per foot lineal.

East 1/2 deflection.....	1	1-4	inch
Center do	1	11-16	do
West 1/2 do	1	1-4	do

The next span tested was the long span adjoining the draw, with five locomotives weighing 243 1/2 tons. The center deflection, which was the only one observed, was 1 12-16 inches.

These spans all returned to their former positions.

The draw span was then tested, the east half of the east side, being loaded with 95 1/2 tons, equal to 1.07 ton per foot lineal.

East side east 1/2 deflection.....	2-16	INCHES
" center " 	7-16	
" west 1/2 " 	1-16	
West side east 1/2 deflection.....	1-16	
" center " 	4-16	
" west 1/2 " 	1-16	

East side loaded with 178 1/2 tons, equal to 1 ton per foot lineal.

East side east 1/2 deflection.....	11-16	INCHES
" center " 	15-16	
" west 1/2 " 	11-16	
West side east half rose.....	1-32	
" center " 	1-8	
" west 1/2 " 	1-64	

Both sides loaded, the west 1/2 with 95 1/2 tons and the east side with 103 tons, total weight 198 1/2 tons.

East side, center deflection....	23-32	inch.
West do do do	15-32	inch.

The draw was then turned by hand, with

six men, an angle of 72 3/4 degrees in two and one-half minutes, and closed in the same time.

The rise of the west side of the draw-span, when the east side is loaded, arises from the fact that it is a continuous span when closed for travel.

The test was made by disinterested parties, and was entirely satisfactory in all respects. The level instrument was in charge of Mr. E. H. Worrall, the efficient engineer of the Section Work, and the rod by Maj. A. H. Burnham, engineer in local charge of the Rapids Improvement, to whom Mr. Smith and Mr. Pettit request us to tender their thanks for valuable assistance; also to Mr. James Lamb, the newly appointed Master Mechanic of the D. V. road, for the prompt manner in which the locomotives were provided for the test.

The spectators were not permitted either to go on the Bridge or ride on the locomotives. This restriction was necessary in order to ascertain accurately the weight used in the test.

This note of explanation is intended for the benefit of those present, who do not understand why the crowd was prevented from going on the Bridge.

The Daily Gate City.

SUNDAY MORNING, JUNE 18, 1871.

THE FERRY BOAT WITHDRAWN.—The ferry boat, which has been running since the bridge was thrown open to the public, was, on yesterday, withdrawn, arrangements for an amicable and final settlement between the Bridge Company and the Ferry Company having been perfected. The ferry dock on this side was towed above the bridge, in order to give steamboats the benefit of the levee in front of Main street.

The ferry boat, "Keokuk," will be put through a course of repairs, after which she will be used for a variety of purposes.

The ferry at this point is thus permanently abolished, and Keokuk is the first place on the river to have a bridge across the Mississippi that will accommodate all kinds of travel. While we rejoice in the possession of the bridge, as an improved and greatly advantageous method of transportation, we should not be unmindful of the valuable service which the ferry has performed in years gone by. The Ferry Company has been untiring in its efforts to serve the public satisfactorily. The ferry boat has frequently been run under difficult and even hazardous circumstances, and the officers of the Company are entitled to much praise for their persistent determination to operate the ferry whenever it has been within the reach of human skill to do so.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL
KEOKUK, IOWA

ANDREW CARNEGIE.
57 BROADWAY.

New York Sept 18th 1872

Mr Lighter Esq
Via Post

My Dear Sir
Mr Sample hands
us the enclosed as being in
accordance with our agreement.
- If so please have them properly
repacked & filed ~

Yrs
A Carnegie
Pres

THE GATE CITY:

WEDNESDAY MORNING, AUG. 23.

A Pleasant Trip.

Andrew Carnegie is a very familiar name hereabouts. The owner of it has made many visits to Keokuk. He is the principal owner of the iron railway and highway bridge across the Mississippi river here. He is one of the iron kings of Pennsylvania. He last summer took his mother—now seventy years of age—and a party of friends through England and Scotland at his own expense. At Brighton he engaged a coach and four with driver and servants and “for two enchanted months his friends and he were to roam over England and Scotland.” By request Mr. Carnegie told about the trip in one of the chief English monthlies, giving his present impressions of England. But “Octave Thanet” being of the party and a woman tells, in the Lippincott Monthly for September, the story of that trip with an entertainingness far beyond Mr. C. There were ten in the party. They left Brighton on the 17th of June. The trip was to Guilford, Eton, Windsor, Stoke Pogis, Reading, Oxford, Blenheim, Woodstock, Banbury Cross, Stratford-upon-Avon, Kenilworth, Coventry, Birmingham, Wolverhampton, Dovedale, Chatsworth, Burton, Manchester, Preston, Lancaster, the lake country, Dumfries, Ayr, Edinburgh, and so on to Inverness. It was better than an inventive fairy’s dream of travel. But the pleasantest incident in it all was this. Miss Thanet calls Mr. Carnegie, the Chief. So she says: “The climax of our journey came the day we left Edinburgh. We drove to Dunfermline, the Chief’s native town. He has a Scotchman’s ardent and tenacious affection for his birth-place, and some year’s before he had given free baths to the town; very lately he gave a free library. The town now welcomed him in a truly princely fashion. The provost and magistrates, heading a procession of the trades, pipes playing and banners flying, met the coach just outside the town, and escorted him first to the park, where the workmen presented an address of welcome, then to the library building, where his mother laid the memorial stone, and finally to St. Margaret’s hall, where the welcome ended in a banquet and a multitude of toasts. The town was ablaze with flags and mottoes and streaming ribbons, the American stars and stripes waving everywhere, even over the noble old abbey where the Scottish kings lie in their stone coffins. Bells were ringing, drums beating, people shouting. The Chief, taken by surprise, his sunburnt cheeks pale, and, as he afterwards confessed, a big lump in his

throat, could only bow right and left, while the crowd swarmed about the coach windows and a hundred hands were outstretched to grasp his mother’s. As for the rest of us, we felt a little like members of a royal progress and a great deal like a part of a circus.”

It is not given to many to realize in manhood the dreams and fancies of boyhood. But Mr. Carnegie did what many a healthy minded boy pictures himself over and over again to his own thought as doing. To leave his native place a poor obscure working boy, and then to go back to it in time, rich, well-known, a public benefactor and hero with his mother to witness and share his triumph is about the completest joy in life which even the exuberant fancy of the boy can invent.

THE GATE CITY:

WEDNESDAY MORNING, DEC. 20, '76.

FATAL FALL.

FRIGHTFUL ACCIDENT AT THE DES MOINES RIVER BRIDGE.

Three Men Fall a Distance of Eighteen Feet--One of them Killed and the Other Two Severely Injured.

A shocking accident occurred at the Des Moines river bridge, at Buena Vista, about 10 o'clock yesterday morning. The second span of the bridge is in process of construction, and three men named Wallace Smith, S. S. Warrington and Chas. Morley, all employes of the American Bridge Company, which has the contract for the bridge, were engaged in building a false work, preparatory to locating the span. The false work rested on the ice, and the men were standing on a scaffold or platform about eighteen feet in height. One of them was using a sledge hammer in driving something, and the theory is that the repeated blows from this displaced the support. At any rate, it slipped out and the false work fell, precipitating the three men to the ice below. Smith struck

UPON HIS HEAD

and was knocked senseless. Helingered about an hour and then expired without having recovered consciousness. The injury which caused his death was a blow on the head, but it is not known whether this was caused by coming in contact with the ice, or whether he was struck by one of the falling timbers. No examination was made, but it is thought that his skull was probably fractured. Coroner Stotts was notified, and summoning a jury, composed of T. V. Griggs, James Carroll and B. F. McIntyre proceeded to hold an inquest. The verdict of the jury was that the deceased came to his death by an accidental fall

from a scaffold of the bridge. His remains were brought to this city, deposited in the undertaker's shop of John T. Perkins, and will be buried to-day.

Smith was from Cleveland, Ohio, was a young man, unmarried and boarded at the Eagle House.

S. S. WARRINGTON

struck upon his feet and was badly injured. He was taken to the residence of L. O'Blennis, on the opposite side of the river, where, upon examination by Dr. F. D. Sanford, of this city, who was called to attend the injured men, it was found that both heel bones were broken, and that he was otherwise hurt. It is thought that he will recover, but he will be crippled for life. Warrington is from St. Joseph, Mo., and, we understand, has a family there.

MORLEY'S INJURIES

are probably less violent than those of Warrington. He was pretty severely hurt on the forehead, as well as upon the hip, but they are not considered of a dangerous character. Shortly after the accident he was removed to the American House, in this city, where he boards. Morley is a single man, and came from Leavenworth, Kansas. The disaster created the most intense excitement in that locality. The workmen on the bridge left their work and, together with the neighbors, rendered all the assistance possible.

The Daily Gate City.

SATURDAY MORNING, APRIL 15, 1871.

THE BRIDGE ALL RIGHT.—The Bridge is now all right. The new pivot center was put in its place yesterday and the draw swung round to its proper position. The damage has been repaired with the greatest possible speed. Messrs. Sample, Armitage & Co., of the Buckeye Foundry, where the new casting was made, had their force at work until twelve o'clock Thursday night, in order to get it completed. The large bolts, which were made at the car-shops of the Valley Road, were also put through with the same praiseworthy degree of rapidity. A force of men went to work early yesterday morning, and by four o'clock in the afternoon the new casting was in its place, and everything ready for crossing. A locomotive passed over shortly afterward, and brought back a train of empty stock cars.

The time for the regular crossing of trains has not yet been determined upon, but we presume that it will be before long.

Workmen are busily engaged in laying the walk for footmen, and in the course of a week or two everything will be in readiness for the uninterrupted crossing of teams and pedestrians.

The draw will remain closed all the time now except for the passage of steamboats.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

Seventy Years Old— THE GATE CITY AND CONSTITUTION

FIRST ENGINE CROSSED BRIDGE IN APRIL 1871

WEDNESDAY, JUNE 18, 1941

Keokuk was a thriving trade center supplied by several railroads for many years before agitation for a railroad and wagon bridge across the Mississippi river gained sufficient momentum for the construction of the bridge the city has now acquired.

Although it was projected in February of 1865 when articles of incorporation were drawn up and approved under the name of the Hancock County Bridge Company, it was not until Tuesday, April 19, 1871, that the first locomotive and cars actually crossed the river on the structure. And in the interim it had undergone two changes of name.

Surveys in 1867.

The original name, Hancock County Bridge Company, was soon abandoned and in January, 1866, an organization known as the Keokuk and Hamilton Mississippi Bridge Company was incorporated. In 1868, however, the word Mississippi was deleted and the company known merely as the Keokuk and Hamilton Bridge Co., the name which has existed until today.

In March of 1867, Colonel Otley of the Des Moines Valley road, was employed to conduct preliminary surveys for locating the bridge with the assistance of J. S. Smith and under the direction of T. C. Clarke, engineer in chief of the Quincy Bridge Company.

City Grants Right of Way.

As a result of this survey and

estimate of costs, preliminary plans were drawn up and submitted to the city officials of Keokuk in 1868 and on May 25 of that year, the council passed an ordinance granting the right of way across the levee. Final plans, estimates and reports were submitted by T. C. Curtis to the directors of the bridge company in June of the same year and the project was definitely under way.

The contract for construction was let to the Keystone Bridge Company of Pittsburgh, a Carnegie concern, on December 6, 1868, for the sum of \$850,000.

J. S. Smith in Charge.

Work on the structure was done under the personal supervision of Joseph S. Smith, resident engineer in charge of substructure; Walter Katle, in charge of erection of the bridge, assisted by F. S. Kaufman, foreman of the ten permanent spans; and Frank Reeder, machines and foreman of the steam-engine and hydraulic works.

At the time it was built, and for some time thereafter, the bridge had the longest draw span on the river, measuring 160 feet on the square and 376½ feet from center to center. The original description read as follows:

Original Description.

"There are two spans 250 feet each in the clear of the masonry; three spans 162 feet 9 inches from center to center of piers; one span of 151 feet 4 inches and four of 164 feet 7 inches. The pivot pier is

32 feet in diameter on top; the first pier 7 feet by 29 on top and 10 by 51.9 at the bottom. All the other piers are 6 by 29 at top and 10 by 51.9 at bottom. There are thirteen in all including the pivot pier, the average height of which is 35 feet. The superstructure is 2,192 feet in length and in width 20 feet in the clear. There is a wagon track of sufficient width to accommodate all kinds of vehicles on either side of the railroad tracks and the passage ways for footmen on the outside of the superstructure are 5 feet in width."

Remodelled in 1915.

Wagon, automobile and pedestrian traffic continued to share the one level passage with the railroads until 1915 when the bridge was remodelled to provide a new draw span as well as the elevated roadway for vehicular and pedestrian traffic. At the same time the present viaduct was constructed with its approach at First and Main street instead of at the foot of Blondeau as was formerly the case. The new draw was first opened on March 26, 1916.

The first passage of the bridge by a locomotive and cars was made on April 19, 1871, when an engine pulled two cars of bridge company officials and invited guests across the new structure. On this trip, however, the iron pivot center carrying the draw span was crushed by the weight of the train but a new one was substituted in a few days from the foundry of Sample, Armitage and Co. of Keokuk.

rated.

Preliminary surveys looking to the location and construction of the Bridge were made in March, 1867, by Col. Otley, of the D. V. Road, assisted by Mr. J. S. Smith, under the direction of T. C. Clarke, Engineer-in-Chief of the Quincy Bridge. The idea was to get an estimate of the probable cost of the structure.

From this survey preliminary plans were made and submitted to the city authorities of Keokuk in 1868, upon which an Ordinance granting the right of way across the levee was passed and approved May 25th. Final plans, estimates and report were submitted by T. C. Curtis, Esq., to the Directors of the Keokuk & Hamilton Bridge Company in June, 1868. Then the prospect became a fixed purpose. The contract for constructing the bridge was let to the Keystone Bridge Company of Pittsburgh, Dec. 6th, 1868, for \$850,000.

Mr. Smith, with his corps of assistants

came in the early season of 1869. He began surveys in March, continued until June. Then the bridge was definitely located. The terminal points are nearly the same as those determined upon in the Clarke survey.

From frequent accounts of its progress in the GATE CITY, our readers are familiar with the history of the enterprise from that time to the present. Its completion has been very materially delayed on account of the unfavorable stage of the water in the river during the first season. The first stone was laid on the 12th of August, 1869, and on the 19th of the same month the high water flooded everything, and interruptions and delays occurred all through the balance of that season.

At last, however, the structure is completed, and Keokuk can boast of the finest and most practically useful bridge that at present spans the Mississippi river. Within the past few

The Gate City.

WEDNESDAY, APRIL 19, 1871.

KEOKUK & HAMILTON BRIDGE.

The First Crossing Made Yesterday.

DESCRIPTION OF THE WORK.

The subject of a Railroad and Wagon Bridge across the river at this point was first agitated in February, 1865, at which time articles of incorporation were drawn up and approved, under the name of the Hancock County Bridge Company.

In January, 1866, the present organization, known as the Keokuk & Hamilton Mississippi Bridge Company was incorpo-

days several attempts have been made to effect the first crossing, but owing to the high wind that has prevailed this was not accomplished until yesterday, when a locomotive and train of cars from this side made a successful trip to the opposite side and back. The locomotive selected for the occasion was the "Iowa," Jake Colter, Engineer, belonging to the D. M. V. Road.

Attached to the locomotive were two passenger coaches. These were well filled with excursionists. Among the party were: Hon. D. W. Kilbourne, President of the Valley Road; Gen. H. T. Reid, President of the Bridge Company; Col. C. H. Perry, Vice-President; and Col. Wm. Leightor, Secretary; Col. John Givin, Superintendent of the D. V. Road; Gen. Bridgman, Secretary; Geo. E. Kilbourne, Paymaster; James Barker, General Passenger agent; Geo. Ogilvie, General Freight agent; Morris Sellers, Master Mechanic; C. M. Hicks, Chief Clerk, John Fyffe Walter Katte, Engineer of the Keystone Bridge Company; Joseph E. Smith, Resident Engineer of the Bridge; W. H. McDoel, of the T. W. & W. R. R.; Geo. W. Backus, of the T. P. & W. R. R., and a large number of our citizens. The excursion train left this side about 10 o'clock, stopped long enough on the other side to shake hands and chat a little while with our Illinois friends, and then returned, arriving here about half past ten. But one defect has thus far been discovered in the Bridge, and that was in a part of the patent pivot center which was broken into three pieces by the passage of the train over it yesterday. The pivot center in question is a large casting located in the middle of the draw span, and was furnished by a Philadelphia manufactory. This defect does not damage the bridge in any way. It simply prevents the operation of the draw for a few days until a new casting can be supplied. One has already been sent for, and it is expected that the delay will not be of any considerable length.

DESCRIPTION OF THE BRIDGE.

The Bridge has the longest draw span on the river; 160 feet on the square; 376½ feet from center to center. Then there are two spans 250 feet each in the clear of the masonry; three spans 162.9 from center to center of piers; one span of 151.4, and four of 164 feet, 7 inches, center to center of piers. The pivot pier is 32 feet in diameter on top. The first pier, 7 feet by 29 on top and 10x51.9 at bottom. All the other piers are 6 by 29 at top and 10 by 51.9 at bottom.

There are thirteen in all including the pivot pier, the average height of which is thirty-five feet. They reach ten feet above the high water mark of 1851. The superstructure is 2,192 feet in length, and in width twenty feet in the clear. There is a wagon track of sufficient width to accommodate all kinds of vehicles on either side of the railroad track.

The passage way for footmen is not yet completed, but will be ere long. It will be five feet in width, and will be built on the outside of the superstructure.

The western terminus of the Bridge is at the foot of Blondea; the eastern at the depot causeway. At the time of the location the tide was upon this side, and the velocity nearly 5, decreasing to about 2, on the other side. The work done upon the canal has changed the situation entirely. The velocity is greatest upon the other side; and the bar that was there has been taken away.

The Bridge contracts the water way only about one-sixth. Length of dirt approach—embankment—on the west side 384 feet. The Levee opening is 20 feet on the square. Masonry wall approach of 211½ feet to first pier. The eastern embankment is 750 feet long and 36 feet wide on top. On both sides the embankment is protected to above high-water mark by a substantial rip-rap.

The work has been done under the personal supervision of Mr. Joseph S. Smith, Resident Engineer. Mr. S. is a gentleman of experience, skill and ability in his profession, and under his management the work has been well and faithfully performed. He has been ably assisted by Mr. F. S. Kaufman, Foreman of the ten permanent spans; Mr. H. M. Shotts, Foreman of the draw span, and Mr. Frank Reeder, Machinist and Foreman of the steam engine and hydraulic works.

P. S. Since writing the above we understand that the damage to the pivot center has been temporarily repaired, and that the regular passage of trains over the bridge will not be interfered with. Messrs. Sample, Armitage & Co. are making a new casting which will be put in in a few days.

The Daily Gate City.

FRIDAY MORNING, MARCH 3, 1871.

Notice.

To Steamboat Owners, Pilots of Rafts, and all whom it may concern.

On Monday, the 6th of March,

THE channel of the span adjoining the Eastern draw opening will be obstructed with the temporary falsework for superstructure.

Steamboats will therefore pass through the draw opening.

Rafts will so regulate their movements as to

Pass through the next long span East,

Being an opening of 250 feet in the clear.

By order KEOKUK & H. BRIDGE CO.
inch 8 St.

THE GATE CITY:

TUESDAY MORNING, NOV. 2, 1875.

CITY NEWS

THE work of re-laying the track on the Keokuk and Hamilton Bridges with new steel rails was commenced Sunday, in consequence of which no trains came over except the T. P. & W. passenger No. 3, in the morning. All the other trains were obliged to transfer at the East end of the draw. This was the case yesterday morning also, the incoming train on the Wabash being the first one over. The work of re-laying was commenced at this end.

THE GATE CITY:

FRIDAY MORNING, OCT. 8, 1875.

NINE teams started across the bridge yesterday afternoon, but meeting the T. W. & W. train, which was backing over, were obliged to turn around and come back. The telegraph wires were out of order, and something got wrong with the signals.

THE GATE CITY:

TUESDAY MORNING, OCT. 26, 1875.

CITY NEWS

NEW BRIDGE.—The Keokuk and Hamilton Bridge Company have determined to replace the superstructure of the bridge over the slough, on the other side of the river, with a new one. The work will be done so as not to interrupt travel. The substructure is perfectly sound and will not be disturbed. An advertisement inviting proposals for the work, will be found on the first page of this morning's paper. Arrangements have also been made for re-laying the railroad track over the main bridge, with steel rails. The material has arrived and the change will probably be made in a few days.

The Company is making commendable efforts to keep the bridge and its approaches in excellent condition.

THE GREAT DUST HEAP CALLED HISTORY"
K. BUCKET KEOKUK, IOWA

DAILY GATE CITY:

The Des Moines River Bridge.

MR. EDITOR: I have closely watched the course of our contemplated Des Moines river bridge matter, and have, with the rest of citizens, indulged in the hope that at no remote date that much mooted question might be successfully solved. During the last ten or fifteen years we've experienced the annual recurrence of the bridge fever, with its attendant symptoms of the usual Main street merchants petition to the City Council, the appointment of a special committee by the Council and an occasional visit of the City Fathers to Buena Vista or the Yellow Bank to take a—look at that classical stream. The fever disappears, the patient waits for another attack a year thereafter, and the waters of the Des Moines remain unimpeded by that structure that is to be the means of conveying to our coffers a portion of the wealth of Northeast Missouri.

It is the repetition of the example set by the valiant troopers that marched up the hill and then marched down again.

It is not my intention to belittle these seeming spasmodic efforts, still I could not repress these good humored remarks when the past history of this question, passed through my mind.

I recognize as valid excuses, why nothing has been accomplished, the facts that the city was too poor to make the investment on its own account, and the county was undergoing the compromise process and was using a portion of the county bridge fund, legally or illegally, to effect a settlement, and besides there was till of late no power to procure county funds for this purpose unless voluntarily extended.

All this is changed, except as to our city affairs, and there is now no good reason why a good, substantial bridge should not be had. This "neck" of Lee county has in the past, known precious little of the fostering care of our County Fathers in the shape of appropriations for any local purpose, and in the face of bridge building by the county in all other portions of the county (one of the bridges built being in the interest of another county, even,) while going through with settling its indebtedness, our citizens did not grumble, but bravely paid about one-half of all the county taxes all the while. The time has now come when we must assert our rights. I do not believe our County Supervisors can be charged with sectional feelings, and I think their sense of justice will impel them to recognize our just claims. Our county indebtedness is now reduced to a certainty; we know exactly how much we have to raise to pay interest and how much of a levy is necessary for other county purposes. The taxes paid by Keokuk helped build bridges in every portion of the county except Jackson town-

ship. We have been generous, let us now be just to ourselves, and ask that the bridge tax for several years paid by us be set aside and used by us for a bridge over the Des Moines. We pay annually, in bridge tax alone, about \$13,000 to \$15,000. The county has the funds on hand, and the law is in our favor. If we remain inactive, or allow our forces to scatter in pursuing questionable expedients, we will fail. Concentrate all forces, keep all eyes on the main point, and we will succeed.

The City Council a short time since appointed two special committees to look after the subject matter, and this being a double ration of the annual appointment, the expectations of our people were raised to a higher pitch. Neither of these committees have reported their doings, and it is presumable that nothing has been done, as far as presenting it to our county Supervisors is concerned, there not having been a meeting of this Board.

The introduction of an ordinance at the last meeting of the City Council which appeared in the GATE CITY, is the only thing that looks like an easy solution of the question. I say "it looks like it." Now let us dissect this scheme and see how it will appear then. In the first place, when speaking of planking the Des Moines river railroad bridge to make it also a highway bridge, it must be remembered that there is but one responsible party to the contract—the city—and this party is to grant all the favors—to whom? Can anybody tell? Who will own the M. V. R. R. to-morrow, and when it is sold out or re-organized how will our interests be guarded? I don't think the comparative small amount of \$3,000 proposed for planking, making approaches cribbing &c., is a sufficient answer. Suppose the M. V. R. R. accepts this proposition, the danger still remains that the present frail structure may be washed out at any time. When gone, other parties may be the owners of the Railroad, another appropriation for re-planking, &c., will be demanded and others to follow or no bridge.

Abstaining here from raising the legal question whether it is competent for the city to make an appropriation in manner proposed, there is besides the practical question to be solved as to the utility of such a bridge. Competent authorities say the bridge is too narrow for two teams to pass.

Our varied experience with railroad companies should teach us not to have anything in common with them. Corporations have no souls, and of all the soulless corporations, railroad companies take the front rank.

Our citizens have once decided this question, when a similar proposition was voted down several years ago. Let it rest there, the decision was a good one, and have our attention directed toward a bridge that

either the city or the county controls. If we scatter our forces and procure the planking of this not overly strong bridge that now spans the Des Moines, we will barter away every chance of ever having a county bridge. In fact we will have no bridge, as the one proposed by the ordinance is a poor excuse, and when we shall ask for an appropriation for a permanent bridge, we will always be told that the old primitive structure will answer.

Without ignoring the great advantages and the absolute need of a bridge, I will, in conclusion, say that we have lived thus far without it, and a persistent effort in this direction will in the end compensate us with an independent, good, substantial bridge, even if it takes a little longer.

DG CITY DEC. 13, 1874 **

The Daily Gate City.

SATURDAY MORNING, MAY 21, 1870.

THE KEOKUK R. R. BRIDGE.

What Has Been Done, and What's to Do.

We are indebted to Mr. Jos. S. Smith, as courteous a gentleman as he is able and efficient as an engineer, for a full showing of the present and prospects of the Keokuk & Hamilton Railroad and Passenger Bridge.

Mr. Smith is engineer in chief in charge of construction, and comes to his place with large experience and personal professional fitness.

Preliminary surveys looking to the location and construction of a Railroad Bridge over the Mississippi at this place were made in March, 1867. They were made by Col. Otley of the D. V. road, assisted by Mr. Smith. Surveys were made also by Lincoln of the T. P. & W., under T. C. Clarke, engineer in chief of the Quincy Bridge. These were the embryonic, assuming shape of a purpose on the part of the railroad interests centering here to build a bridge. The idea was to get conception of probable cost of the structure. Clarke's plans and estimates were submitted in July, 1868.

Later the company as at present organized was formed, and the project became a fixed purpose. Mr. Smith, with his corps of assistants, came in the early season of 1869. He began surveys in March, continued until June. Then the Bridge was definitely located. The terminal points are nearly the same as those determined upon in the Clarke survey.

The plan was determined upon and work begun. But such an untoward season for work has not been known since 1831. There was a slight indication in the low water mark direction for a few days twice during the season, but swells followed, and in the main channel nothing could be done. This

Spring introduced itself with a flood that went far beyond that of last year. But despite the unusual waters since work began, much has been done.

The western terminus of the Bridge is at the foot of Blondeau; the eastern at the depot causeway. At the time of the location the tide was upon this side and the velocity nearly 5, decreasing to about 2, on the other side. The work done upon the canal has changed the situation entirely. The velocity is greatest upon the other side; and the bar that was there has been taken away.

The Bridge contracts the water way only about one-sixth. Its length from back wall to back wall is 2,192 feet, with thirteen piers. The length of dirt approach—embankment—on the west side is 384 feet. The Levee opening is 20 feet on the square. Masonry wall approach of 205 feet to first pier. The eastern embankment is 750 feet long and 36 feet wide on top. On both sides the embankment is protected to above high water mark by a substantial rip-rap; of which the length is 3,750 feet in all.

The Bridge has the longest draw span on the river; 160 feet on the square; 376½ feet from center to center of end posts. Then there are two spans 250 feet each in the clear of the masonry; 3 spans 162.9 from center to center of piers; one span of 151-4, and four of 164 feet, 7 inches, center to center of piers. The pivot pier is 32 feet in diameter on top. The first pier, 7 feet by 29 on top and 10x51-9 at bottom. All the other piers are 6 by 29 at top and 10 by 51-9 at bottom.

Of the material used in the sub-structure there are 5,400 cubic yards of first-class masonry. Of this 1,250 yards are already laid. About 2,650 of retaining walls of which about 2,000 are done. Eight hundred yards of the Levee abutment, which are now complete. About 50,000 yards of embankment, of which some 35,000 are finished. There are 3,750 yards of rip-rap, of which 3,650 are up. 4,000 square yards of Macadamizing, which are about complete. There will be used fourteen thousand pounds of iron for pier nosing and bolts; 100,000 feet of oak; 700,000 of pine; all about pivot pier and protections.

Of such magnitude is but the foundation work of this structure. The superstructure will be Double Intersection, Quadrangular Girder—the Linville Patent Truss. The track will be twenty feet in width, allowing room for trains and a wagon way on either side.

The iron for four spans of the superstructure is already here. The rest is on the way, all of it, save that for the pivot pier, which will be ready for forwarding shortly. The end work at either shore is done. The coffer dam is in for the 12th pier. Work is being pushed from both sides. And the piers are to be complete by October 1st. By a little later trains will be running regular-

ly over it. The stone used is Magnesian Limestone from the celebrated Sonora quarry.

Mr. Smith has had large experience in his work. Is an engineer of first class skill and ability, and his management is a guaranty that the work will be well done. Gen. Hugh T. Reid is President of the Bridge Company. Nothing is wanted for the early completion of the enterprise but a favorable season.

"I had thought you would never get your Railroad Bridge; it looks now as though you might." So said to us recently a Quincy friend. We are confidently glad to assure our Quincy friend, and all the rest of the world, that Keokuk will get its Railroad Bridge.

THE GATE CITY

KEOKUK, IOWA
1869
WEDNESDAY MORNING, JUNE 9.
THE RAILROAD BRIDGE.

Something About the Character of the Structure.

AMOUNT OF MATERIAL REQUIRED.

The combination of a wagon bridge with a railroad bridge is a new feature, in the manner of spanning the Mississippi river. Keokuk has taken the lead of all other cities on the river, in the introduction of this feature. Of course Keokuk expects to reap the benefit in this particular instance. The work of constructing this bridge is fairly under headway, and will be prosecuted vigorously. The contract for building it was awarded sometime since, notice of which appeared in the GATE CITY, by the Keokuk and Hamilton Mississippi Bridge Co., to the Keystone Bridge Co., of Pittsburg, the price having been fixed at \$850,000. The work thus far has been confined principally to the quarrying and dressing of stone for the piers and abutments. It is expected that the levee abutment on this side, the foundation of which has been commenced, will be completed sometime during the present month. On the Iowa side of the river there will be an approach to the bridge about two hundred feet in length. This will be of solid masonry, twenty feet wide in the clear, and will be surmounted on either side with a substantial iron railing. Between the earth embankment which leads to this approach of solid masonry and the approach itself there will be an opening of about twenty feet to admit of the passage of teams along the levee. There will be eleven piers in all, including the pivot pier, the average height of which will be thirty-two feet. They will reach ten feet above the high water mark of 1851. The superstructure will be 2190 feet in length and in width will be twenty

feet in the clear. There will be a wagon track on either side of the railroad track. Outside of the superstructure, and on either side, will be a passage way for footmen along the entire length of the bridge. This will be five feet in width. The piers will be built solid and laid in limestone cement. The draw will be three hundred and seventy-eight feet long, leaving a passage on either side of the pivot pier of one hundred and sixty feet on the square. On the opposite side there will be an approach to the bridge of earth embankment seven hundred and twenty feet in length. This will be protected by a dry slope wall. The Linville Pipe Truss will be used in the construction of the bridge. 8,000 cubic yards of stone will be required in the construction of the piers and abutments, and about 3,000,000 pounds of iron in the superstructure, only about one-fifth of which will be cast iron. The remainder will all be wrought.

It is expected that the bridge will be completed by the 1st of January next. Preparations are being made for operation on the piers as soon as the water shall have subsided a little more. Mr. Smith is Chief Engineer in charge of the work. Mr. Murphy and Mr. Ward are assistants, and Mr. Willey the Draftsman. Our association with these gentlemen, limited though it be, has been of the most pleasing and agreeable kind. We shall have more to say concerning the bridge at some future time.

The Daily Gate City.

WEDNESDAY MORNING, APRIL 19, 1871.

Annual Ball
—OF THE—
Keystone Bridge Builders
IN HONOR OF THE
NEW BRIDGE.
WILL BE HELD AT
Gibbons' Opera House,
Friday Evening, April 28th, '71.

Tickets, \$2.50—Supper included.
apr17-33t

THE ANNUAL BALL of the Keystone Bridge Builders will take place at Gibbons' Opera House, on the evening of April 28th. This Ball is given by the builders themselves, in honor of the completion of the new Bridge. That event is one the Keokuk folks can well afford to celebrate, and as the Keystone boys have taken the initiatory in the matter, we hope that our citizens will unite with them in jubilation over it. The boys will endeavor to give a creditable entertainment in every particular, and hope to receive proper encouragement from our people.

Iowa-Illinois traffic jams occurred long before Keokuk bridge built

By Dorothy Pickett

It may be hard to realize that transportation from Iowa to Illinois via Keokuk, was not always the convenient procedure it is today.

Yet, looking back retrospectively to the middle of the 19th century we do find one similarity . . . there were traffic jams in those days, too, but of a different sort. Horse drawn vehicles and pedestrians often crowded Keokuk's river front, which then was but a few steps away from the heart of town.

38 teams waiting

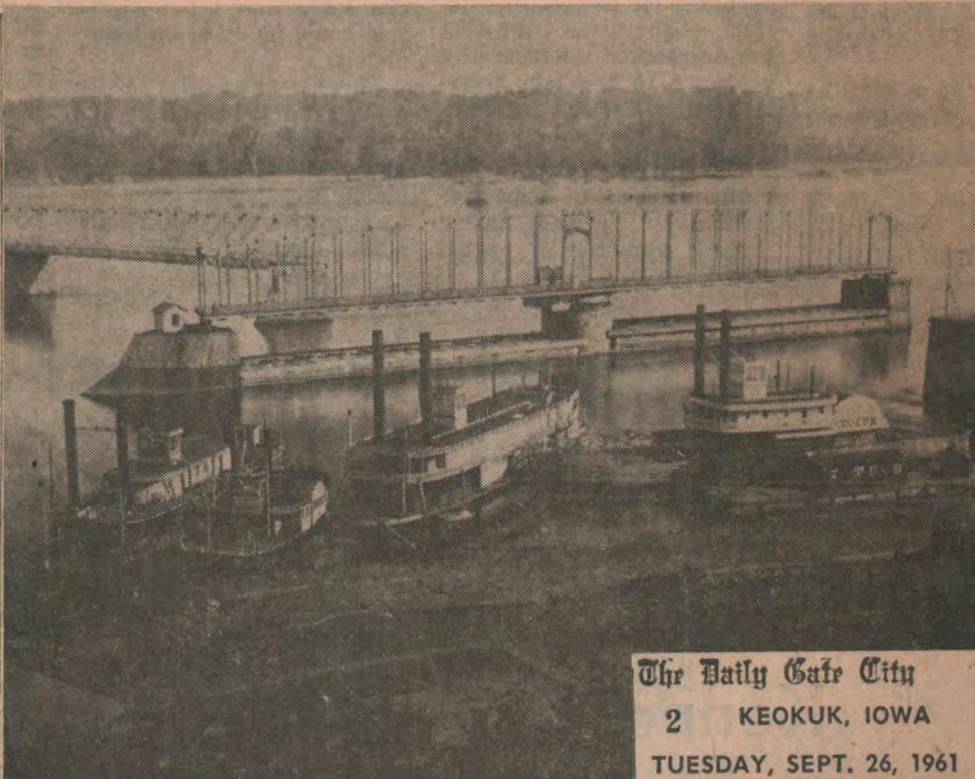
On one occasion a newspaper man reported seeing 38 teams of horses with their vehicles at the foot of Main street waiting to cross by ferry. 27 got on board and the others waited . . . a longer wait it was, too, than today's 10 or 12 minutes when the bridge opens.

One of the earliest ferries was the old Steamer "Salina." This was superseded by bigger and better boats as time went by. During the war days there were three pretty fine side wheelers — The "Gate City" and "Hamilton Belle" crossed between Keokuk and Hamilton, while a packet, "The Eagle" ran between Keokuk, Warsaw and Alexandria.

A proposed bridge to span the Mississippi river had become a vital issue even in pre-Civil War days, but it was not until December 6, 1868 that a contract was let to the Keystone Bridge Company of Pittsburgh at a bid of \$850,000. Construction work on the bridge that was to be "massive and elegant in appearance" was begun in the summer of 1869.

Englishman drowns

One of the first recorded tragedies in connection with the construction is related in the press and also on one of



The Daily Gate City

2 KEOKUK, IOWA

TUESDAY, SEPT. 26, 1961

THE ORIGINAL BRIDGE crossing the Mississippi between Keokuk and Hamilton. Early steamers are shown in the foreground. —Photo courtesy R. J. Bickel

the early grave markers in the Hamilton cemetery. It tells of a 23 year old blacksmith from Radcliffe, England, who, while working on the structure, fell from the trestle work and drowned September 25, 1870, leaving behind his wife and two small children in England.

A second drowning occurred less than two months later when a man named McNurtny lost his balance and fell into the river between a pier and the diminutive steamer, Jessie. He was to have been married the following Sunday.

As usual, when coping with nature's caprices, numerous set backs and catastrophes accompanied the construction work. Time after time during the winter of 1870-71 ice gorges knocked down trestle work; wind and high water held up activities on several occasions and log rafts tos-

sed by heavy winds more than once hit the structure, carrying away parts of the trestle work.

Fought by packets

However, even before construction was underway, another sort of battle was waged . . . opposition that emanated from rivalry between water and rail interests. Keokuk, at the time, accommodated not only heavy river traffic, but was the terminus of four thriving railroads three additional ones in the projection stage.

Many of the packet companies, realizing that this new bridge would provide faster transportation via railroad, felt river business would be doomed. Therefore, a committee from the St. Louis Board of Trade at the instigation of the packet lines, was sent to Keokuk to examine and report their findings on

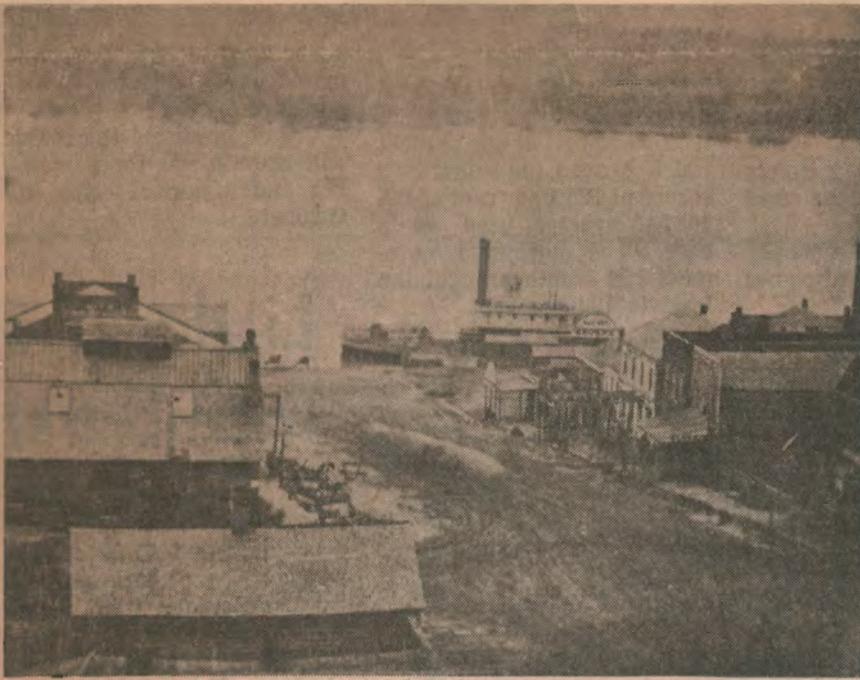
the probable obstruction to navigation that would result from building of this combination railroad and passenger bridge.

The objections were based for the structure, contrasting on the specifications set forth them with the Ohio river bridges then in use.

"Highly dangerous"

The St. Louis Democrat dated June 24, 1869 devoted hundreds of words in reporting the findings that had been submitted to the Board of Trade. The opinion of the committee was that the bridge would be "greatly obstructive and highly dangerous." It felt the "insufficient" height of the spans was unfair to the packet lines.

The article went on to say, "Is it just or wise that Congress should grant railroads any privilege whereby they may obstruct, injure, or even



AT THE FOOT OF MAIN STREET in early days. —Photo courtesy R. J. Bickel

virtually destroy navigation simply because a bridge materially dangerously, obstructive can be built cheaper than a bridge not materially obstructed, one that can be navigated with ordinary safety? The mere paucity of means is no more pellitively extennable than burning down a neighbor's house to roast eggs for breakfast."

One of the delegates advised against taking legal proceedings, suggesting that they wait until "a disaster shall be the means of establishing the fact that the oblique bridge is more dangerous to navigation than one going directly across the river." He believed the proximity of the bridge to the rapids and canal around them would interrupt navigation. "The law is extremely loose," the report continued, "and shows great adroitness on the part of the friends of the railroad."

Foot walk

But, in time, the storms were weathered and the bridge was built—the super structure being 2190 feet in length with a wagon passage-way on either side of the railroad track. There was also a five-foot walk for footmen on each side. The draw was 378 feet long leaving a clearance of 160 feet on the square on either side of the pivot.

It was a distinct honor for Keokuk to be the site of the

first combination highway and railway bridge ever to be built across the "paternal ancestor" of all streams. Other rivers had such trafficways, but this was the first for the Mississippi. It was termed at the time as "an ornament to the engineering architecture of our country."

The last span of the structure was completed March 24, 1871 and five days later the big opening celebration took place on both sides of the river. Within the next few days the tracks were laid and the first train run was scheduled for April 10 with Jake Colter at the throttles of the locomotive called "The Iowa".

During the crossing the patent pivot center on the draw span broke from the weight of the engine. After a new casting had been made and installed the initial trip was made on April 14.

Hit by War Eagle

The bridge, as originally constructed, served for 41 years with many a dramatic event occurring on or under the structure. Perhaps the most spectacular of all was on April 4, 1881 when the steamer "War Eagle" was caught in a heavy storm as it neared the bridge.

Cross currents dashed the vessel against the piers tearing away one paddle wheel and the wheel house. A man aboard, C. E. Benning was tossed from the boat and

drowned. It is recorded that "half of Keokuk rushed to the river bank to witness the tragedy." The packet company brought suit against the bridge company for \$50,000 but was never able to collect any damages.

The old bridge span opened for the last time in December of 1915 and dismantling work got underway for the remodeling of the bridge into a modern, double decker. It opened for pedestrians and auto traffic August 17, 1916 and officially dedicated two days later. The lower deck and tracks were not completed until September.

Recent improvement

According to Bill Ingram, bridge superintendent, the most recent improvement, undertaken about three years ago, was the laying of a new grid flooring, the latest thing in bridge accoutre.

In order to compare present day traffic with that of the first Fourth of July that the bridge was in use (1871), Ingram said 4,355 vehicles crossed last July 4th, adding that bridge traffic is always slow on a holiday.

Records show that there were 474 wagons and carriages drawn by two horses, carrying some 3200 passengers on the 1871 holiday, plus 120 carriages drawn by one horse and carrying about 500 persons. In addition there were 150 horsemen and 900 foot passengers.

BAKER-VAWTER CRIMPED LEAF

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CREDITS



THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL
KEOKUK, IOWA



Birdseye View of Keokuk Water Power Plant

On July 6, 1899, C. P. Birge called together twenty-five men of Keokuk and Hamilton for the purpose of organizing a company to take up in earnest the project of building a water power plant in the river here. The next day the Keokuk and Hamilton Water Power company was organized, each of the twenty-five men taking one share of stock at \$100 each. They were:

C. P. Birge, A. E. Johnstone, Sam M. Clark, William Logan, Edmund Jaeger, William Ballinger, B. P. Taber, J. H. Cole, John N. Irwin,

F. J. Weber, D. J. Ayres, George D. Rand, J. B. Weil, H. W. Huiskamp, James C. Davis, L. A. Hamill, C. H. Albers, W. B. Collins, James Cameron and T. F. Baldwin, of Keokuk; R. R. Wallace, C. P. Dadant, S. R. Parker, R. S. Gordon and John T. Spence, of Hamilton.

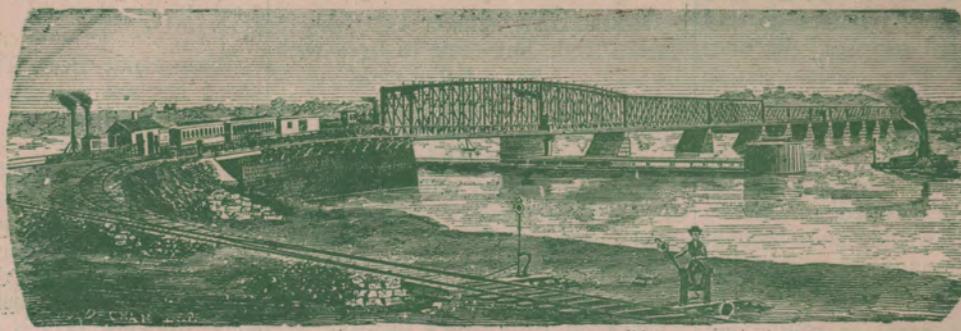
After negotiations of some time with several engineers, a contract was made September 15, 1905, with Hugh L. Cooper, giving him an option on the franchise held by the local company.

January 10, 1910, thirty days be-

fore the government franchise would expire, actual work was commenced and the last shovel full of concrete was placed on the dam May 31, 1913. Dedication ceremonies were held August 26 of that year.

The power house is 1718 feet long, 123 feet wide and 133 feet high.

Nearly three million sacks of cement were used in the construction work, and 289 tons of dynamite were used in blasting out the river bed. Twenty-two tons of steel were used and eight million feet of lumber. The total cost of construction was approximately \$30,000,000.



The Old Bridge Spanning the River Here

The old Keokuk and Hamilton bridge, built in 1870 by the Keystone Bridge company, with Andrew Carnegie in charge, was opened for traffic in 1871, the first train going

across April 19, 1871. The approach was on Water street.

The present double-decked bridge was completed August 17, 1916. The approach is on a level with First

street for foot passengers and automobiles, while the trains run on the lower deck, which is level with Water street.

The reconstruction was carried on without interruption of travel.

THE GREAT DUST HEAP CALLED HISTORY
R. I. BICKEL
KEOKUK IOWA

Findley says Volpe investigating bridge

WASHINGTON — Representative Paul Findley (R-Ill.) has been notified by Secretary of Transportation John Volpe that the Federal Highway Administration has begun an investigation of City of Keokuk practices of using toll revenues from the Keokuk Mississippi river bridge for general municipal projects not related to bridge maintenance or purchase.

Findley said, "I am encouraged that the investigation which I recently requested has now been undertaken. Answers concerning the legality of actions of the City of Keokuk should be forthcoming soon."

Findley also noted that Sec-

retary Volpe raised the possibility that problems relating to the use of bridge tolls may have solutions available under the laws of the State of Iowa should any resident of the state institute legal action with the proper Iowa authorities.

Findley noted in conclusion, "I have been assured of a complete report of the investigation by the Department of Transportation, and will make the results available to all my constituents who expressed their great concern not only over the legality of the toll diversion practices of the City of Keokuk, but also the deficient conditions of the bridge."

SATURDAY, AUGUST 21, 1926

STATES OF
IOWA AND ILLINOIS.

THE Keokuk and Hamilton Bridge Co.

Par Value
\$ 100.



This is to Certify, that Thomas L. Jewett _____ is entitled to *Two hundred & fifty* _____ Shares of One Hundred Dollars each, in the KEOKUK AND HAMILTON BRIDGE CO. said stock being only transferable upon the Books of the Company upon surrender of this Certificate by each holder personally or by power of Attorney duly authorized.

In Witness Whereof, the said Company have caused this Certificate to be signed by their President and Secretary in Keokuk, Iowa, this *31st* day of *July*, 1871.

Andrew Carnegie _____ PRESIDENT *Wm. Leighton* _____ SECRETARY

This is the way stock certificates of the new bridge, issued in 1871 looked. They are signed by the two Scots, Carnegie and Leighton, whose vision saw in the bridge here a crossing to link the east with the west. This certificate of stock is in possession of the Keokuk and Hamilton Bridge company at their New York office. The artist has preserved for posterity in his engraving a picture of the trains of that era. The panel at the left in the original stock certificate carried an internal revenue stamp, but owing to government regulations against reproduction of stamps, it does not show in this picture.

THE DAILY GATE CITY

Andrew Carnegie and William Leighton Saw in Crossing Here Possible Pathway for Trans-continental Railway Line, Linking East and West Coasts.

Were the Keokuk and Hamilton Bridge company to paint a coat of arms on the big double decked span which bridges the Mississippi between Keokuk and Hamilton, it would have for its background the plaids of two Scotch families, the Carnegies of Scotland and the Leightons of Keokuk. The name of Andrew Carnegie has long been linked with the history of the bridge here. He became its president in 1871 and at his death in 1914, this was the only public utility of which he was president. Old timers in Keokuk will tell you of the great intimacy between the Laird of Skibo and William Leighton, builder and public official of Keokuk. When Mr. Carnegie visited in Keokuk, he stayed at the Leighton home, and when Mr. Leighton went east he was entertained by Mr. Carnegie. These old timers will recall that it was gossip of the day in years gone by that Andy Carnegie was attracted by the charms of a Keokuk girl. Be that as it may, the Keokuk and Hamilton bridge stands today as a monument to the foresight of its builders who saw the possibilities of a railroad line across this bridge linking the east with the west.

One may well imagine that Keokuk society was interested and flattered as well that the young Scotchman from New York had come into this western country, to help build it up, and that his stays here were made pleasant by local people. Some of the old timers recall that Carnegie at one time contemplated building a home here. He evidently abandoned this idea however, and

went back and forth between New York and Keokuk, but perhaps in his mind he was harboring the dream of an empire which his bridge would serve. During his visits here when business was not pressing, it is not unlikely to suppose that the young man's fancy turned to thoughts of the charming Keokuk girl. William Leighton was a builder and his interest in the bridge was that of development of the city of Keokuk.

Possibilities All Were Here.
That is why a coat of arms of the bridge company should link the colors of Carnegie and Leighton, both builders, both with dreams of expansion, and both with the hard headed Scotch ability to manage and manage well

any business proposition that came to them.

Keokuk at the time that Carnegie and Leighton were planning to finance the construction of the bridge was alive with possibilities for the future. The Des Moines Rapids canal was being built and great colonies of workmen, were established all along the river between Keokuk and Galland. There were plans on foot then for the building of the bridge over the Des Moines river, which was opened in 1877. That same year saw the opening the Keokuk canal and the development of navigation on the upper river given a great boost. In 1870 the state and district fairs were held in Keokuk and one historian of Keokuk has deemed it worthy to note that "Mark Twain" attended races in Keokuk in August". The previous year the Iowa State fair opened in Keokuk, and 30,000 people visited the exposition on its biggest day.

It was a day of big things for Keokuk, and the presence of the young Scotchman in the city at such times as his interests brought him here was the signal probably for much activity both in the social and business life of the city.

Bridge Opened In 1871.
It was in 1871, two years after building operations were started that the bridge was opened. That

year Andrew Carnegie was president of the bridge company and William Leighton was its secretary. Records of the bridge company reveal that Hugh T. Reid was its first president, and that Mr. Leighton was its first secretary. The work on the bridge was commenced in 1869, and on March 20, the first stone was cut by John Young of Lockhaven, Pa. High water interfered somewhat with the work during 1871, but on April 19, 1871, the first train to cross the bridge made its maiden trip, and the big bridge, a marvel of construction in those days, had linked Lee and Hancock counties together, and provided the tie that bound Iowa and Illinois closer together.

Prior to the building of the bridge there was just the ferry across the river, and in the winter time the crossing was by means of the ice, with sledges and sleighs. This crossing was hazardous and difficult, and the people of the two communities as early as 1865 began to agitate the question of a bridge in place of the ferry boats and ice sleds. It is possible that the soldiers of the civil war may have urged the crystallizing of that sentiment for a bridge, for history records that many of the troops returning from southern battlefields lay in box cars on the Illinois side of the river and watched the lights of Keokuk and of "home" flicker through the night, while they had to spend the time all too precious when a soldier is on leave, cursing their luck because the ferry could not take them over at night.

Agitated in February.

It was in February in 1865 that the agitation for a bridge came to a head, and the articles of incorporation for the Hancock County Bridge company were approved. In January 1866, the Keokuk and Hamilton Mississippi Bridge Company was incorporated. Surveys were made by Col. Otley of the Des Moines Valley railroad in March of 1867. He was assisted by J. S. Smith and T. C. Clarke, the engineer in chief of the Quincy bridge project. In 1868 an ordinance was passed granting a right of way over the levee at Keokuk, and T. C. Curtis then drew the final plans. It was in this year that the company became known as the Keokuk and Hamilton Bridge company.

Contracts for the construction of the bridge were let on December 6, 1868 to the Keystone Bridge company. Records available here show that the cost of the bridge then was figured at \$850,000. Actual cost of the construction was more than that. It was planned that the railroads using the bridge should bear certain portions of the cost. At that time there was the vision of some of the railroad men of the country that over this bridge would pass the trains of a trans-continental railroad, linking the east with the west. The Pennsylvania which had its lines into Indiana at that time had this vision of an east to west trunk line.

Longest Draw Span.

At the time the bridge was built it had the longest draw span of any bridge on the Mississippi. The bridge was 2,192 feet long at this time. It replaced the ferry which had been in operation since 1850. In 1914 when the bridge was rebuilt it was made a double decker, and 700 feet of viaduct was added. This has made the Keokuk and Hamilton bridge the best crossing on the Upper Mississippi river in the opinion of tourists, and it is the cheapest bridge on the river in the point of tolls.

The first passengers on the bridge made the trip April 19, 1871. Two passenger cars carrying dignitaries of the two commonwealths, officials of the bridge company and prominent citizens of Keokuk and Hamilton crossed the bridge. The iron pivot center of the draw span failed to sustain the weight of the trains and was immediately replaced by a pivot center which was cast in the foundry of Sample, Armitage and Company of this city. On July 4, of that year it is chronicled that 474 two horse vehicles carrying 3,200 people crossed the bridge, and that 120 one horse vehicles with 500 passengers crossed the bridge on that day with horsemen and foot passengers to the number of 1,050. July 4, 1926, it was estimated that 15,000 people crossed the bridge here, a record in the history of the local crossing.

War Eagle Hits Span.

For a long time Keokuk people dated events from the big fire on July 4, 1870, in the livery stable block on Fourth and Blondeau, when twenty-four buildings were destroyed. Then later the unit of time was the panic at the Atheneum theatre when the plastering fell. Ten years after the Keokuk and Hamilton Bridge was built, the Steamer War Eagle struck a span of this bridge and from then on for a number of years events in Keokuk were related to this accident. It was a moonlight night when the big craft came down the river, November 4, 1881. In some way the boat became unmanageable in the current and struck the span of the bridge. This was the span over the deepest portion of the river. The water was high, and a strong current was running, and this was thought to have caused the accident. This was the only serious accident that the bridge company has had. The bridge span was badly damaged and the War Eagle likewise. Two years later the steamboat company owning the craft brought suit against the bridge company for \$50,000 damages.

C. E. Benning, of Douds, Iowa, was drowned when the accident occurred. He fell off of the boat's deck to the waters below. Four months later, in February of 1882, his body was found near Hannibal, Mo. The boat's siren called for aid, and the fire department was rushed to the river's edge and out on the bridge to help take care of the passengers if the boat

started to sink. Great crowds hearing the distress call of the boat and the ringing of fire bells crowded to the river's edge to see what happened.

Uses Slough Bridge Span.

By skillful maneuvering on the part of its pilot the War Eagle was brought to the shallow water at the foot of Bank street, where it was beached. The boat was considerably damaged by its collision with the bridge span, and the bridge company found itself facing the necessity of having a new span fabricated. While the steel for the new span was being made, a substitute span was used. This it is interesting to note is the span that now crosses the slough at the farthest end of the dike, and is the present covered bridge.

The ingenuity of the late John H. Cole devised the use of that span as the substitute span in the bridge. Mr. Cole became the superintendent of the bridge and held that position until his death just a few years ago.

Others Hit Piers.

Previous to 1881 three boats had hit one of the bridge piers. This was in April, 1876, during high water, and on the 18th, 19th and 20th, the steamers A. D. McDonald, B. F. Weaver and LeClaire bumped their noses on the bridge pier. On October 14, 1881, a Keokuk historian chronicles this interesting bit: "The boiler of a Wabash engine burst on the bridge, the explosion being heard up town as far as Ninth and Main, although the engine was near the Illinois shore. The bridge was damaged to the amount of \$500.

The bridge over the Des Moines river was completed February 1877, giving Keokuk access to two neighboring states, with her two bridges. Two days later a big excursion of people went down the Mississippi to the Des Moines delta to look over the new bridge. In March of 1881 during high water, two spans of this bridge were torn out by the flood of water.

Rebuilt in 1914.

From the time the bridge was built in 1871 to 1914, vehicle traffic and train and trolley traffic passed over the same bridge level. Many times picnic parties returning from Wild Cat springs held their breath while the horses drawing their conveyance danced and pranced ahead of the locomotive, every exhaust of which threatened to send the horses into a nervous spasm, and cause a runaway. An incident of this crossing of the old bridge is told in Rupert Hughes' novel "The Old Home Town."

With the advent of the automobile and the resultant additional travel, it was decided to provide space for vehicle traffic in the new bridge independent of the train tracks, and the present double decked crossing has resulted. The top railing which hitherto has obscured the view from the upper deck of the bridge is now being removed and the bridge will afford one of the finest views anywhere along the

held by Mr. Cole for so long a period. Under the new administration the affairs of the bridge company have taken on new life, and with the ever increasing tide of automobile travel and changes in railroads using the bridge the vision of the two Scotsmen of Keokuk and New York is brightening again, and the Keokuk and Hamilton bridge may yet become the pathway over which a new day of empire may wend its way.

river, the panorama of the Keokuk dam and power house, the government lock and the great sweep of Lake Keokuk beyond.
New Officers Have Vision.
The present head of the Keokuk and Hamilton Bridge company is R. D. Edsell of New York City. Mr. Edsell was in Keokuk with the Cooper organization at the building of the dam. James M. Eulton has succeeded to the position of superintendent formerly

**"THE GREAT DUST HEAP CALLED HISTORY"
B. I. BICKEL
KEOKUK, IOWA**

BRIDGES

At the east approach of the Keokuk, Iowa bridge across the Mississippi is a covered span. Of the many who cross this, few know its history. When the bridge was comparatively new, the fine War Eagle passing through the draw struck the pier, damaging both boat and bridge. One of the clerks on the boat, Cephas Gregg, stood on the deck and assisted the terrified passengers cut to safety. This part of the bridge celebrated in its history, now stands a memento to those early hazardous times, covered to protect it from the elements. This was in 1885 and the bridge company filed counter claims for \$100,000 to suit brought by St. Louis and St. Paul Packet Company for damage done in collision of War Eagle with bridge pier. This suit was compromised.

The Railroads Cross the River

Bridges frequently spelled trouble for the early day pilots. "When the railroads thought they had gone west, they really had gone only to where the west begins and the tall corn grows."

The Chicago-Rock Island Railroad Company built the first bridge across the river at Rock Island, which was completed in 1856. That bridge was certainly a hoedoo to steamboat and raft men. The bridge was hardly finished, before the steamer, Effie Afton was wrecked and burned because of it. A St. Louis company owned the boat and a momentous law suit followed this disaster.

An able lawyer argued that if the starboard wheel had not stopped, the Effie Afton would not have struck the bridge. "Shall the railroad company pay damages because a wheel on a passing boat goes wrong?" Frankly he admitted that pilots should look out for the bridge.

20 Accidents in 3 Weeks

From April 15, 1856, the date of opening the bridge, to May 6, twenty-one days—there were twenty accidents. He said that the dangers of the place are tapering off, and as the boatmen get cool, the accidents get less. We may soon expect if this ratio kept up there will be no accidents at all. The defense had a model of the Afton in court and strengthened his case by referring to it.

He knew all about his subject, while the lawyers of the complainant did not know a verge staff from a jack staff, or a marline-spike from a cant-hook. The case was tried in Chicago. The presiding judge was Justice McLean of the United States Supreme Court who sat in the trial court on this case.

The rustic lawyer in effect won his case as the jury stood dead-locked at nine to three and the case was never tried again. The lawyer for the defense was Abraham Lincoln.

That was the opening fight between transportation by water and rail, the locomotive against the steamboat. Railroads paralleled and crossed the rivers and the continent. Mankind got in a hurry. River traffic died. The packet went forever.

(To Be Continued.)

IOWA-ILLINOIS BOUNDARY SET IN BRIDGE CASE

COMMISSION OF THREE KEOKUK MEN FIXED LINE

Although the Mississippi river is loosely spoken of as the boundary between Iowa and Illinois, there is an imaginary line on the water which actually marks the dividing point between the two states and it was established in March, 1893 by a commission composed of Major M. Meigs, John R. Carpenter, and Captain Albert Wempner.

It was fixed by this commission under authority of the United Supreme court at a point 1,041 feet east of the center of the draw span on the Keokuk and Hamilton bridge to settle a controversy between Iowa and Illinois in the matter of levying taxes on the bridge company.

The bridge company was being assessed by Illinois for several hundred feet of bridge which was also claimed by Iowa and the company was consequently paying double taxes.

Attorney James C. Davis of Keokuk interested the Iowa attorney general in the matter and it was decided after a conference with the attorney general of Illinois to clarify the situation with a friendly suit brought by Illinois against Iowa with the bridge company agreeing to pay the expenses incurred by Iowa.

A commission appointed to investigate the situation discovered that when Illinois was admitted to the union its boundary line extended to a certain line which had been crossed by Iowa on its admittance as a state. The commissioners, Major Meigs and John R. Carpenter as well known engineers and Captain Wempner as a veteran river pilot, made numerous measurements before fixing upon the point 1,041 feet east of the draw span as the boundary line.

Channel On East Shore.

Their decision was reported to the United States supreme court and rather than establish the boundary piecemeal, the four decided to make an interlocutory degree in the specific Keokuk case. There were some nine Mississippi river bridges involved in the matter.

In the early days the "best water" at the point where the bridge is located was found along the eastern bank of the river and

as a lieutenant with headquarters in a little cabin on Cheney creek, General Robert E. Lee started blasting a channel there.

Much later when the Des Moines rapids canal was constructed, boatmen found it impossible to swing their craft across the current into the canal from the east side channel and the war department ordered that a new channel be blasted on the Keokuk shore of the river leading into the canal.

PROPOSED BILL FOR THE LEGALIZATION AND VALIDATION OF PROCEEDINGS AUTHORIZING AND PROVIDING FOR THE ACQUISITION, OWNERSHIP AND OPERATION BY THE CITY OF KEOKUK, IOWA OF THE EXISTING TOLL BRIDGE EXTENDING ACROSS THE MISSISSIPPI RIVER.

A BILL FOR

An Act to legalize and validate the proceedings authorizing and providing for the acquisition, ownership and operation by the City of Keokuk, Iowa, of the existing toll bridge extending across the Mississippi River from said City, and for the issuance, sale and delivery by said City of Bridge Revenue Bonds in connection therewith, and the provisions made for the payment of said bonds, and declaring said proceedings and the bonds issued pursuant thereto sufficient and enforceable.

WHEREAS, it appears from the official records of the City Council of the City of Keokuk, Iowa, that said City Council did heretofore by resolution order and provide for the acquisition, ownership, and operation by said City of the existing privately owned toll bridge extending across the Mississippi River from said City, and also authorizing and providing for the issuance, sale and delivery of Bridge Revenue bonds of said City in the principal amount of \$500,000.00, for the purpose of acquiring said bridge and provided in and by said resolution for the use and application of the income and revenues from said bridge to pay the costs of its operation and maintenance and to pay the interest on and principal of said bonds on a self-sustaining and liquidating basis; and

WHEREAS doubts have arisen concerning the validity and legal sufficiency of said proceedings and bonds, and the provisions made for use and application of the income and revenues for the payment of said bonds, and it is deemed advisable to put said doubts and all others that might arise concerning same forever at rest;

NOW, THEREFORE,

Be It Enacted by the General Assembly of the State of Iowa:

Section 1. That all proceedings heretofore taken by the City Council of the City of Keokuk, Iowa, ordering and providing for the acquisition, ownership and operation by said City of the existing privately owned toll bridge extending across the Mississippi River from said City, and authorizing and providing for the issuance, sale and delivery of Bridge Revenue Bonds by said City and providing for the use and application of the income and revenue from said bridge to pay the costs of its operation and maintenance and to pay the interest on and principal of said bonds, are hereby legalized, validated, and confirmed, and said proceedings are hereby declared to be and to constitute complete, lawful and sufficient authority for the acquisition, ownership and operation of said toll bridge by said City, and for the issuance of revenue bonds of said City in connection therewith, and said Bridge Revenue Bonds issued, sold and delivered pursuant to and in accordance with said proceedings are hereby declared to be legal and to constitute valid and binding obligations of said City payable only from such income and revenue, but said bonds shall not be a corporate indebtedness of said City nor shall said City be authorized to levy ad valorem taxes to pay either principal thereof or interest thereon.

Sec. 2. This Act being deemed of immediate importance, shall take effect and be in force from and after

Its publication in the Daily Gate City, a newspaper published in the City of Keokuk, Iowa, and the Allston Tribune, a newspaper published in Allston, Iowa, all without expense to the State.

How Adamson, of Georgia, Built Big Keokuk Bridge

He Dictated, Threatened and Stood Pat and Earned the Undying Gratitude of This City Thereby

11/10/16 GC

The re-election of Judge Adamson to congress by his Georgia district pleases Keokuk quite as much as any of his friends down south.

For William Charles Adamson, of far distant Carrollton, Georgia, congressman from the fourth Georgia district, gave Keokuk the big bridge which today is her greatest asset except only the world's greatest water-power. The interesting story of how Adamson of Georgia placed that fine bridge in the Mississippi river is worth telling in full now when the bridge is completed, in use and perfect in its adaptation for stimulating intercourse between Keokuk and adjoining Illinois.

When Keokuk Fretted.

It is unnecessary to recall the fretting of Keokuk for many years over the old inadequate bridge which was considered an actual barrier between Keokuk and Hamilton, and how Keokuk despaired of conditions being improved by the owners of that bridge.

With the completion of the dam, its broad, high, flat causeway top was seen to be a bridge in fact, whatever the purpose of its design. It was at once talked about for a double track railroad across the river. This would relegate the old bridge to vehicular traffic, with probable great loss in its balance sheet—but Keokuk was in no humor to be benevolent to the Keokuk and Hamilton bridge company, owned practically by Andrew Carnegie and left incapable of carrying a real, modern car of coal into Keokuk.

Attempt One Way Out.

The Intercity Railroad company was organized by Keokuk men, chiefly as an adjunct of the Industrial association, and this new organization secured right of way ashore and asked the water-power company to sell it a right of way across the dam causeway. The water-power company legal department had doubts about its right to permit the dam to be used by a railroad without permission from congress.

A bill giving this permission was introduced in congress—and right there began the real fight. Stripped of corporate names, it was really a fight between the business interests and people of Keokuk and that canny Scot who is a foeman worthy of the keenest blades. Aside from all his friends and influence, Carnegie himself went to Washington to oppose that bill to make a bridge out of the great Keokuk dam. He would have won except for Judge Adamson, of Georgia, and how the latter won the fight for Keo-

kuk is an account of a battle worth telling in history.

He Missed His Family Christmas.

Adamson was chairman of the committee to which the bill went in routine course and which held hearings and discussions on it—also which by its report to the house would determine the fate of the bill, for that house had a habit of following its committee reports, especially when the chairman was as good a man as Adamson of Georgia.

The charges made by Keokuk were so strong, and the defense by the Carnegie interests so sweeping in denial, that Chairman Adamson and the committee were requested to come out and inspect the conditions on the ground. It was late in December, when everybody, especially southerners like Adamson, wanted to be at home for Christmas more than anything else. But Adamson and others of the committee missed Christmas cheer at home and came out to Keokuk to look at the thing for themselves. They saw—and Adamson became the chief champion in the lists for the rights of Keokuk. On the train between Keokuk and Chicago, on the return trip, Adamson held a little conference with his fellow congressmen on the committee and then held a little conversation with Secretary Gilman of the bridge company, who of course was here with the committee. Adamson talked to Gilman about like this:

Adamson's Ultimatum to Carnegie.

"That old rattletrap of a bridge you have there is a disgrace. If you'll have a bill introduced to pension it for permanent disability, we'll pass it. Keokuk must have an adequate bridge and have it right away. I am not entirely pleased with the idea of letting another company use the dam for a bridge, but it will have to be done unless you give Keokuk a new bridge at once—and I mean a real bridge capable of filling the needs for a good while in the future.

"If you'll rebuild that bridge and do it right and quick, we'll give you a chance to do it; but if you don't, we'll pass the bill for a bridge over the dam this session. Oh! it's none of my affair how you get the money. That's up to you. I'm simply telling you what will happen, if you don't rebuild that bridge right away. If you can't do it for lack of money, as you say, we'll have to pass the dam bill permitting a railroad on top of the dam."

And Adamson Remembered.

Gilman finally asked for time to consult his folks which was granted with the proviso in Adamson's most emphatic manner:

"But if I'm not convinced before February that you are actually starting to rebuild that bridge at once, we'll pass the dam railroad bill before congress adjourns as sure as there's a Mississippi river."

February came without any word from the old bridge people. If they hoped that Adamson, in the whirl of a

thousand important congressional matters and near the end of the session, would forget them and Keokuk's bridge, they did not know Adamson of Georgia. He wrote them a letter of some length and much strength, which really reads something like Roosevelt peevish, the essence of which was this:

"I have not heard from you and the time is about up. You can't play horse with me for a minute. Unless you show me actual and material acts starting a new bridge at Keokuk by the date I told you on the train, I'll report out and pass the Keokuk bill for a railroad on top of the dam."

When Scot Met Southron.

This brought a quick request for a little more time from Secretary Gilman and more talk about the difficulty of raising money to rebuild the bridge. To this Adamson answered in effect:

"I want to be fair with you, and I'll give you ten days more time; I can do this the more easily, since I have the Keokuk bill in position to bring it up and pass it any day—and it will pass before the session ends, unless you start a new bridge."

There was some further correspondence, but Adamson's letters were all alike and in one key. However stubborn is a Scot, and however he hates to spend real money, one celebrated Scot who built the old bridge when he was becoming the king of steel forty years ago found himself in front of a Georgian who was standing pat for Keokuk like a man with four aces and one king—which Adamson really had in his hand by virtue of his position in the house of representatives.

The most illuminating thing, and the thing Keokuk takes to heart, is that Adamson, of Georgia, was doing all this in the midst of cares much more important to him and his state for the people of a city a thousand miles to the north and west of his home district—solely because he knew it was justice and helping people who deserved help.

Dictating the Terms of Peace.

Gilman, squire to Carnegie, threw up his visor and reversed his sword and left Adamson victor in the tournament which had been going on for a couple of months. A rebuilt bridge was promised.

But Adamson had only begun to talk, it seemed. He began to tell what kind of a bridge it should be—under the commerce clause of his former ultimatum calling for an adequate bridge.

He secured data and information of all kinds from Keokuk and Hamilton. He became better posted on the kind of a bridge Keokuk needed than Keokuk herself. He suggested some improvements in detail that Keokuk never thought of before. Moreover, he saw all these requirements not only in the plans but in the orders to the steel mills. And when he was convinced that the new bridge was actually being built according to his ideas of what it ought to be, he allowed the bill for a railroad over the big dam to die—and not until then.

And that is how Adamson, of Georgia, re-elected this month after many terms in congress, gave Keokuk the superb bridge across the Mississippi river—the most important thing possible for Keokuk at that time, because it not only attracts traffic from Illinois, but is a necessity in building up Keokuk as a manufacturing center.

Of course Congressman Kennedy and others did a lot; but nobody will

Cont. on next page

be more pleased at seeing the above facts in print than Congressman Kennedy himself.

Keokuk ought to place on the western approach to the bridge a bronze tablet in honor of Judge William Charles Adamson, congressman from the fourth Georgia district.

THE DAILY GATE CITY
Sept. 20, 1943

Trustee to Retire \$44,000 in Bridge Bonds, Not \$4,400

Retirement of Keokuk and Hamilton bridge bonds November 1 will amount to \$44,000 instead of \$4,400 as was erroneously stated in the Daily Gate City of last night.

Funds to this amount are in the hands of the bridge trustee, according to information received by Mayor John L. Ward from Royal D. Edsel, president of Keokuk and Hamilton Bridge, Inc.

When these bonds are retired a total of \$120,000 will have been paid off, thus reducing the outstanding obligations to \$655,000 and bringing the city that much closer to taking possession of the structure as a free municipal bridge.

The original bond issue was for \$775,000.

The fact that \$44,000 could have been paid off this year, what with decreased automobile traffic, is decidedly welcome news to the residents of Keokuk.

THE DAILY GATE CITY
Feb. 14, 1944

Despite Reduction In Traffic, Bridge Pays Off \$61,000

Mayor John L. Ward today announced that the audit of the Keokuk and Hamilton Bridge, Inc., for the year 1943 had been completed and that although this showed a decrease in revenue from highway tolls for 1943 as compared with the previous year of approximately \$9,000.00, the company yet paid through the operations of its First Mortgage Sinking Fund \$61,000.00 principal amount of bonds and retired them during the year.

In 1942 the company retired \$59,000.00 of bonds. The aggregate of these bonds, there, retired to December 31, 1943, is \$120,000.00 or 15.48 per cent of the total of bonds originally issued.

The bond retirement dates are May 1st and November 1st in each year. On February 1st there was in the Revenue Fund, for use in retiring bonds on the next retirement date the sum of \$35,000.00. This sum for the retirement of bonds should be increased considerably by May 1st next.

When all of the bonds are retired under the Trust Indenture and the Escrow Agreement on deposit with the State Central Savings Bank between the Bridge Company and the City, the bridge will become free for highway purposes.

THE DAILY GATE CITY
October 19, 1944

Voice of the People

[Under this head The Daily Gate City will publish communications on any and all subjects of interest to the people generally, reserving the right to reject. Communications must be accompanied by the name and address of the writer, and will be published. There is no deviation from this rule. The Gate City does not assume responsibility for opinions or sentiments expressed in any communication.]

Keokuk, Iowa.
October 19, 1944.

Editor Gate City,
Keokuk.

Dear Sir:
Announcement is made in your paper of the 16th instant that a \$225,000.00 bond issue vote will be submitted in the general election coming to erect a civic center building, the cost to the tax payers to be one and one-fourth mills; nothing is said about the upkeep of such a venture, and of course this is a "spend job" instead of an investment, only the small (very small) rents now being paid by the city could be credited against the cost and upkeep account.

This letter is written to talk mainly about "A FREE BRIDGE FIRST" and from the tax levy figures above given it would seem we could acquire a bond issue of say, \$500,000.00, the increased levy to add two and eight-tenths mills, and as there is but little over \$500,000.00 yet unpaid on the bridge contract which we entered into 3½ years ago, our life-long dream could be realized — A FREE BRIDGE NOW, instead of letting the thing simmer along, without use of the bridge by the city, until May 1, 1956.

We are paying four per cent interest on the present bridge bonds while a new issue to pay off the debt could be floated for little or nothing above two per cent. It is a wonderful investment for Keokuk—we could fix the vehicle toll at 10 cents if we wished to do so—our gates for Illinois trade would be open forever.

With the increased trade and population that would follow this easy move by our city, we could later take up the matter of a civic building, with or without an auditorium. Keokuk is not large enough, nor favorably located, to acquire conventions of any size: for every two seats in a successful convention hall there must be one transient hotel room in a city, the big city men tell us. Our city could not take care of more than three or four hundred conventionists, even if Mr. Brown and Mr. Sanders could be persuaded to double their capacity to induce conventions to patronize their hotels.

But the auditorium matter can be studied a little—maybe I am wrong—but I leave it to the citizens of Keokuk to decide if I am wrong in my "FREE BRIDGE FIRST" philosophy.

Yours very truly,
BIRDWELL SUTLIVE.

THE DAILY GATE CITY
October 24, 1944

35

Bridge Must Be Toll Free When City Takes Over, Contract States

In consideration of the "Free Bridge First" vs. City Hall controversy which has been aroused by the forthcoming election on a \$225,000 municipal building bond issue, a representative of The Gate City called on J. O. Boyd, director of Keokuk and Hamilton Bridge, Inc., this morning and learned that the city is bound by contract to make the bridge absolutely toll free for vehicles and pedestrians once the bonds are paid off.

As a result, Boyd, explained, it would be impossible to reduce the toll to five or ten cents as is advocated by a group of tax-payers in urging that the city acquire im-

mediate possession of the bridge before considering a city hall. Under that contract, even if the city were able to secure the outstanding stock, it would have to make the bridge toll free at once or forfeit its rights.

Bridge Company Not Concerned

In discussing the matter, Boyd made it clear that the Bridge company is not entering the controversy on either side. It has no

FORM PLANNING COMMISSION.

In a recent meeting of the Keokuk post war planning committee, the city council was called in to discuss the proposed city hall bond issue which will be submitted to the voters in the general election Nov. 7, and the council agreed to appoint a city planning commission which will assist in formulating plans for the building.

The post war committee submitted a list of prominent citizens and taxpayers from which the council has appointed a committee of seven to work with it in selecting a site for the proposed city hall as well as in drawing up plans and specifications.

interests in the matter, he explained, but agreed to outline the history of the transaction under which the city will eventually obtain possession of a free bridge.

In February of 1941, he said, the late Royal D. Edsel, president of the Bridge company, and the city council entered negotiations with a view to working out a proposition leading to a free bridge. At that time the city had entered a bridge bill in congress and it had passed one house.

Pay 65 Cents on Dollar
By June 18, 1941, the present

Cont. on back...

general offices of the company will be located in Keokuk.

Since this a municipal project, none of the officers receive a salary and the directors are paid only a nominal compensation. W. J. Ingram is employed as superintendent.

City Equity \$289,433.87

The transaction was closed on June 13, 1941, whereby the city accepted the bridge as a gift on conditions, one of which was that of paying off \$775,000 of bonds, the proceeds of which was used as the purchase price of the bridge from its former owners.

Board Members



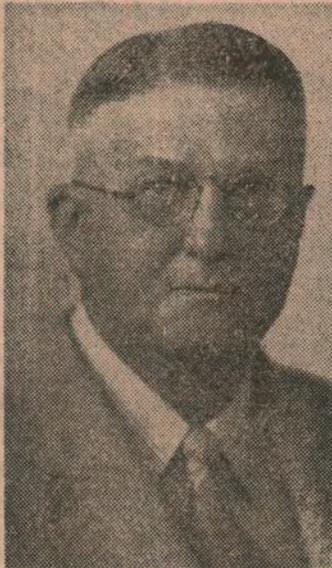
J. Faulkner Thomas
Vice President

☆☆☆



W. A. Logan
President

☆☆☆



J. O. Boyd

These bonds were reduced on November 1, 1944, to \$562,000 and by December 31, 1944, the city had acquired an earned equity of \$289,433.87.

The reorganization accomplished by the directors yesterday will mean a very substantial saving in connection with overhead expenses, salaries and the cost of operating the New York office.

plan had been worked out and completed. This involved the acquisition from Mrs. Andrew Carnegie, widow of the steel magnate who originally controlled the bridge, of first mortgage bonds and interest amounting to \$90,464.03. In addition there was \$1,100,000 in second mortgage bonds (face value) and these were surrendered by the holders at approximately 65 cents on the dollar.

Inasmuch as the city wished certain improvements — among them the straightening of the curve and sidewalk additions—the subsequent bond issue was made for \$775,000 bearing the current interest rate of that time, 4 per cent.

With the arrangements completed, the Bridge company deposited a deed with the State Central Savings bank as escrow and also made a deposit of the stock of the Keokuk and Hamilton Bridge, Inc., which will go to the city when the bonds are paid out.

City Is Pledged

Under the terms of the contract the city pledged itself to maintain the highway portion of the bridge free of toll when it obtains possession. The actual wording of the contract is "forever free to vehicular and pedestrian traffic."

The city will still be able to obtain rental from the railroads, however, and this is figured to maintain the bridge.

It was the toll free proposition, Boyd explains, which enabled the late Mr. Edsel to persuade the original mortgage holders to surrender their interests. He experienced considerable difficulty in getting them to settle for 65 cents on a dollar but the free bridge idea finally won them over.

At the present time the original \$775,000 in bridge bonds has been reduced below \$600,000, despite the great slump in vehicular traffic as a result of the war, and on November 1 the company will make a further reduction amounting to \$35,000 or \$40,000, thus approaching the \$500,000 mark.

THE DAILY GATE CITY
Feb. 3, 1945

J. Faulkner Thomas Named Bridge Director; W. A. Logan Is President

Directors of the Keokuk and Hamilton Bridge, Inc., met late yesterday afternoon to effect a reorganization with the election of J. Faulkner Thomas as a member of the board to succeed the late Royal D. Edsell of New York, president, whose death occurred last year.

W. A. Logan was elected to the office of president and Thomas was named as vice president.

Boyd on Board

Members on the board now include W. A. Logan, J. O. Boyd and J. Faulkner Thomas. Other officers in addition to Logan and Thomas are W. J. Ingram, secretary and treasurer, and Mrs. Lillian A. Gossett, assistant secretary and treasurer in charge of the New York office.

In the meeting yesterday the directors also authorized the closing of the New York office not later than April 1, after which time the

above 2nd column

Free Bridge Keokuk's New Year Gift

Toll-Less Days Will Begin on January 13th

This is The Big Story, Keokuk's Big Story of 1948—the hope, the dream of years has come true. The bridge across the Mississippi river between Keokuk and Hamilton will become a free bridge on January 13, 1949. W. A. Logan, chairman of the Keokuk Bridge Commission, announced today.

For seventy-seven and a half years, this bridge that spans the Father of Waters has been a toll bridge and millions of people and millions of tons of merchandise have crossed this bridge in that time and millions of dollars have been paid to the Keokuk and Hamilton Bridge Company.

Momentous Announcement.

The City of Keokuk was incorporated as a charter city on Dec. 18th, 1848, and in its 100 years of existence as a charter city, Keokuk will point to the obtaining of a free bridge as the peer, at least, of all the other consummations and accomplishments of a century.

The opening up of the bridge on January 13th will allow all passenger vehicles and pedestrians free passage over the bridge. Only the crossing by railroads and commercial trucks will demand tolls, according to the Bridge Commission.

The free bridge will bring thousands of new shoppers to Keokuk

and also prove a lure to tourists who travel from coast to coast. Measured in dollars and cents in additional trade for Keokuk stores, the free bridge should bring millions of dollars of additional business to this community. Keokuk's fame as a beautiful, progressive, hospitable city and one with a historical background will be enhanced many fold.

Wonderful Achievement.

It was back in 1938, ten years ago, that the first moves were made toward a free bridge. It was seven years ago, in 1941, that Royal D. Edsell, president of the Keokuk and Hamilton Bridge Company, made a gift proposal to the City of Keokuk, whereby Keokuk could have a free bridge after \$775,000 worth of First Lien Revenue Bonds had been retired. The City of Keokuk accepted the proposal and it was thought that perhaps ten years would be needed to pay off the bonds, especially since World War II came, together with gasoline rationing and lack of new cars and vehicles. But despite this, the indebtedness was paid off this month, and the bridge, now debt-free for the first time in its history, becomes one of the most valuable assets of this community. The achievement in the past seven years is wonderful, almost miraculous.

Bridge Commission Controls.

On December 6th of this month, the Keokuk Bridge Commission was created, to administer the bridge, and Mayor Frank Willmering, in whose earlier administration the first steps toward a free bridge were taken, appointed two Republicans, W. A. Logan and J. Faulkner Thomas, and J. O. Boyd and Wm. R. Sheridan, two Democrats, as the four members of the commission. Mayor Willmering is a member, ex-officio. The commission organized by electing W. A. Logan as chairman, Mayor Willmering as vice-chairman, and William J. Ingram as secretary-treasurer.

Changes Its Name.

Besides attaining a new status and one very pleasing to the general public, the bridge has changed its name. It is no longer the Keokuk and Hamilton Bridge. It is now

The Keokuk Municipal Bridge. Nice name don't you think?

Just Like a Dream.

Yes, it's all like a dream. Some of the residents of Keokuk will doubtless pinch themselves before really realizing that it is truly true. Hannibal obtained a free bridge speedily because of large gifts from the states of Missouri and Illinois

and Uncle Sam. Quincy got a free bridge through the philanthropy of many of its citizens, business houses and industries, the state of Illinois and the C. B. and Q. railroad. Keokuk has obtained its free bridge the hard way, through tolls to retire bonds issued with which to purchase the bridge and Keokuk paid in full in an unbelievably short period.

Andrew Carnegie, who helped finance the bridge when it was built, and later became its president, would truly have been greatly impressed by the financing of the same bridge into a free bridge.

Will Celebrate.

Keokuk will celebrate the opening of a free bridge on Thursday, January 13th. Plans have not yet been made but they will be announced by The Gate City from day to day before the 13th. The occasion will be really worth celebrating!

Hamilton Mayor Helpful.

The Bridge Commission is contemplating some changes to the bridge and its approaches and it feels very much indebted to Mayor Fred Tweston of Hamilton, who has worked to get aid from the Illinois Highway Commission to change the approaches to the bridge from the Illinois side.

The dyke has always been a very expensive luxury to the bridge set-up and the covered bridge needs rebuilding if it is retained. The Bridge Company owns right of way on the Illinois side along the railroad and it would like to eliminate the dyke and have the approach on that side parallel the railroad tracks to reach the highway leading into Hamilton. This project will be pushed, it is said.

Cont. on back...

Early Moves for Free Bridge.

Just ten years ago, in 1933, the first moves were made toward obtaining a free bridge over the Mississippi river at Keokuk. The late Walter J. Miller urged the acquiring of a free bridge before the Keokuk Rotary Club and a committee was named by that club. The Keokuk Chamber of Commerce also named a committee and the combined committee of eighteen met and selected Dale E. Carrell as chairman and Walter J. Miller as vice-chairman. The committee asked the City Council of Keokuk to give its approval to the free bridge idea.

On November 1st, 1938, the City Council, in Resolution No. 233, unanimously took steps toward acquiring a free bridge, as follows:

"Resolution No. 233.

"WHEREAS, a committee has been investigating the possibility of acquiring the Keokuk and Hamilton Bridge; and

"WHEREAS, it is for the best interests of the City that a committee be appointed to investigate the possibility of acquiring a bridge across the river for the ultimate purpose of achieving a free bridge into the City of Keokuk; now therefore

"BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF KEOKUK, IOWA:

"THAT, Dale E. Carrell, Sr., Chairman; Walter J. Miller, E. A. Ebersole, William Bridgman and L. J. Koch, be and they are hereby appointed the committee to investigate this situation for and on behalf of the City of Keokuk and make a report of its findings.

"Passed this first day of November, A. D., 1938.

"Roll Call: Willmering, Aye; Kiser, Aye; Ayres, Aye. Ayes 3. Nays 0.

F. A. WILLMERING,
Mayor."

"Attest: B. F. Earl, City Clerk.

Committee Gets Busy.

The Bridge Committee, which had been busy before this action by the council, stepped up its efforts to acquire a free bridge. The committee had several meetings with Hannibal to ascertain what moves they made to obtain a bridge. Mayor Willmering wrote Royal D. Edsell, president of the Keokuk and Hamilton Bridge, Inc., to ascertain for what sum the bridge company would sell its property, and was informed that the price would be "\$1,143,000, plus a sum, subject to negotiation, for the 10,000 shares of \$100 par common stock." The committee turned down this offer as being excessive, and President Edsell came to Keokuk later and met with the committee but without offering the bridge at a lower figure.

Then on February 3, 1939, the City Council received from the Bridge Committee this recommendation: "Your bridge committee, at a meeting, held last evening, recommended that the city council of the City of Keokuk tender an offer of \$500,000 to the Keokuk and Hamilton Bridge Company for its bridge that crosses the Mississippi river at Keokuk. The council should submit to said company this offer so that the Keokuk and Hamilton Bridge company could act upon the same at its annual meeting on February 14, 1939." The city council, on Feb. 3rd, 1939, in Resolution No. 303, took this action: "Be It Resolved by

the City Council of the City of Keokuk, Iowa, that, the Mayor be and he is hereby authorized to offer the Keokuk and Hamilton Bridge Company the sum of \$500,000 for its bridge at Keokuk, together with all approaches, appurtenances, etc." Mayor Willmering, and Commissioners Kiser and Ayres voted Aye.

Mayor Willmering wrote President Edsell and the offer was declared unacceptable.

Seek New Bridge.

The bridge committee, seeing no chance to obtain a lower figure for the Keokuk and Hamilton bridge, took steps to seek a new bridge to cross the Mississippi at this point. On February 10, 1939, in a recommendation to the City Council, signed by Dale E. Carrell, Walter J. Miller and E. A. Ebersole, the committee declared: "Your bridge committee, after discussing at length with representatives of Sverdup and Parcel a proposal for construction of a new bridge across the Mississippi river at Keokuk, Iowa, and carefully considering a contract with this firm, do hereby recommend that you enter into this contract with the said Sverdup and Parcel. This action is recommended in order that steps can be begun at once to obtain a federal franchise for construction of a bridge, that engineering preliminaries can be started and that steps can be taken to obtain a PWA grant to help finance the construction of said bridge."

The city council took the action recommended.

Fight for Legislation.

The committee made contacts with the highway commissions of Iowa and Illinois to find what they could do toward providing approaches for a proposed new bridge, and other steps were taken, but the most important thing was to get necessary legislation through Congress. The city council and City Attorney John Newkirk framed a bill to be passed by Congress authorizing the City of Keokuk to build a new bridge. In March of 1939, Repv. Thomas Martin of the First Iowa District introduced H. R. 5382 "authorizing the City of Keokuk to purchase, construct, maintain and operate a toll bridge across the Mississippi River at or near Keokuk, Iowa." In the same year Senators Herring and Gillette introduced a similar measure S 1988, in the senate. It was impossible to get these bills out of committee before that Congress adjourned.

In 1940, when John L. Ward was mayor, Repv. Martin got the House bill out of the Interstate Commerce committee, favorably reported and it was passed by the House on June 17. On June 22, 1940, both Senators Gillette and Herring sent letters that they would do everything possible to get their bill through the Senate. Some members of the committee visited the Senators in Washington in the summer of 1940. The measure did not get through the Senate.

A contract was made with Sverdup & Parcel in November of 1940, and these St. Louis engineers drew plans for a 22 foot bridge, the present bridge being 17 feet wide. Stranahan, Harris & Co., were chosen to sell bridge bonds.

In 1940, Walter J. Miller, one of the best boosters for a free bridge died, and on April 22, G. E. Maxwell was named as a committee member. On January 16, 1941, Senator Gil-

lette introduced a new bridge bill, S 205 in the Senate, and was pressing it for passage, when President Edsell of the Bridge Company submitted a "A Gift Proposal" whereby the City of Keokuk could obtain possession of the Keokuk & Hamilton bridge.

Provisions of Gift Proposal.

Under terms of this Gift Proposal, the Keokuk & Hamilton Bridge Company proposed to give "said property to the City of Keokuk and dedicating the same for the benefit of the public for the purpose of a free bridge for vehicular and pedestrian traffic, subject to such regulatory ordinances as may be enacted by the Donee (the City of Keokuk) and subject to the discharge and retirement of liens and charges thereon hereinafter particularly described."

The Donor (the Bridge Company) reserved the right to acquire \$88,000 in First Mortgage Six Per Cent Bonds, dated July 1, 1931, and \$1,001,000 in Second Mortgage Gold Bonds, by using the proceeds of an issue of First Lien Revenue Bonds in the aggregate of not more than \$775,000, bearing four per cent, semi-annually.

The Donor "will cause to be executed (after the described financing has been accomplished) a proper conveyance for the transfer of such property, subject to said First Lien Bonds, to the City of Keokuk, which instrument of conveyance shall be deposited with The State Central Savings Bank of Keokuk, Iowa, or its successor, as depository."

The donor shall maintain its corporate organization until the final payment of the first lien revenue bonds. All income as it is received by the management shall be deposited with the State Central Savings bank of Keokuk, Iowa, as depository. Mr. Edsell was to remain as president at a salary of \$7,500 per year, the bonds to be paid for out of earnings of the bridge. After the death of Mr. Edsell, the common stock was secured during the Willmering administration of 1944-45, which eliminated the \$7,500 salary.

It was brought out in the proposal that the bridge company had been enjoying a gross income of \$150,000 per year, with an operating expense of \$60,000 annually.

(The proceeds from sale of bonds were \$740,297.21, and \$1,000 for common stock, a total of \$741,297.21; the purchase of bridge \$675,000 and improvements brought the total to \$741,297.21.)

Acceptance by Council.

On Feb. 7, 1941, the bridge committee of the Keokuk Chamber of Commerce and the Keokuk Bridge committee recommended to the city council that the gift proposal of the Keokuk & Hamilton Bridge Co., dated Feb. 7, be accepted. The Chamber of Commerce committee comprised G. L. Weissenburger, Dale E. Carrell, E. A. Ebersole. The Keokuk Bridge committee signers were Dale E. Carrell, G. E. Maxwell, G. L. Weissenburger, E. A. Ebersole.

The city council, in Resolution No. 202, accepted the gift proposal, with John L. Ward, mayor; H. C. Kiser, commissioner of public safety, and Harry L. Ayres, commissioner of parks, as signatories.

Escrow Agreement.

On the 2nd day of April, 1941, the same council and bridge committees

Cont. on next page

notified the Keokuk & Hamilton Bridge Co., Inc., a Delaware corporation, that the city of Keokuk "will accept a deposit in escrow of a conveyance from your company if the property described in the gift proposal dated February 7, 1941, between the undersigned and Keokuk and Hamilton Bridge company, an Iowa corporation, as a compliance with the provisions of the said gift proposal. Your company, however, to be subject to and assume and agree to perform all of the terms and conditions of said gift proposal."

On June 18, 1941, an escrow agreement was made with the Keokuk & Hamilton Bridge company, party of first part; James M. Fulton, party of second part; city of Keokuk, party of third part; the State Central Savings bank, an escrow agent, party of fourth part. The party of first part deposited with party of fourth part, an escrow agreement: A. executed copy of gift proposal dated Feb. 7, 1941, from Keokuk & Hamilton Bridge Co. to city of Keokuk; B. copy of indenture, dated first day of May, 1941, by and between Keokuk & Hamilton Bridge company, a Delaware corporation; and Guaranty Trust Co., of New York, and Arthur E. Burke, as trustees to secure \$775,000 first mortgage sinking fund 4 per cent bonds of said Bridge company; C. deed from Keokuk & Hamilton Bridge, Inc., to city of Keokuk, conveying bridge across the Mississippi river, connecting city of Keokuk and city of Hamilton, Illinois, together with approaches to the bridge.

2. Party of second part, Fulton, deposited with party of fourth part, escrow agent; D. all of the issued and outstanding stock of party of first part endorsed in blank; 3. party of third part deposits with party of fourth part, escrow agent; E. executed acceptance, dated Feb. 7, 1941, wherein city of Keokuk accepts the proposed gift proposal.

The escrow agreement was signed by:

Keokuk & Hamilton Bridge Co.—
Royal D. Edsell, president,
party of first part.
James M. Fulton, party of second
part.
City of Keokuk, Iowa—
John L. Ward, mayor, party of
third part.
Attest: Carl L. Mundy, city clerk.
The State Central Savings bank of
Keokuk, Iowa—
W. A. Logan, president, party of
fourth part.
Attest, E. A. Ebersole, vice-presi-
dent and cashier.

Later Moves.

The bridge committees from this time on ceased to exist. They had served their purpose. The bridge company gift proposal and the escrow agreement took care of the details of working out payment for purchase of the bridge. Engineers who had been contracted to help work out plans for a new bridge and the bond houses who had agreed to sell the bridge bonds were notified that the old bridge would be bought and their services were no longer needed. Legislation in congress that was pending pertaining to acquiring a bridge was withdrawn or held in abeyance.

On August 1, 1947, during the Bierman administration the toll rates on semi-trailers and tandem axle trucks were increased from 50 cents to one dollar.

For the years from 1941 to 1944. Royal D. Edsell was president of the Keokuk & Hamilton Bridge, Inc., with W. A. Logan as vice-president and J. Faulkner Thomas and J. O. Boyd, directors. Mr. Edsell died in August of 1944, and Mrs. Edsell became the president of the company. After much negotiating by Mayor Willmering and City Attorney Lloyd Norman and Messrs. Logan, Thomas and Boyd, the stock of Mrs. Edsell was purchased at as low a figure as was possible to obtain, and W. A. Logan became president, J. Faulkner Thomas was vice-president, J. O. Boyd was a director, and W. J. Ingram was superintendent and secretary-treasurer. A wonderfully fine job has been contributed by the bridge board and its officers in the years since the agreement to purchase was put into effect.

With the bonds now paid, the Keokuk Bridge Commission is in charge of the property. On Dec. 6, 1943, the Bridge Commission was born, created under Section 383.14 of the 1946 Code. The commission comprises four persons, appointed by the mayor, with approval of the city council, and the mayor is an ex-officio member of the commission.

The commission members serve for four years and without compensation. Not more than two of the appointees may be of the same political party. No officer or employe of the city, except the mayor, shall be eligible to serve on the commission. W. A. Logan, chairman of the commission, and J. Faulkner Thomas are Republicans; J. O. Boyd and Wm. R. Sheridan are the Democratic members of the commission. Mayor Frank Willmering is a member, ex-officio and vice-chairman. William J. Ingram is secretary-treasurer.

Some Early Bridge History.

J. O. Boyd, Keokuk attorney, and for over 20 years the efficient attorney for the Keokuk & Hamilton Bridge company, probably knows more about this bridge property than any other living person. He has in his possession papers having to do with the bridge from its earliest days up to the present. It would be a fine thing, in the opinion of the writer, if he would write a book or brochure on the Keokuk & Hamilton bridge, to become a historical record of this bridge, which has played so important a part in the life and history of Keokuk and the surrounding communities. It is significant that 100 years after Keokuk was incorporated as a special charter city, it obtained a free bridge.

Even earlier than 1857, representative and leading citizens of Keokuk and Hamilton were endeavoring to bring about the construction of a bridge across the Mississippi river, connecting these two cities, for railroads and other purposes.

It was during the year 1857, that the Keokuk and Hamilton Bridge Company was chartered by a special act of the Legislature of Illinois. In 1865, a group of citizens of Hamilton, Illinois, procured a special act of the Legislature of Illinois, incorporating the Hancock County Bridge Company, in which the company was given the exclusive right to build, construct, maintain and use a bridge for railways and other purposes over the Mississippi River to the State of Iowa. This act empowered the Hancock County Bridge Company to consolidate its franchise and property with any bridge, railroad, or other company or companies in Illinois or any other state.

On January 15, 1866, a number of citizens of Keokuk, executed and acknowledged Articles of Incorporation of the Keokuk and Hamilton Mississippi Bridge Company, and on March 23, 1867, the incorporators of this company directed the officers to make use of the charter of the company in a manner that would accomplish the building of railroad and wagon bridge over the Mississippi River. On June 12, 1868, these incorporators met and acknowledged an ordinance of the City Council of the City of Keokuk, No. 110, dated May 25, 1868; they also authorized the officers to enter into a contract with the Hancock County Bridge company for the consolidation of the franchises, powers and properties of both these companies, and the form of consolidation was set forth and incorporated in the minutes, and the officers were authorized to execute the agreement. The Hancock County Bridge Company on August 1, 1868, accepted Ordinance No. 110, of the City of Keokuk. On August 3rd, the directors of the Keokuk and Hamilton Bridge Company met and elected officers and approved the articles of incorporation.

It is noteworthy that the character of incorporation and organization of the Keokuk and Hamilton Bridge Company was analogous to the established procedure for ferries in that day, such improvement corporations being organized for fifty years, while other corporations were limited to twenty years, indicating that state legislatures were anxious to further river crossing facilities.

Federal Legislation.

The Federal legislation, under which no doubt the bridge connecting Keokuk, Iowa, and Hamilton, Illinois, was constructed, was an Act of Congress, approved July 25, 1866, which was entitled "An Act to Authorize the Construction of Certain Bridges and to Establish Them as Post Roads."

Section 7 of that Act, read: "And be it further enacted, That the Keokuk and Hamilton Mississippi Bridge Company, a corporation existing under the laws of the State of Iowa, and the Hancock County Bridge Company, a corporation existing under the laws of the State of Illinois, be and are hereby authorized to construct and maintain a bridge over the Mississippi River between Keokuk, Iowa, and Hamilton, Illinois, of the same character, description, and construction as provided in this act for the bridges at Quincy and Burlington; and the said bridge, in its use and operation shall be subject to the same restrictions that apply to said bridges at Quincy and Burlington by the terms of this act."

Finance and Construction.

The Keokuk and Hamilton Bridge Company which acquired the rights and privileges of the Keokuk and Hamilton Mississippi Bridge Company and the Hancock County Bridge Company, was authorized to issue \$1,000,000 of 8% First Mortgage, 30-year Construction Bonds, and 10,000 shares of \$100 par value common stock. These securities were sold to the public, mainly in the East, to supply the funds needed to build the bridge.

It was then that the name of Andrew Carnegie became associated with the Keokuk and Hamilton

Bridge. On Dec 10, 1868, Andrew Carnegie and Asso., (the associate being J. Edgar Thomson, the then President of the Pennsylvania Railroad Company), submitted the following proposal: "We propose to build masonry, embankments and approaches and the wrought iron super-structure of a roadway and railroad bridge across the Mississippi River at Keokuk in accordance with plan, (Marked B), submitted by I. H. Lineville, C. E., and to complete the same previous to January 1, 1870, all ready for use for the sum of Eight Hundred and Thirty Thousand Dollars, exclusive of land damages." The Keokuk & Hamilton Bridge Company accepted this proposal.

The Keystone Bridge Company constructed the bridge during 1869 and '70, but in the interim, the franchise, rights, property, etc., of the Keokuk and Hamilton Ferry and Manufacturing Company were acquired, including part of the land and dyke needed for highway purposes on the Illinois shore. Also, a contract was negotiated and executed by and between The Toledo, Peoria and Warsaw Railroad; The Des Moines Valley Railroad; The Columbus, Chicago & Indianapolis Central Railroad; The Toledo, Wabash and Western Railroad, and the Keokuk and Hamilton Bridge Company, wherein these railroads were to have exclusive railroad privileges to cross the bridge in perpetuity, they agreeing to pay the tolls for freight and passengers specified in a schedule which was made a part of the contract, with a guarantee that the aggregate of these payments would be \$80,000 or more per year, during the life of the agreement.

Celebration on June 13, 1871.
The bridge and approaches, including railroad facilities were completed, and the first train crossed from Hamilton to Keokuk on June 13, 1871. There was a real celebration over the event and the Keokuk press reported it as a "gala time, this great enterprise creating a gateway to the rich farming community west of Illinois." The History of Lee County states: "Nothing in the way of a public enterprise has been of such benefit to Keokuk as the building of this bridge."

Panic and Accident.
In the panic of the early Seventies, purchasers of securities of the Keokuk and Hamilton Bridge Company were somewhat disillusioned, history tells us. All of the railroads using the bridge, with the exception of the Columbus, Chicago and Indianapolis Central Railroad became hopelessly bankrupt, the C. C. & I. road being a subsidiary of the Pennsylvania railroad.

The only serious accident to the bridge occurred on November 8, 1881, when a river steamer, the "War Eagle" became unmanageable because of the especially strong current of the river in a flood period, and crashed into and toppled over and destroyed a 160-foot span of the bridge, just east of the draw span. A temporary wood span was hastily put in place, and later replaced by a permanent wrought iron span at considerable construction cost and loss of revenue. The "War Eagle" was a total loss, and the com-

pany was unable to secure payment for the damage and loss sustained.

Robert Lincoln Saves Day.
Then in 1884 and 1885, quite a little commotion was caused by a claim that the bridge had not been built in full conformity with the plans and specifications, after the River and Harbor Act of July 5, 1884, appropriated \$50,000 for improving the Mississippi river at Des Moines Rapids, Iowa, "of which sum, \$10,000, is to be used in the construction of a pier at the outer wall of the Des Moines Rapids Canal, in accordance with recommendation of the Engineer Corps. Provided that said pier shall not be made unless the Secretary of War shall decide that the railroad bridge at that place was built in conformity with the Act of Congress authorizing its construction."

There was voluminous correspondence with Robert T. Lincoln, then Secretary of War. U. S. Senators Wm. B. Allison and James F. Wilson took a hand in the argument. General James H. Wilson of the U. S. Army, Thomas Clarke, Joseph Smith and I. H. Lineville, engineers, made reports. John Carpenter, lockmaster here, and M. Meigs, U. S. Engineer, gave testimony. There was correspondence from Andrew Carnegie, Wm. W. Belknap, attorney at Washington, and Judge George W. McCrary, of the law firm of McCrary and Hagerman, located at 19 North Fifth street, Keokuk. Belknap was at one time secretary of war, and some Keokukians still recall him.

Secretary of War Robert T. Lincoln settled the argument with this letter sent to Andrew Carnegie, Esq., President Keokuk and Hamilton Bridge Co., 23 Broad street, New York City: "Referring to previous correspondence touching the question as to whether the bridge authorized by Act of Congress to be constructed in accordance with the legal requirements with reference to location of piers, etc., I have the honor to inform you that the Secretary of War has decided that the bridge referred to was built in conformity with the Act of Congress authorizing its construction."

Other Bridges Sought.
In 1912, a group of citizens of Keokuk organized the Intercity Bridge Company, in cooperation with the Mississippi River Power Company, and asked Congress for an Act permitting the use of the top of the dam for a river crossing.

At the same time, R. O. Marsh, of Warsaw, Ill., in behalf of the Hamilton, Warsaw and Keokuk Bridge Company, asked Congress for an enabling act to permit that company to build a bridge across the Mississippi river from the Iowa shore.

These requests were not granted.

S. Corps of Engineers, between his associates and the Keokuk Municipal bridge commission concerning details of the new 1,200-foot lock which will affect the bridge.

While representatives of the U. S. engineers are in Keokuk they also may reopen the question of moving the Keokuk boatyards and engineer offices to LeClaire.

Plan Several Conferences. ...
In Davenport today, Gen. Lewis A. Pick, chief of the army engineers, who is conferring with associates there, said that several conferences will be held before any definite decision is made concerning a transfer of the Keokuk installations to the site north of LeClaire.

However the situation is worked out, the boatyards, established in their present location here during the water power construction in 1913, must be relocated, either here or elsewhere, because the new lock will be built on ground now occupied by the engineer office building and other facilities.

Chamber Opposes.
The Keokuk Chamber of Commerce has had several meetings with the engineers to protest the proposed transfer to LeClaire outlined here several months ago by Colonel Finley.

The Chamber feels that the boatyards represent a significant contributing factor to the prosperity of Keokuk since it has full time payroll of 50 employes, plus many seasonal workers. It has been estimated that this payroll runs as high as \$250,000 to \$300,000 a year.

Extends Through Bridge.
Although the lock will require an expenditure of \$18,000,000 and take three or four years to build, it is the opinion of some Chamber of Commerce members that from a long range viewpoint the boatyards is much more important to Keokuk than the lock.

Tomorrow's conference with the bridge commission and city council is primarily for the purpose of discussing the effect of the lock on the bridge, Mayor Hubert Schouten said today. A long guard wall will extend from the lower gate of the new 1,200-foot lock through the inner draw of the bridge and be attached to the draw pivot according to plans.

It will then continue well down the river beyond the bridge.

THE DAILY GATE CITY
July 16, 1952

Engineers Book Bridge Meeting, May Discuss Boatyards Thursday

A conference has been scheduled here tomorrow by Col. G. A. Finley of Rock Island, district engineer, U.

Now in Debt, Bridge Must Spend Up to Half Million, Logan Says

Concrete and reinforcing steel to the amount of more than \$300,000 which lie hidden beneath the surface of the Mississippi river represents one of the imperative reasons why passenger vehicle toll had to be reinstated on the Keokuk Municipal bridge, W. A. Logan, president of the commission, told retailers at a luncheon meeting in the Hotel Iowa yesterday.

At the request of the commission, which faces an additional maintenance and rehabilitation expenditure which may run as high as a half million dollars, the city council Monday gave the first reading of an ordinance which will revive toll charges but at a reduced rate of only 10 cents for passenger automobiles and pickup trucks.

Will Earn \$100,000 Yearly

With this 10 cent rate, plus scaled up charges for heavy trucks and the considerable revenue derived from the railroads, the net earnings of the bridge will approximate \$100,000 a year and, aside from presently unforeseeable contingencies, it should be possible to make the bridge toll free again within five or six years, Logan said.

The commission and city had no alternative but restore the toll, Logan explained. Because of unusually heavy expenditures entailed by the concrete jacketing of the piers during 1950 and 1951 and the annual cost of repairing flood damage to the dike approach in Illinois, the commission is already \$90,000 in debt and faces the necessity of spending between \$300,000 and \$500,000 for maintenance within the next two and a half years.

This amount includes replacement of the present wood floor, repainting of the steel work, construction of a new crib to protect the draw span and repair of the dike road which is to be resurfaced this summer. The new floor, which will be added within two years will cost up to \$150,000 if it is replaced with wood, or \$300,000 to \$400,000 if modern, grid steel is used. The commission hasn't decided on the type of flooring as yet.

Want Reserve of \$100,000

Repainting will cost \$50,000 or \$60,000 and the new wooden crib, for which much of the timber is already on hand, will cost between \$20,000 and \$25,000.

As a result of the pier jacketing, which has already been completed, and if the grid steel flooring is used, there will be practically no limit to the life of the bridge which should

last indefinitely with only ordinary maintenance, Logan said. Before making the bridge toll free again, however, the commission hopes to build up a reserve fund of at least \$100,000.

It had such a fund of \$80,000 when tolls were taken off in January of 1949 but the cost of reinforcing the piers not only ate up that sum but forced the commission to borrow \$90,000 to pay the final bill to



The Keokuk Gate City and Constitution Democrat THURSDAY, MAY 15, 1952

BEFORE AND AFTER EXPENDITURE OF \$300,000. Old stone masonry piers of the Keokuk Municipal bridge presented the appearance of the upper photograph in 1949 as a result of deep and dangerous corrosion in the original concrete jackets which were placed around them without unwatering the foundation in 1927. The concrete had not only been eaten away to alarming depths as can be seen in the picture but the stone itself was affected and the weakened pier bases were supporting collars of a 100 tons of cement. The lower picture shows the completion of a new, reinforced concrete jacket inside a coffer dam just before it was reflooded. Evidence of this \$300,000 job now is hidden from the eye beneath the surface of the Mississippi. —By Ingram Studio

Vollmar Brothers of St. Louis which handled this extensive project at the above mentioned cost of more than \$300,000.

Given to City.

In discussing the situation with the merchants yesterday, Logan sketched the history of the city's connection with the bridge which formerly was a private company.

This company made a gift proposal to the city in February of 1941 with the condition that \$775,000 in revenue bonds would be paid off through earnings of the bridge after which it would become toll-free. The deed was placed in escrow and, in the spring of 1948 when all of the bonds had either been paid off or sufficient money was on hand to retire them, it was turned over to the city.

The original company at the time of the gift included Royal D. Edsel, president, J. O. Boyd and W. A. Logan and was known as the Keokuk and Hamilton Bridge, Inc. Edsel died in 1944 and J. Faulkner Thomas took his place as a director with Logan succeeding to the presidency.

Before turning the bridge over to the city the company decided to collect tolls until it could build up a reserve fund of between \$200,000



bridge the commission has been confronted with a repair bill of between \$10,000 and \$25,000 for the dike approach which has been under water every year during the spring floods. It is thus understandable that the commission has not only used up its reserve fund but has been forced to borrow \$90,000 which still is unpaid.

That the re-jacketing was as essential as the engineers pointed out was discovered later when it was found that one of the piers had shifted three and a half inches to the east. As a consequence it was necessary to jack up the span and shift it into plumb at a cost of about \$5,000. Ever since the city has owned the

or \$250,000 but it was involved in a tax suit with the treasury department which it lost in the lower court and then took to the circuit court of appeals.

Toll Off Jan. 13, 1949.

By January of 1949 the reserve fund had been built up to \$80,000 and it was the opinion of the attorneys representing the city and the company that their position in the tax matter would be strengthened considerably if the conditions of the gift proposal were complied with at once and the bridge were turned over to the city, toll-free. This met with the approval of the commission and tolls were taken off passenger vehicles on January 13, 1949, with a public ceremony attended by officials from Iowa and Illinois.

Everything went along fine until one day, during a period of low water, Superintendent William J. Ingram observed that the old con-

crete protective jackets around the piers were badly corroded below the water line. Divers were summoned to examine the piers to the river bed and their investigation proved that they were in exceedingly bad condition.

Original Jackets Poor.

In 1927 the stone masonry of the piers were found to be in a dangerous shape and the first concrete jackets were poured at that time. Instead of building coffer dams, unwatering and drying out the piers, however, forms were merely built around the piers and a mixture of concrete, rock and sand was poured into the surrounding water.

The mixture hardened to a sound jacket around the upper portion of the piers but for a space of four or five feet above the bed of the river it was of such poor quality that it corroded badly and actually left the piers in worse condition than be-

fore. When divers examined them in 1949 they found that the concrete had not only sloughed away at the bottom but that the old masonry itself had been affected and that, in addition to the bridge, the damaged bases of the piers were also supporting a 100-ton collar of cement.

A Complete Job.

Engineers called in for consultation warned the commission of the gravity of the situation and reported that the installation of new, reinforced concrete jackets was urgent. In its work the Vollmar Brothers Co. built a coffer dam around the piers, pumped out all of the water, chipped away the old concrete and thoroughly dried the surface before building the new jackets which have a minimum thickness of 18 inches of concrete and steel. In some places where the old masonry had

corroded the jackets are up to five feet thick. As a result of this work which, because of floods, low water and sub-zero temperatures required almost two years and an unexpectedly heavy expense, engineers now report that from a standpoint of its foundation at least, the bridge will endure indefinitely.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

A REPORT to the Tri-State
Community:
The Reasons for a

Scheduled to Go Into Effect

Soon on The

10c KEOKUK MUNICIPAL BRIDGE

The Keokuk Chamber of Commerce, as a public service, here offers a question and answer summary of the reasons why a small toll must be restored on the Keokuk Municipal Bridge. The answers are authorized by the Keokuk Bridge Commission.

RATE SCHEDULE

1. Private passenger motor vehicles including station wagons, one way, 10 cents.
2. Pickup and panel trucks of rated capacity not exceeding $\frac{3}{4}$ tons, one way, 10 cents.
3. Other two axle trucks exceeding $\frac{3}{4}$ tons capacity and with a gross load under 20,000 pounds, each way, 25 cents.
4. All taxicabs and buses under a gross weight of five tons, each way, 25 cents.
5. All semi-trailers attached to tractor, each way, \$1.50.
6. All trucks having more than two axles, each way, \$1.50.
7. All vehicles, trailers or equipment of a width requiring closing to two-way traffic, an additional fee of \$1.00.
8. Two-wheel house trailers attached to passenger cars or station wagons, each way, 25 cents.
9. Small, two-wheel house trailers attached to passenger cars or station wagons, free.

Toll

Q. Why is a toll being reinstated on the Keokuk Municipal bridge after being toll free 3½ years?

A. There are many contributing factors, but the answer, in a nutshell, is simply that our expense of upkeep has far outrun our revenue, and we must have funds to pay our indebtedness, and finance necessary repairs and improvements.

Q. Since taking over the bridge, what has been the revenue derived from railroads and commercial transportation?

A. Our net revenue, after anticipated regular costs has averaged about \$50,000 annually, which has not been enough for the extraordinary expense we have had these past few years.

Q. What in particular makes up the extraordinary expense you have had?

A. The floodwaters of the Mississippi which necessitated repairing of the dike road the past 2 years cost \$35,000. However, the most expensive project has been the concrete and steel re-inforcing of the underwater bridge piers in 1950 and 1951. That cost in excess of \$300,000.

Q. What brought about such a large and expensive project?

A. The costly repair project on the piers was entirely unexpected. Supt. Ingram, while inspecting the piers during a period of very low water in 1949 discovered they were in very bad condition. Back in 1927, repairs had been made to the piers, but our inspection 3 years ago revealed that the bases of the piers had not been properly reinforced. In 1927-28 the consulting engineers of

what was then the privately owned Keokuk and Hamilton Bridge Co. designed a plan for the repair of the bridge piers. It called for them to be coffer-dammed and unwatered and a reinforced concrete jacket placed around the piers to a height well above the normal water level. However, the design was not followed. Instead, the forms were built in the water and filled with concrete without the benefit of reinforcing steel. Since the concrete was poured into forms containing ten feet of water, the cement instead of lending strength and stability to the piers was actually detrimental. The base of the piers was no better than before, while supporting a huge collar of concrete which adhered to the pier at and above the water level. After Supt. Ingram's 1949 inspection, we called in engineer experts, and they advised immediate action.

Q. Has this expensive project now been completed?

A. Yes, we contracted with a St. Louis firm who did a thorough job. They built a coffer dam around the piers, pumped out all the water, and then built new concrete and steel jackets. Our consulting engineers advise us the bridge piers are in first class condition and should last indefinitely.

Q. What other expenses do you face that are necessary at this time?

A. The structural steel on the main bridge and the land bents must be painted to keep them in good condition. This will cost between \$50,000 and \$60,000.

Q. Any other major expenses?

A. Yes, one very vital project in particular. The present wood floor of the bridge must be replaced soon. It has taken terrific wear and tear from bridge traffic and it is showing evidence of its years of exposure to the elements. Within the next two years either a new wood or steel flooring will have to be laid over the entire bridge.

44

We might get by with wood, at a cost of about \$150,000 but if modern, grid steel is used, the cost would be double. Of course, the steel would far outlast the wood floor and would require little if any maintenance or snow and ice control.

Q. Does that sum up the major expense items you need funds for?

A. Yes, with the exception of two lesser projects. We must replace a pivot pier fender soon at a cost of about \$20,000, and this summer we will have to resurface the dike road, due to this years flood.

Q. All of these aforementioned expenses add up to a formidable total. What do you anticipate as your total expenditures for the next few years, and what are your hopes for revenue?

A. Within the next two and a half years, we face up to a half-million dollar expenditure to take care of our indebtedness and bridge repair maintenance, and improvements. It is our hope that with earnings from the proposed new tolls of about \$100,000 annually we can absorb these expenses and make the bridge toll-free again in the foreseeable future.

Q. What condition should the bridge be in after these major projects are accomplished, and what is the expense outlook beyond the next few years?

A. After the bridge has been re-floored, and as a result of the pier jacketing, the Keokuk Bridge should be in excellent condition for many years to come, particularly if the grid steel floor is used. After these major expense outlays, the only costs should be of a minor nature in upkeep, repairs and painting. About every 5 years the bridge must be re-painted.

Q. For the benefit of those people who may not be acquainted with the facts that led to the city's ownership of the bridge, just how did that come about?

A. For years this bridge was owned by a private company. In 1941 the proposal was made by its owners that the city be made a present of the Keokuk - Hamilton Bridge. The stipulation was that \$775,000 in revenue bonds be paid thru earnings of the bridge after which it would be deeded to the city.

Q. Did the city actually take over the bridge at that time?

A. No, not until later. The deed giving the bridge to the city of Keokuk was placed in escrow until enough money was earned thru tolls to pay off all the bonds. That goal was achieved in 1948.

Q. Did the bridge become the property of the city then in 1948?

A. Not officially. It was decided to collect tolls enough for a reserve fund of between \$200,000 and \$250,000 thru the company ownership so that when the city took over there would be some money for emergencies.

Q. Did that reserve fund ever accumulate to that proportion before the city took over its ownership?

A. No, it did not. By January of 1949, when the private company transferred official ownership to the city, the reserve fund amounted to only \$80,000.

Q. Why was the bridge transferred to the city then at that time?

A. It was primarily because of an argument, involving back taxes claimed by the federal government. The government had won the case in the lower courts, and it was taken to the circuit court of appeals. The attorneys representing the company and the city believed our position against the federal government in this tax case would be strengthened if the bridge could be turned over to the

city immediately, for toll-free passage to passenger cars.

Q. How did the case turn out as a result of this action?

A. We won the case, and saved the city payment of possibly \$700,000 in federal taxes levied against the bridge. Some people had asked if it wouldn't have been better to have maintained a toll several years rather than to have made it toll-free when we did. Yes, ordinarily it would have been, and we originally planned it that way. However, as pointed out, the federal tax case, involving a huge sum of money, made it feasible for the city to assume ownership in January 1949, with the bridge toll-free to passenger cars. The results have vindicated that action. We won the case, and saved approximately \$700,000 in back taxes.

Q. Essentially, what is the difference between the new and the old bridge toll, as regards passenger traffic?

A. The old toll was 25c each way. The new toll for passenger cars will be 10c each way. In addition, pickup trucks can cross for the 10c toll. We dislike as much as anyone having to restore a toll, but we are forced to do it.

Q. Who is on the Keokuk Bridge Commission at the present time?

A. The officials of the Keokuk Bridge Commission are W. A. Logan, chairman, Hubert Schouten, mayor, member ex-officio, J. Faulkner Thomas, vice-chairman, J. O. Boyd, member; W. R. Sheridan, member and W. J. Ingram, secretary-treasurer. Incidentally, all with the exception of Mr. Ingram, bridge superintendent, serve without pay.

ury to make up for revenue lost because of a state-ordered reduction in taxes on Keokuk utilities.

"Time to Stop"

Since 1956 more than \$1.5 million in bridge tolls has been spent on other city projects.

It's time to stop all that, says U.S. Representative Paul Findley (Rep., Ill.) who represents the region across the Mississippi River from Keokuk.

The Motor Club of Iowa is also mounting a campaign against the 10-cent toll.

Opponents of the toll say it not only is unfair to use tolls for other projects, it probably is illegal.

Findley wants the U.S. Department of Transportation to investigate; the Motor Club has written the state attorney general.

No Improvements

Findley says bridge users—and Illinois residents who work in Keokuk are the biggest users—aren't getting their money's worth for the toll, because no improvements have been made on the bridge in years.

Rather than spend toll money on civic projects, Keokuk should be pouring the funds back into the bridge said the Illinois congressman.

Findley pointed out some of the things wrong with the Keokuk bridge:

"It is very narrow. Trucks have a difficult time passing each other and side collision have been numerous. Other complaints about the safety of the bridge have been voiced.

"In addition the design and operation of the existing structure—it is a draw bridge—have caused traffic congestion and delays of vehicles, including ambulances and other emergency vehicles."

Want New Span

Findley said his constituents "feel that a new or modernized bridge is needed over the Mississippi River at that point. I concur with their views."

A study of the Keokuk bridge for the Iowa Highway Commission noted "the crossing does not meet modern roadway design standards" and said a new bridge could easily pay for itself.

But the Highway Commission has not recommended a new

bridge at this time.

Building a new state-owned bridge would be like killing the goose that laid golden eggs, as far as Keokuk is concerned.

Without spending tax money, the city has gotten a long-list of improvements in the last few years:

A new city library—\$100,000 of the \$300,000 cost paid by tolls, a \$90,000 city hall financed entirely from tolls, a \$154,000 municipal ice rink, \$22,000 north of tennis courts, a \$39,000 contribution to a new police and fire station, plus a school stadium, urban renewal projects, flood control work, a river museum, a swimming pool and \$100,000 worth of parks.

The Motor Club says state laws only allow tolls for building, maintaining and operating bridges, not for general municipal uses.

There have been complaints before about use of the bridge tolls, but Keokuk Mayor Kenneth Henke, jr., said the city "is still operating the same way with it."

"We're using the majority of the money to finance the maintenance and operation of the bridge and the remainder for the betterment of the city," the mayor said.

The Keokuk Gate City and Constitution Democrat THURSDAY, MAY 22, 1952

Council Passes Toll Ordinance

The city council this morning gave final passage to the ordinances which will put in effect the new tolls on the Keokuk municipal bridge.

The ordinances will go into effect immediately upon legal notice publication in The Daily Gate City, although the exact hour at which the tolls will begin to be collected will in all probability be determined by the bridge commission.

In other business before the city council this morning, Leonard Jones' bid of \$550 for purchase of city property at 16th and Palean streets was accepted. Inherent in the bid was Jones' understanding that the city would bring the property abstract up to date.

Des Moines Sunday Register March 16, 1969 Local Section 4-L

Keokuk Use Of Span Tolls Is Protested

By a Staff Writer KEOKUK, IA.—It only costs a

dime to cross the municipal toll bridge here, but the fee may set off a federal investigation.

For years the 10-cent tolls have allowed the bridge to be like a rich uncle for the city.

"Profits" from the bridge have paid for parks, a new City Hall, urban renewal, a swimming pool and a major share of a new library.

This year the bridge is pouring \$100,000 into the city treas-

"THE GREAT DUST HEAP CALLED HISTORY" R. J. BICKEL, KEOKUK, IOWA

Agreement on Right of Way On Bridge Road

At a very important meeting, held yesterday at Hamilton, action was taken that will start the ball rolling for a new right of way from the east end of the Keokuk and Municipal bridge to the city of Hamilton. The Illinois Highway Commission has been awaiting such action so that the improvement contemplated could be made. Thus the green light is given for the project.

The meeting was called by Mayor John Buss, of Hamilton, and E. E. Leroy, also of Hamilton. Mayor Buss is chairman and Mr. Leroy a member of the highway committee. At the meeting were representatives of the Illinois Division of Highways, the Hamilton right of way committee, the Bridge Commission of Keokuk, and property owners interested in the right of way.

District Engineer John Mattison, of Peoria, and Charles Seville represented the highway commission. Chairman W. A. Logan, J. Faulkner Thomas, William Sheridan, James Cameron, Mayor Hubert Schouten and Secretary-Treasurer William Ingram represented the Keokuk Bridge Commission. Mayor Buss and E. E. Leroy, of Hamilton, as noted above, represented the Hamilton Highway Committee. The property owners represented were: Robert Dadant for Dadant & Sons; Harold Casley, Tommy Inman, Harold Mekemson, Charles Boltz for the Union Electric Power company, and Loren Strahn for the Strahn Fish Market. One or two other property owners were not present or represented.

These organizations and individuals met yesterday afternoon and a satisfactory agreement was consummated. The property owners represented signed dedication papers, giving their O. K. to the right of way planned. The property owners not present are expected to sign and advertisement for bids will be initiated.

The people of Hamilton and Keokuk and the thousands of patrons of the bridge will be happy over the satisfactory settlement of the matter that will start things rolling and bring to fruition the planned improvement. It will insure an all-weather and all-year highway between the two states. In past years, floods have made the crossing impossible on many occasions, meaning a loss to the bridge and to the two cities.

Much credit is given Mayor Buss and E. E. Leroy for their part in yesterday's settlement.

Install Sirens On Bridge Gates

Sirens have been installed on both safety gates at the draw on the Municipal bridge and will start shrieking their warning to motorists Saturday, Superintendent William J. Ingram announced.

Manually operated at present, they will sound just seconds before the gates go into operation as an additional safety measure. As soon as timing equipment arrives they will be operated automatically.

Ask Cooperation.

Although the bridge has long been equipped with bulls-eye and flasher lights, many motorists continue to ignore them and take dangerous chances trying to "beat" the gates, Ingram says. They do this at the hazard of their own and their passengers' lives, he warns.

These warning lights, placed 300 feet in advance of either gate, will now be augmented by the auditory signals of the sirens, and Ingram hopes that car-drivers will cooperate—for their own safety.

With the construction of the new 1200 foot lock this spring and summer, bridge openings will be considerably more frequent than in the past because tows will have to be split up before passing through the bridge when the cofferdams are built.

Span Cut to 112 Feet.

The new guard walls for the approach to the lock will extend through the bridge and when the cofferdam and the Illinois rest pier spurs are in place, the bridge span open to the passage of boats will be reduced from its present 175 to only 112 feet with the angle of approach also materially changed.

The U. S. Engineers are constructing three mooring cells for the boats below Johnson street and have notified navigation interests that tows must be restricted as to length and width, and be maneuvered into the new lock approach with extreme caution.

Many Improvements Made on Bridge, Other Projects Planned

Keokuk municipal bridge is in its best physical condition in many years as a result of an extensive rehabilitation program undertaken by the commission at a cost of \$344,620 and the protection of the pivot pier which the U. S. Engineers incorporated into the guide walls of the new lock, Chairman W. A. Logan reveals.

In addition the commission will share the cost of a new span over the Hamilton slough when Illinois builds the new approach to the

bridge and also plans to put a new steel subway grating floor on the main bridge highway and straighten out the "S" curve on the Iowa approach when finances permit.

Serve Without Pay

Created in 1948 to handle the administration and operation of the municipal bridge when it was taken over by the city, the commission, which serves without pay, has devoted much time and attention toward improving as well as maintaining this important piece of Keokuk property and has earned the gratitude of the community for its public service.

Members of the commission in addition to Logan are J. Faulkner Thomas, James Cameron Jr., William R. Sheridan and Mayor Hubert Schouten. Thomas is vice chairman and W. J. Ingram secretary and treasurer.

Piers Encased

In enumerating some of the accomplishments since 1948 Logan called attention to the fact that when the commission took over eight of the river piers were in a very dangerous condition below the water line. They were cofferdamed, unwatered, thoroughly cleaned and finally encased in reinforced concrete to a height slightly above normal pool level. Now they should last indefinitely. Cost of this improvement was approximately \$300,000.

By negotiation with the Army Corps of Engineers approximately \$150,000 was saved by the elimination of the necessity of rebuilding the timber protection crib around the pivot pier and swing span. After much discussion the engineers decided to incorporate this protection in the guide walls of the approach to new Lock No. 19 which is currently under construction.

Reduce Insurance Cost

The concrete masonry of this phase of the work now is completed with the result that the pivot pier and Iowa shore abutment are entirely encased in concrete. These two piers are thus absolutely invulnerable to navigation hazards.

This improvement, together with the stabilization of the river piers will result in a decided reduction in the insurance premiums on bridge properties. At present the commission is carrying \$1,000,000 in property damage and \$295,000 in use and occupancy insurance in favor of the city.

Much work also has been done by the commission in cooperation with

the Illinois division of highways and prominent citizens of Hamilton and Hancock county in connection with the new Illinois approach which the state is prepared to build as soon as title can be cleared to some of the parcels of property required by the state for right-of-way purposes.

Buy Right of Way.

In order for Illinois to build this approach it was necessary for the bridge commission to furnish the right-of-way by gift and outright

Cont. on back...

purchase and to agree to stand one-half of the cost of a 210 foot bridge span across the Hamilton slough, up to but not to exceed \$75,000. Thus if the span costs less than \$150,000 the commission's share will be reduced to half of the lower figure.

The new approach will follow a course parallel to the railroad right-of-way from the end of the bridge to a point approximately where the Union Electric Power company's transmission line crosses the railroad and thence on a gradual curve to reach US Highway 136 at Second street in Hamilton, between the Dadant and Sons factory and Casley's.

Abandon Dike Road.

When completed this new approach will effect a considerable savings in maintenance costs as well as being a convenience to the motoring public, especially during periods of high water since it will be well above the highest known river stage.

The tortuously winding, dangerous and expensive old dike road and covered bridge will be abandoned. Right-of-way commitments in addition to the bridge over the slough are \$41,100 plus a connection charge where the new approach will join the bridge. This is roughly estimated to be around \$25,000. Of the total right-of-way commitments \$39,600 is already deposited in escrow.

During last year the entire steel structure of the bridge was repainted with a prime coat of red lead and one black finish coat at a cost of \$39,800 for labor and \$4,420 for paint, materials and supplies for a total of \$44,220.

Recapitulation.

Recapitulating, the following amounts already have been said:

Pier repairs	\$300,000
Painting	44,620
Right-of-way commitments share of bridge real estate in escrow	39,600

Total\$384,220

Amounts still unpaid:

Slough span share	\$ 75,000
Right of way	1,500
Connection cost	25,000

Total\$101,500

Thus the total cost for this extraordinary expense will be \$485,720.

Steel Floor.

The commission also has under consideration, when finances permit, a new steel, subway grating floor on the main bridge highway deck and the elevated land approaches together with a slight straightening of the S curve on the Iowa approach, both of which must be considered major projects requiring considerable capital outlay.

It is felt that the steel floor would be an economical move in that it would last indefinitely and require a mere fraction of the maintenance necessitated by the present timber floor. The curve correction would be a decided convenience and safety factor for the motoring public.

Keokuk and Hamilton Riverfronts Astir With Activity These Spring Days

New Bridge Approach Speeding Up

HAMILTON, Ill.— Construction of the new approach to the Keokuk and Hamilton bridge, out of Hamilton, is rapidly being pushed into shape by a battery of big caterpillars and other earth-moving machines. The new approach will be a sweeping arc beginning at the Dadant factory and swinging around to the bridge.

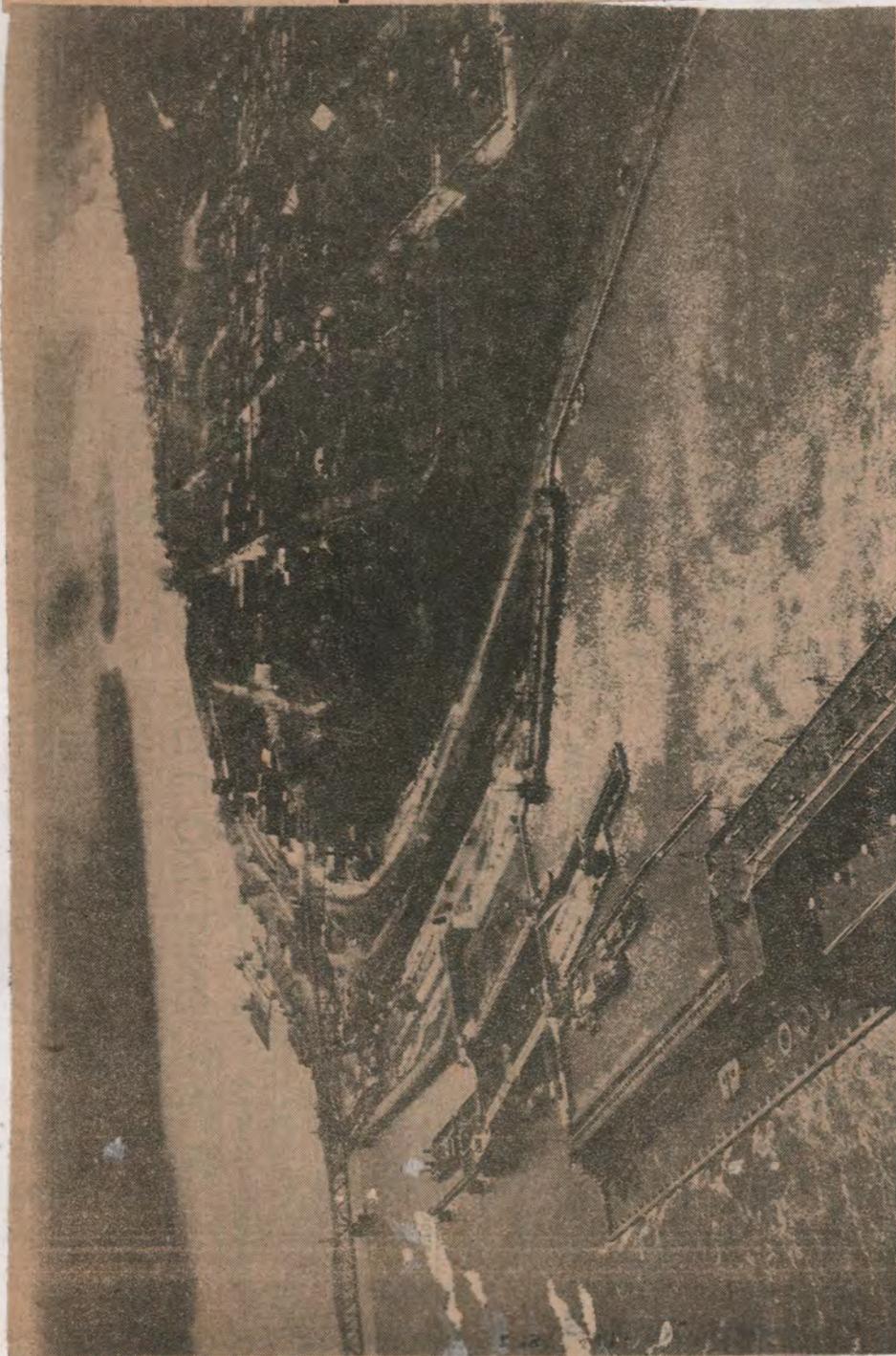
Traffic was a problem Monday and Tuesday of this week as the big cats pushed the dirt around to form the roadbed. It was necessary for hundreds of cars that use the approach to Keokuk to bump along on an improvised roadbed adjacent to where the new one is being built.

One Way Traffic

Many a motorist gazed apprehensively at the big machines as they crawled back and forth, sometimes very near to where the cars bumped along. On certain occasions, the cats and cars made a side-by-side approach to a given point. It was a one-way traffic proposition, too, so cars from the opposite direction had to be held in line while traffic moved one way.

This is apparently the last summer that motorists will get a winding view of the dam, locks and Keokuk and Hamilton bridge. When this drive was built a generation or so ago, the idea was that everyone would want to see the dam across the wide expanse of the Mississippi below the spillways. This was true — in that generation. But now it is a problem of keeping the speed down to manipulate those curves. Motorists are warned repeatedly, but more than one "hot racer" has been dunked in the Mississippi after he took out an expanse of fence on one of the curves. Fortunately, few, if any, have drowned in the time this picturesque drive has been in use.

NEW LOCK AS VIEWED FROM AIR ABOVE POWER HOUSE



Slow Down For Bridge

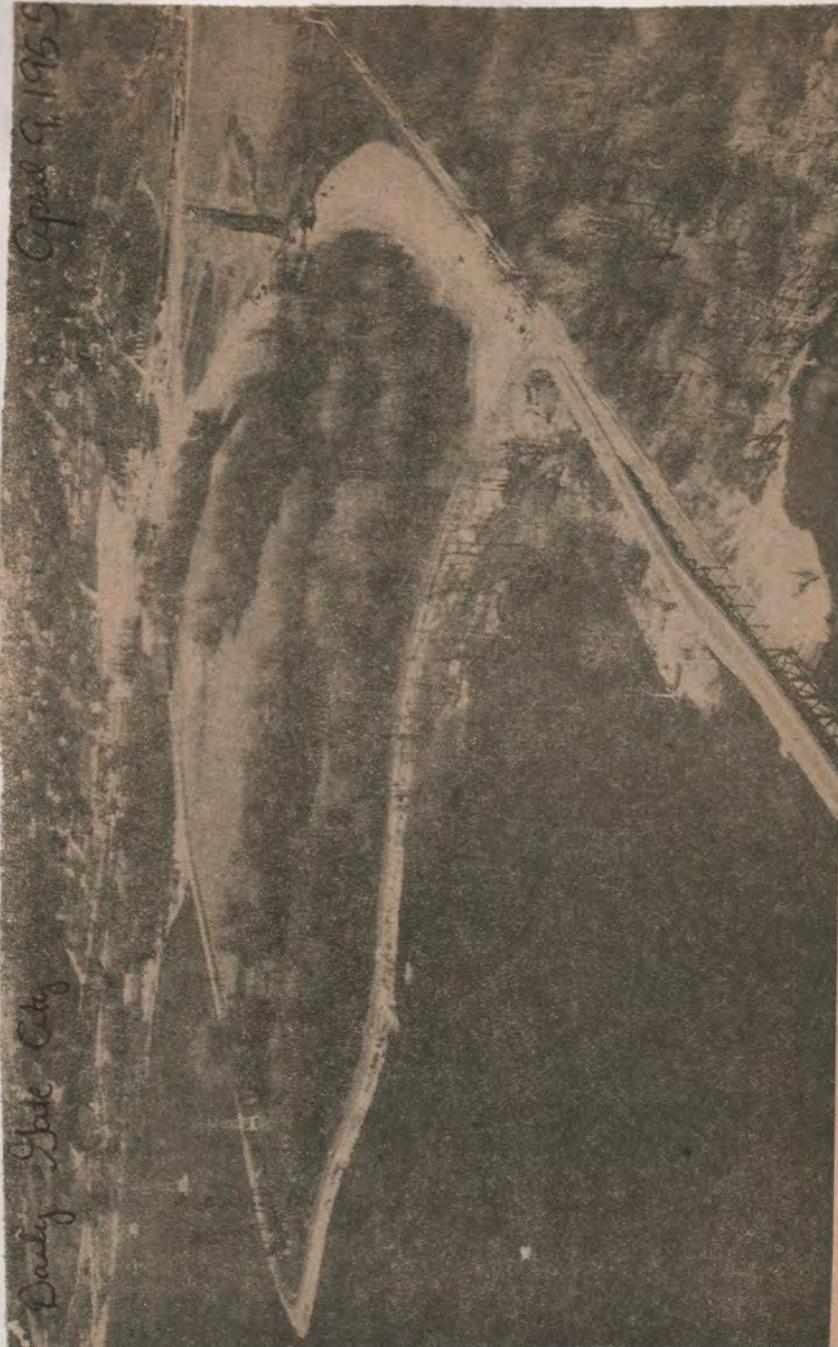
Motorists will not mind being cut off from this picturesque view, in all probability, when they can make the wide sweep on the new approach to the Keokuk and Hamilton bridge. They still will find it quite necessary to slow down upon approaching the bridge, however. The bridge, built almost three generations ago, will still be there, after the beautiful and convenient approach has been completed.

It is the hope of business interests in Keokuk and friends on the other side of the Mississippi that perhaps some day, before another generation passes, that a new bridge will span the Mississippi at Keokuk over to Hamilton. They can even visualize it being similar to the Quincy Memorial bridge, or the Mark Twain span at Hannibal. From dreams and plans come reality and with Federal Highway 136 crossing the Mississippi at this point, the dream someday will likely become a reality.

Gate City Photos Show Progress On Riverfronts

These pictures, together with another on the front page, were taken by Don Broeckert, Gate City photographer, of the construction activities now in progress on the Keokuk and Hamilton river fronts. Most of them were taken from a plane of the Lindner Flying Service and others were made on the ground.

The new approach to the municipal bridge on the Hamilton side of the river is being built by Joyce Brothers Construction Co. of Springfield, Ill., to bypass the old dike road. Stage II of the 1200 foot lock, which includes the concrete lock chamber itself, is being handled by the J. A. Jones Construction Co. of Charlotte, N. C.



50

NEW KEOKUK BRIDGE APPROACH LOOKING TOWARD HAMILTON

April 9, 1955 Daily Gate City



GROUND VIEW OF NEW ROAD FROM BRIDGE AT LEFT

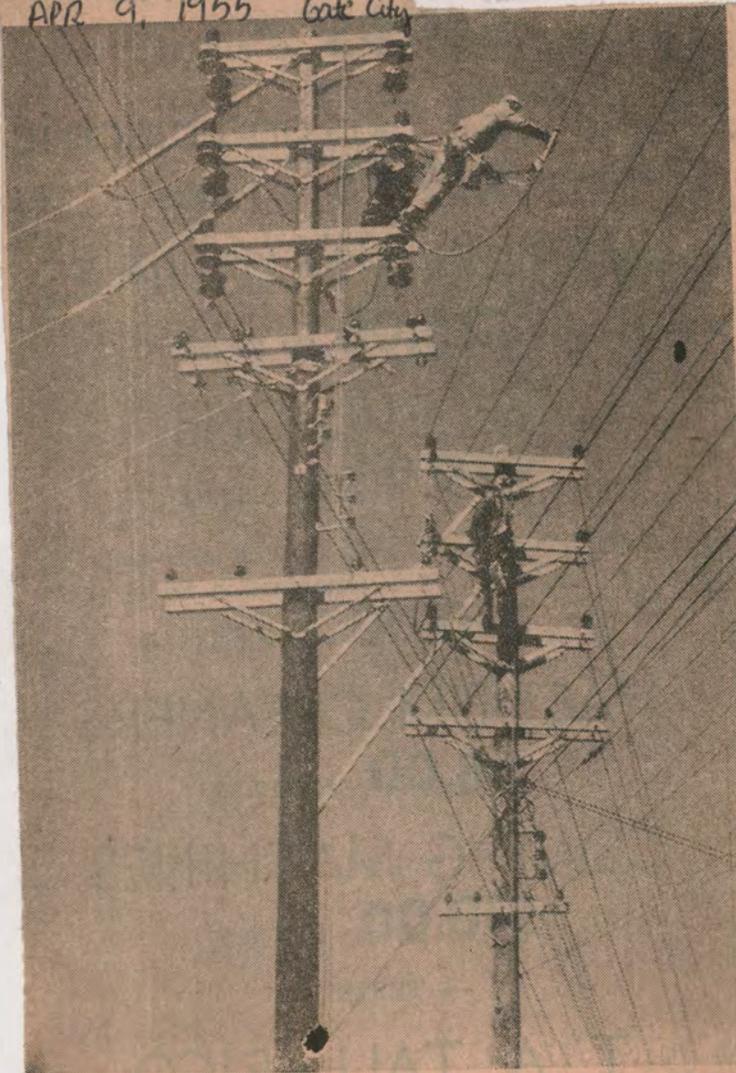
BUILDING NEW CATCH BASIN ON BRIDGE APPROACH



April 9 1955

DAILY GATE CITY

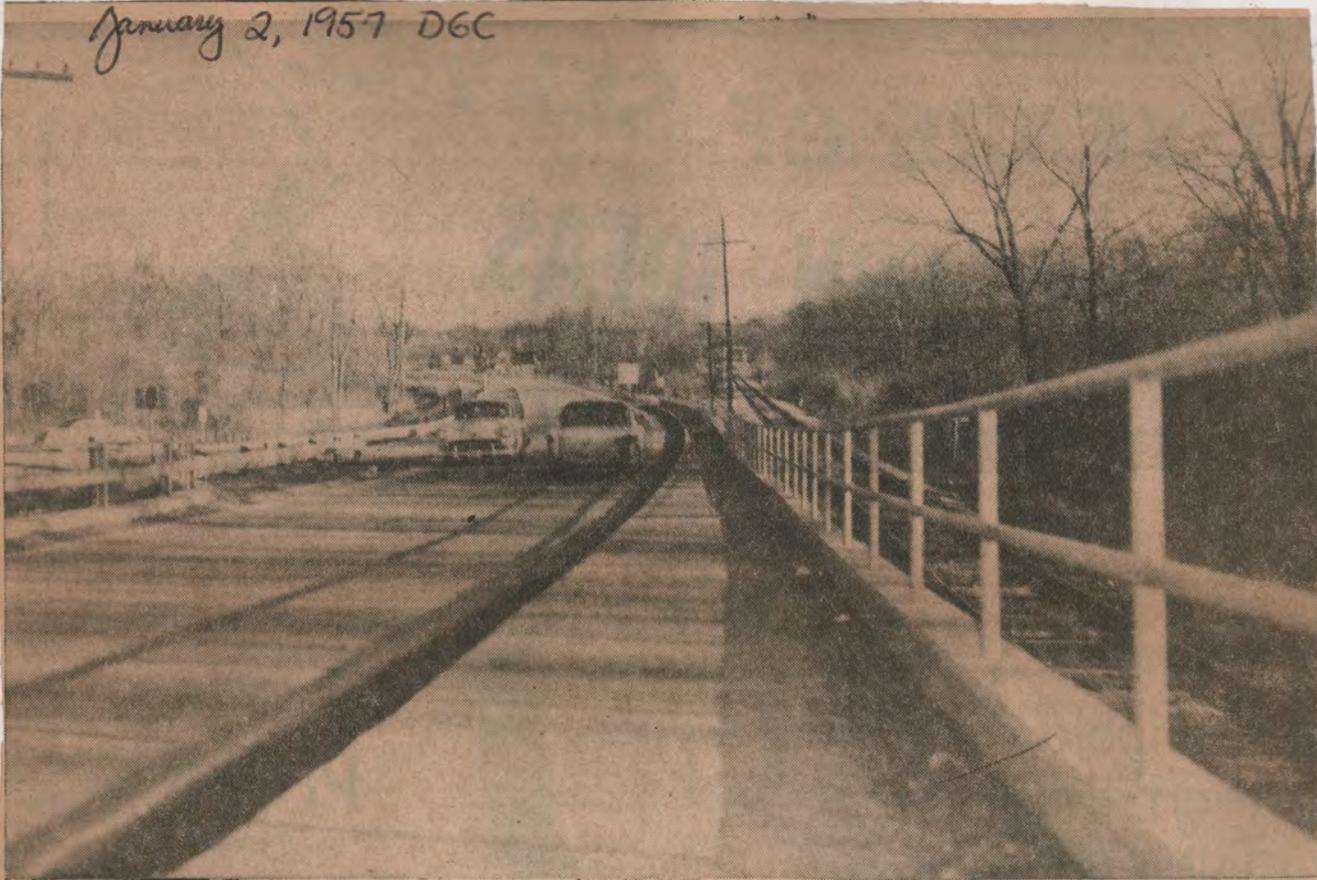
APR 9, 1955 Gate City



A UNION ELECTRIC LINEMAN, Buzz Klapprott, leans out from a crossbar to work on a wire over the scenic highway in Illinois. Because of the widening project underway, several power lines and poles will have to be moved. On the other side of the pole is Ray Summers. Dan Buck is the workman on the pole on the right.

January 2, 1957 D6C

52



X
ONE OF THE BIGGEST HIGHWAY improvements in the Keokuk area during recent years was the new Illinois approach to the Keokuk Municipal bridge over which traffic flows busily around the clock each day. When the ap-

proach was completed the Keokuk bridge commission deeded the old dike road and covered bridge to Illinois for use as a recreational state park area.

Daily Gate City Photo

January 2, 1957 DGC

Keokuk Bridge Is Improved

Early in this New Year Keokuk's Municipal bridge will be in its best physical and effective condition in history.

The state of Illinois took care of a major portion of the overall improvement during 1955 when it completed the new, direct approach which obviated the necessity of using the serpentine dyke. The new approach was opened and dedicated August 9, 1955, and has resulted in facilitating the flow of traffic tremendously.

Steel Grid Floor.

Last year it was the turn of the Keokuk Bridge Commission which awarded a contract to the Whiting Turner Contracting Co. of Baltimore, Md., to lay a new, steel grid floor and straighten out and widen the Keokuk approach.

Work started on the new floor October 22 with periodic interruptions of highway traffic from 12:30 a. m. to 6:30 a. m. because the grids had to be laid crosswise over the entire roadway and one-lane traffic was thus impossible.

Modify Approaches.

When the steel floor is completed the Hamilton approach will be modified to some extent and the Keokuk approach will be widened from its present 17 feet 4 inches to 22 feet between curbs.

What is of greater importance, possibly, is that the present weight limit on trucks will be removed and all trucks not requiring special highway permits will be able to use the bridge instead of by-passing Keokuk.

Laid 20 Years Ago.

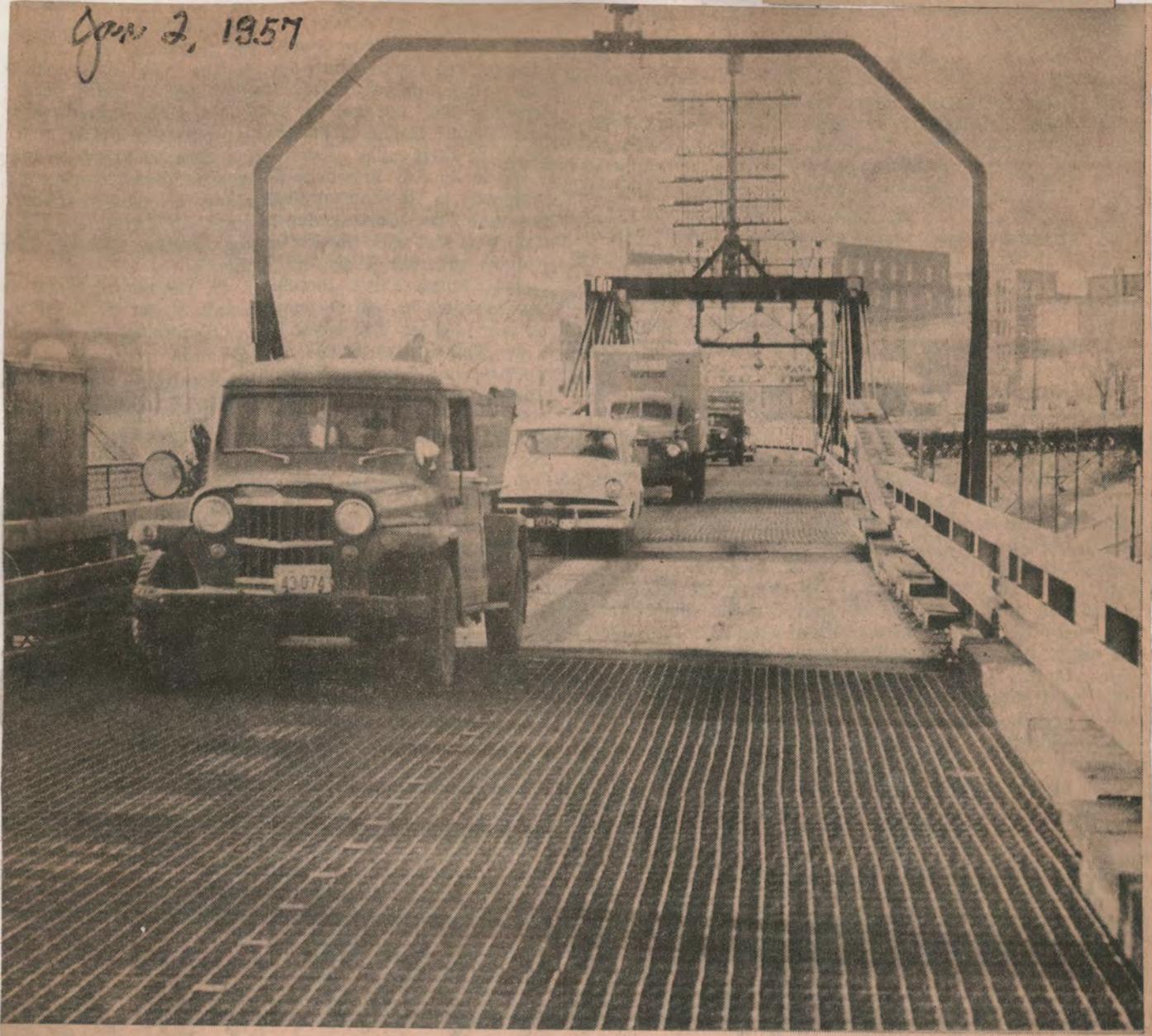
The old wooden floor of the bridge was laid 20 years ago and has reached its span of usefulness and had become too expensive to repair. It also necessitated the weight limits on trucks. The steel grids, six by 18 feet, are supported by new steel beams.

When the program is complete there will be a new toll booth some 50 feet west of the present tollhouse and this too will contribute to the greater convenience of motorists.

Recreation Area.

When the new Illinois approach was completed in 1955, the bridge commission deeded the old dyke road and the old covered bridge over Hamilton slough to the state of Illinois for development into a recreational and sports fishing area. It was used by hundreds of fishermen and boaters last year and is expected to have even greater use this year. A ramp makes it easy to launch and remove boats from the water.

Jan 2, 1957



OLD WOODEN floor which had been in place for 20 years, is being removed from the Keokuk Municipal bridge and replaced with modern steel grid on steel beams. When the

work is completed the weight limit for trucks will be removed. Modification of the Keokuk and Illinois approaches is on the program. Daily Gate City Photo

X

New Des Moines River Bridge Takes Form

THE KEOKUK DAILY GATE CITY



SATURDAY, FEB. 3, 1934

This picture taken from the Missouri side of the Des Moines river shows the new bridge which is being constructed over that stream and which will connect highway No. 61 in Iowa, with the highway in Missouri, making a completely paved link from Minneapolis to St. Louis, through Keokuk. When this picture was taken January 27, steel work for two of the spans had been put in place and riveters may be discerned swarming over the steel beams. Plenty of work still remains to be done on the bridge before the contract expires for the work July 1. Snyder and Johnson of Humboldt, Iowa, are building the structure.

Starting at the south end of the bridge there are five eye beam spans, each forty six and one half feet long. Eyebeams on one of these spans are shown in the picture. Then there are three high trusses each 200 feet long across the main channel. Two of these are in place and the third span foundations, are the piers in the

immediate foreground of the picture. Three 105 foot deck trusses connect the high trusses with the two fifty foot eye beam spans which cross the Rock Island railroad track and which will be joined up with the roadway.

From the stream bed to the top of the middle truss the distance is seventy five feet. The five small piers at the south end are set on piling, while the big piers across the channel are on solid rock foundations. The piers are of reinforced concrete and are fifty one to fifty eight feet high.

The roadway of the bridge will be of concrete and will be twenty feet wide from the south end of the bridge across the river, widening to twenty four feet where the curve in the bridge shown in the picture begins. Concrete railings will be built at the sides, except on the three spans across the channel.

All of the steel is up except the 200 foot span which will be thrown across the gap shown in the pic-

ture. After the steel is in shape, it will have to be riveted, and then will come the painting of the entire structure, and laying of the concrete floor and the building of the concrete rails.

The contract for the paving of No. 61 from the bridge to the pavement at G. and Reid streets was let to Cameron Joyce company of Keokuk last fall, and for the culvert to the Snyder Johnson company. The culvert is built and the paving, it is anticipated, will be done as soon as the weather permits this sort of construction in the spring. Early summer will see the project finished so far as the Iowa side is concerned.

The contract for the paving of the Missouri side from Wayland north to the present slab at Alexandria has not been let, but it is expected that the Missouri engineers will get this stretch of road work planned and bids let early in the spring, so that this work can be completed early in the summer, also.

DAILY GATE CITY

BRIDGE JOB ON DES MOINES IS TAKING FORM

JULY 17, 1933

Work is Being Pushed with Good Weather and Location of New Span is Shown by Staging Already Built.

Work on the new Des Moines river bridge is being pushed ahead now, with the assistance of good weather. The heavy storm the last of June and resultant high water tore up some of the construction already done, but good days now are helping the contractors along with the work.

Visitors to the site of the new bridge are able to visualize the exact location of the span, by the staging which has been built out into the river, and by the work which already has been accomplished by Snyder and Johnson, the engineers in charge.

The new crossing will be located approximately four hundred feet above the present railroad and wagon bridge. The excavation for the first of the four piers has been made to the rock bed of the river, and forms for the concrete are being built out of the great piles of lumber which have been unloaded

from the sidetrack which is run to the river's edge from the Rock Island tracks.

Pier Anchored to Rocks

The excavation looks like a huge well, with a pump at work keeping the seepage water out. Reinforcing rods for the concrete are being put in place, and the forms for the concrete will be placed in the excavation. Another pier will be built into the river near the Iowa side, and there will be two on the other side to be constructed. All will be anchored to the rock bed of the Des Moines.

Markers and stakes set by the engineers indicate the location of the bridge, and it is easy to follow the line of the big new span and visualize its junction with the present slab on the Missouri side. The railroad switch track is laid on a temporary foundation over the valley road, which is closed to

traffic, unless one wishes to climb up over this railroad hog-back.

Many are visiting the site of the work along the bank of the Des Moines, and it is possible to get quite close to the job without interference with the operations. The approach to the bridge will be off of No. 61 a short distance from the foot of the hill as the road is now.

DAILY GATE CITY

**REPAIR BRIDGE
ON DES MOINES
50 YEARS AGO**

Work Being Done There Now on New Span Recalls Earlier Job When It Was Being Made an Iron Bridge.

The construction of the new concrete and steel bridge over the Des Moines river now, had its counterpart fifty years ago when the C. B. & Q. railroad which had taken over the Keokuk and St. Louis line was making an iron bridge out of the span then in use. The files of The Gate City for August 29, 1883, describe the activities on the bridge.

New cylinder piers are in the process of construction south of those built by the city, says the newspaper, and goes on to say that the city's portion of the bridge was completed a short time previously and all the expense that it incurs is keeping the floor in repair.

Fifteen piles are driven together as closely as possible, as far as the rock bottom, which is reached at eighteen feet, the description of the work states. These stakes have iron points and after being driven in are bound with iron cylinders into which concrete is poured.

The railroad planned to put in two iron spans of 174 and 149 feet each. The bridge at the time of this work was composed of one 190 foot span and three Hawes truss spans of 150 feet each, which had been in use for seven years.

It was expected that the job would take six week to two months.

KEOKUK, IA., GATE CITY

**JANUARY 17 IS
DATE SET FOR
BRIDGE LETTING
FRIDAY, JAN. 6, 1933**

January 17 has been set as the date for the letting of the contract for the construction of the new bridge over the Des Moines river on Highway No. 61. This

is the bridge which will replace the present combination railroad and vehicle bridge, and which will link the sections of Highway No. 61 in Iowa and Missouri. Forecast of the early letting of this contract was made in last Sunday's Gate City.

The official notice of the date for the consideration of the contract comes from the Iowa State Highway Commission at Ames.

The bridge is to be a multiple steel span bridge consisting of three 200x20 truss spans; three 150x24 deck truss spans; five 46.5x20 I-beam spans and two 50x24 I-beam spans.

KEOKUK, IA., GATE CITY

**EARLY LETTING
ON NEW BRIDGE
IS PREDICTED**

This Will Cross Des Moines River Three Hundred Feet North of Present Structure and Join Two Highways.

SUNDAY, JAN. 1, 1933

One of the most important improvements for the New Year in the vicinity of Keokuk, is the forecasted construction of a fine new bridge across the Des Moines river. The new structure would replace the ancient one, now spanning the stream on U. S. Highway No. 61, and joining the states of Missouri and Iowa.

The state highway commissions of the two states have been looking toward making this improvement for some time, and word to the Keokuk Chamber of Commerce tells of an agreement between the two commissions as to construction plans, the new bridge to be built about 300 feet north of the present bridge, and a new concrete ribbon will be built on both sides of the river, joining up with the Seventh street project on the Iowa side, and with the new paving to be built early in 1933 from Canton to Alexandria.

The awarding of the contract to build the bridge is to come early this year, it is believed, possibly before the end of January.

Materials For Paving.

Materials are already on hand for the paving of No. 61 from Canton to Alexandria. Under the plans of both highway commissions, the paving from Alexandria to the new bridge, and from the end of the paving on No. 61 on the Iowa side to the bridge, would not be let or put in until the new bridge is completed.

The completed highway and bridge will give to travelers on the west side of the Father of Waters a wonderful road from Keokuk to Hannibal and also from Minneapolis to St. Louis and the gulf, with some of the most beautiful

scenery in America along this route. Traffic is also certain to come across the river here from Illinois to make the trip South. And, with the new road to Nauvoo soon to be a fact, there will be a tremendous lot of sight-seeing from Burlington and Fort Madison to Keokuk, from Keokuk across on the Illinois side to Nauvoo; from Burlington to Hannibal and thence across into Illinois and north. The proposed new bridge and paving should greatly add to the scenic lure to tourists.

The building of the new bridge and the construction of the new paving will also prove of benefit to Keokuk and the other communities touched, through creation of labor and new payrolls incident to public work.

THE GREAT DUST HEAR' CALLED HISTORY
R. J. BICKEL
KEOKUK, IOWA

Construction of New Des Moines River Bridge Is Assured

The Gate City.

WEDNESDAY, MAY 24, 1933

Assured

Entered in Keokuk Postoffice as Second-Class Matter.

CONTRACTORS TO BE HERE FIRST OF NEXT WEEK

Final Action Was Taken Yesterday in When Snyder and Johnson Received Commission's Approval.

With the signing of the contract yesterday approving the changes necessary, the final approval was given for the construction of the new bridge over the Des Moines river, on Highway No. 61. Snyder and Johnson of Humboldt, Iowa, successful bidders for the job, will be here the first of the week it is learned, and will be ready to start the construction then, it is announced.

The contract was awarded by the Iowa Highway Commission some time ago, but it was necessary to hold up the construction work on account of various reasons, and yesterday when the contract came up again for final approval, some adjustments had to be made, on account of changes in prices since the first figures were offered. These changes have all been made and approved and now the work on the bridge can begin at once.

It was necessary to arrange to sell tax warrants which will be given by the highway commission, and these have been taken up by local banks, it is understood. Other changes effected prices which have advanced since the contract originally was advertised. The Missouri Highway Commission has signed the contract, and it is understood has the cash with which to pay for its share of the bridge.

Purchase Right of Way.

Through local business men and the city council the money was subscribed to purchase the right of way necessary in Missouri, to secure the Missouri highway commission's approval of the new

plans. It means that \$92,000 for the bridge and about \$30,000 for the road work will be spent in this immediate vicinity and will give employment to many men, it is hoped. The new paving necessary will be built to connect with the present sixteen foot slab which was built ten years ago when Keokuk business men subscribed \$17,000, at a point 3,500 feet from the bridge. This would mean the utilization of the old paving into Alexandria, except for a stretch of two thirds of a mile of new construction.

There is naturally a great deal of elation in local circles over the successful culmination of the negotiations to complete the bridge and Highway No. 61, which will be routed through Keokuk. When the bridge is in and the gaps are paved, a complete paved highway north and south will bring traffic through this city, and will make Keokuk a part of one of the main trunk lines north and south.

Contractors Hire Labor.

Unemployed persons in the city are besieging the Chamber of Commerce asking for jobs. The Chamber officials have nothing to do with the hiring of labor for this job, as this belongs entirely to the contractors, and all that local Chamber officials can do is to refer the men to the contractors who will be here next week. While it is expected that there will be opportunity for employment this is entirely in the hands of the contractors, according to Chamber of Commerce officials, and must be taken up with them.

DAILY GATE CITY

ALL IS READY FOR CEREMONY AT NEW BRIDGE

MONDAY, JULY 30, 1934

Lieut. Gov. Kraschel Will be Here in Place of Gov. Herring, and There Will be Other Dignitaries of Two States.

Plans were completed today for the dedication of the new Des Moines bridge on Thursday, the ceremonies being headed by the Lieutenant Governors of Iowa and Missouri, with military features including the firing of salutes to the governors, and trooping colors and state flags. In addition to the governors, representatives in Congress of the two states from the district in which this section is located will be present, and there will be dignitaries of the Iowa and Missouri state highway departments, mayors and chamber of commerce representatives from the cities and towns in Iowa and Missouri adjacent to Keokuk.

The Iowa state highway commission announced today that the bridge will be open to traffic some time tomorrow, it is their plan now. Men have been clearing up around the structure and it is planned to make it possible for people to use the bridge in advance of the celebration. It will be closed to traffic for the time of the ceremony with police from Keokuk and patrolmen from the Missouri commission enforcing the traffic regulations assisted by the Iowa highway commission personnel.

Kraschel Here For Iowa.

Governor Herring who was to have been here to represent Iowa, has announced that he will be unable to attend on account of another meeting, and Governor Park of Missouri who is at Mackinac Island for a conference of governors has sent his regrets. Both will be represented by their lieutenant governors, Nels G. Kraschel of Iowa, and Frank G. Harris, of Missouri. Lieut. Gov. Harris will be accompanied by an aide and Lieut. Gov. Kraschel will have D. W. Bates, state banking commissioner with him. It is expected that Congressman E. C. Eicher, of Washington, representing the first district, and Congressman Milton A. Romjue, of the first Missouri district, will be here. In addition there will be Scott Wilson, chairman of the Missouri highway commission; Dulaney Mahan of the Missouri commission, C. C. Reipe, of the Iowa highway commission; J. Tracy Garrett, of Burlington, vice president of the Mississippi River Highway Association; mayors and secretaries of the chambers of commerce in this section.

Luncheon will be served at 12:30 o'clock in the Hotel Iowa dining room for the governors and visitors, and during this meal the Ross Gay orchestra which has donated its services will play. At 1:45

o'clock the visitors will enter cars which will be arranged in front of the hotel by C. S. Abell, and with a police escort of motorcycle officers from Keokuk, Fort Madison and Carthage, will go directly to the bridge, where the acting governors will cut the ribbon which will be stretched across the bridge, signalling the formal opening of the span, so far as the two states are concerned. During the time of this ceremony traffic will be held up at both ends of the bridge, by Missouri highway patrols and Keokuk officers. A salute will be fired in honor of the two governors by the American Legion color guard.

Speeches at Platform.

Following the ceremony at the bridge the escort will lead the way back to Keokuk to the platform which will be erected in front of the Baur-Mullarky store on Main between Sixth and Seventh streets. Traffic will be barred from this block from noon on. At this platform the formal dedication speech will be delivered. The drill team of the Legion under command of W. J. Ingram will troop the colors of Missouri, Iowa and the National Emblem, the state flags being loaned by Keokuk Chapter D. A. R. and a Missouri D. A. R. chapter. The flags will be presented to the state officials, and the National Emblem to Congressman Eicher, as representative of the federal government.

The speaking program will include addresses by Harris and Kraschel, the former to be introduced by Scott Wilson of Missouri and the latter by E. W. McManus of Keokuk. Short talks also will be made by the representatives of the highway commissions. There will be musical selections by the Keokuk Municipal band, and by the girls' trio composed of the Misses Sayler, Banghart and Knies. Following the program band concerts will be enjoyed.

M. E. Tate will preside at the luncheon and Dale E. Carrell at the platform.

Street Dance at Night.

In the evening there will be the street dance which the Junior Chamber of Commerce is sponsoring, and which will be held on Main street.

The exact location will be announced later. The hour will be 6:45 to 8:15 o'clock.

The State Flags.

Through the efforts of the D. A. R. chapters of the state led by Keokuk Chapter, the Iowa legislature some years ago adopted the state flag, which is white with the word "Iowa" in red below the replica of the great seal of the state done in colors. The designer of the flag is Mrs. Dixie Cornell Gebhardt. At the time of the agitation for a state flag Keokuk Chapter D. A. R. was one of the most consistent workers for this cause, and found a ready and successful ally in the late E. P. McManus, then state senator.

Mrs. Winona Evans Reeves was the chairman of the chapter's flag committee and Mrs. James B. Diver and Miss Ora B. Cole were prominently aligned in the work to have the state adopt a flag.

The Missouri state flag adopted

by the forty-seventh general assembly is rectangular in shape with one red, one white and one blue horizontal stripe of equal width with the great seal and coat of arms of Missouri imposed on the white stripe. Twenty-four five pointed stars outline the seal.

DAILY GATE CITY

TUESDAY, JULY 31, 1934

EXPECT CROWD FOR CEREMONY AT NEW BRIDGE

Although Span Will Not be Formally Opened Until After Officials of Two States Have Cut Ribbon, It is Being Used Today.

Although the official opening of the new Des Moines river bridge connecting Iowa and Missouri on Highway No. 61 will not take place until after Lieut. Gov. Nels G. Kraschel, of Iowa, and Lieut. Gov. Frank G. Harris, of Missouri, have officially cut the silken ribbon which will be stretched across the bridge Thursday afternoon, the new concrete and steel span was opened to traffic today. The formal bridge opening and dedication will be the occasion for a big celebration here on Thursday afternoon and evening.

Starting with the luncheon at the Hotel Iowa Thursday at 12:30 o'clock with the acting governors of Missouri and Iowa as the guests, and with officials of the highway commission, congressmen and state legislators, mayors and chamber of commerce officials of cities and towns in and around Keokuk and the northern Missouri territory present, there will follow the ceremony at the bridge, a speaking program at the platform on Main street between Sixth and Seventh, and a street dance, which will close the program early in the evening.

Bands Will Play.

Two bands, the Culver-Stockton summer school band headed by Director Fascinato and the Keokuk high school band under direction of W. H. Bower, have accepted the invitation to play at the platform, and there may be others from Missouri and Iowa points. The public address system of the Keokuk Funeral Home, has been loaned by H. A. Brunat and will be installed at the platform which will be built on Main street between Sixth and Seventh streets, and from which at 2:30 o'clock the speaking program will be presented. This will insure everyone hearing the speakers.

Following the luncheon at 12:30

o'clock the officials in cars will proceed to the bridge, where at two o'clock the two acting governors and their aides will meet and will formally dedicate the new bridge by snipping the silken cord. From the bridge the group will proceed back to Keokuk for the platform program. At the luncheon the visitors will be introduced and at the platform, E. L. Sparks, publisher of the Hannibal Courier Post, will introduce Acting Governor Harris and E. W. McManus, of Keokuk, will perform the same honors for the Iowa executive. Short talks will be made by Scott Wilson, of the Missouri Highway Commission, and by C. C. Reipe of the Iowa commission, and others. The bands will play and a girls' trio will sing.

Congressman M. A. Romjue, of Missouri, will be unable to attend, the committee has been informed. Mayor C. A. Jones who lived in Missouri for thirty-six years, will be present, he writes the committee. Other nearby cities are expected to send their chief executives.

Dance on Main Street.

The Ross Gay orchestra, which is playing at the hotel at the luncheon at noon, will play for the street dance which will close the day's festivities. The Junior Chamber of Commerce, in charge of the dance, through Deslie Lewis, chairman, announces that the place of the dance will be Main street between Sixth and Seventh streets and the hours will be 6:45 to 8 o'clock.

The American Legion color guard and drill team will add the military touch to the ceremonies with its salute to the governors at the bridge and the trooping of the colors at the platform. In addition to the National Emblem, they will present the state flags to the representatives of each commonwealth. The D. A. R. Chapter of Keokuk, which was instrumental both in pushing the adoption of the state flag and in securing adequate protection for the National Emblem, will loan its Iowa flag for the occasion and a Missouri chapter is loaning the Missouri commonwealth banner.

"THE GREAT DUST HEAP CALLED HISTORY"
B. J. BICKEL KEOKUK, IOWA



X



THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

The Gate City.

Weekly

WEDNESDAY, SEPTEMBER 13, 1871.

DES MOINES RIVER BRIDGE.

Excursion to Clark County.

THE M. I. & N. AND M. V. & W. RAILROADS.

Our City Council, accompanied by the Committee appointed at the citizen's meeting held at the Court House week before last, made an excursion to Clark Co. Wednesday for the purpose of examining the site of the proposed bridge over the Des Moines river, near Buena Vista Ferry, and the wagon roads leading to it on the other side. At the instance of the Mayor we went with the excursion and will give our readers the benefit of what we saw and heard.

The party consisted of His Honor Mayor Rothery, Aldermen Ruddick, Armitage, Samuels, Campbell, Lemdecker, Pond, Harrison, Hardesty, Randolph and Conklin, Col. J. A. McDowell, Guy Wells, Esq., G. R. Parsons, City Engineer, Capt. Sam. S. Sample, B. S. Merriam and Capt. Tom. Berry.

They left the city about half past 8 o'clock and proceeded at once to Buena Vista Ferry where they made a pretty thorough examination of the spot where the Mississippi Valley and Western Rail Road Company propose to locate their bridge. It is at a bend in the river a short distance below the ferry. It is 1100 feet from shore to shore. The proposition is to build 650 feet of trestle or pile work and 450 feet of truss. It is the opinion however of those who are familiar with the movements of the Des Moines river, and who are most competent to judge of the matter, that a bridge of that character would not be sufficiently strong to resist the force of the ice and driftwood which sweep down there with almost resistless power during the Spring freshets.

We believe that this opinion is well founded. The river is specially ungovernable at this particular point. About twenty-five acres of land on the Iowa side have been washed out within the past two or three years.

When the river gets on the rampage in the Spring it slops around promiscuously, and sweeps before it pretty much everything that comes in its way. Engineers, as well as others, say that nothing but a sub-structure of solid masonry, with permanent approaches, will ever be able to stand the test.

Nobody can possibly comprehend

any better than we do—or that we think we do—the importance of a wagon bridge over the Des Moines river. It's a consummation most devoutly to be wished for and we have advocated it repeatedly and persistently. The project has been fostered and cherished by our citizens for years past, and now that there is an opportunity of putting the plan into execution we do not believe in investing in that sort of a bridge which is neither practicable nor permanently safe. The M. V. & W. railroad is to be a Keokuk institution, and we should be sorry too to see that company build a bridge, even should it be an independent one, that would be liable to be swept away by the first spring freshet. We have heard but one expression from either our citizens or the members of the City Council on this subject, and that is uniformly in favor of permanent approaches. From the proposed bridge there are two routes by which our city could be made easily accessible. The first is along the river bank inside the Rail-Road track. This could be made at comparatively little cost and plenty of material had along the route for macadamizing purposes. Its close proximity to the Rail Roads would be about the only serious objection. The other route is through a ravine nearly opposite the proposed crossing, and from thence through Reid's Addition to 5th street. This route could also be opened at a small expense, but would not make as level a road as the other.

After viewing the situation on this side of the river, the party crossed over and proceeded at once to Alexandria. Here they met Gen. F. M. Drake, President of the M. I. & N. Railroad; Henry Hill, Esq., Superintendent of the Construction Company; Major Lewis, President of the M. & M. R. R., commonly known as the Glasgow Road, and Mr. Walker, of Warsaw. These gentlemen went with our party for a distance of one mile out on their Road, to a point where they propose to diverge from the main line, construct a road across the bottom to the Des Moines river at or near Buena Vista, and come to Keokuk. In conversation with Gen. Drake we learned that the Glasgow Road will unite with the M. I. & N. Road some distance west of Alexandria, and that the two will come to this city on one track, crossing the river on the same bridge. The probabilities are that these two roads will unite with the Mississippi Valley & Western in building one bridge over the Des Moines, although we have no positive authority for saying so. In that case there will be no hope of uniting a highway with a railroad bridge at any point above where they cross, which, as we have already stated, will be at or near Buena Vista Ferry. It very naturally follows that if we build a bridge anywhere above that point it will have to be an inde-

pendent wagon bridge. We will digress so far right here as to say a few words concerning the M. I. & N. Railroad, which is very soon to open up to Keokuk the immense trade of a large territory to the west of us. The road is one of the best in the country. The company have raised the old grade several feet, are putting in good substantial bridges all along the line, use iron of the very best quality, and are sparing neither pains or money in making it a tip-top road in every particular.

Mr. Henry Hill, of Warsaw, is, as we have already said, the Superintendent of the construction company, and a most capable and efficient official he has proven himself to be. Mr. M. P. Celleyham is the Chief Engineer, and fills the position with credit to himself as well as to the company.

The road is now completed to within six and one half miles of Memphis, Mo. This gap will be filled up and regular mail trains running to that point by the last of this month.

The Mississippi Valley and Western is reaching Keokukward with rapid strides. A large part of the grading between Alexandria and the Des Moines river is completed, and we may safely look for trains into our city on this road by the 1st of January next. We omitted to state in the first part of our notice, that Gen. John Tillson, the President of this road, was one of the excursion party yesterday. Our party took dinner at Alexandria, after which a meeting of the Council was called and it was decided to take a trip up the Des Moines river on the Missouri side, examine the proposed site in the vicinity of the Yellow Banks, cross over, and come down on the Iowa side. This feature of the excursion was not attended with any very gratifying results. We went up the Saint Francisville road a four or five miles, to Tigery 4 level

graded road all the way. It was the purpose to ford the river there and return home across the bluffs, with a view to ascertaining what sort of a road could be made between Keokuk and the Yellow Banks. This was the unsuccessful portion of the undertaking. The party struck out in search of the ford, which we found, but couldn't cross. We then went meandering down the river, through interminable lowlands on an interminable road, in search of other fords which were equally as unfordable. At last we hauled up in a very secluded spot, and dispatched our engineer corps to ascertain, if possible, where we were. While they were absent B. S. paced up and down the Egyptian levee in a feverish state of excitement, and declared that a passage must be secured, if possible. The engineers returned with an unfavorable report, after which a meeting was called and it was unanimously resolved to dam the river and let it go. We don't think the

Council are favorably impressed with that route. After circulating about for a time, we found ourselves at precisely the same place from which we started, so we concluded to return by way of Buena Vista ferry.

We saw enough in the vicinity of the Yellow Banks to understand pretty well the lay of the land. Should a bridge be built at that point a graded road would have to be constructed through a piece of low, heavy timbered land, for a distance of two miles, in order to get above high-water mark. The road between Keokuk and the Yellow Banks is very hilly, and a large amount of work would have to be done upon it to make it passable.

The distance from a point on the Saint Francisville road, say at Tigerville, to Keokuk, by way of Alexandria and Buena Vista Ferry, is only a mile and a quarter greater than by the Yellow Banks and across the hills, while in the first-named route you have the advantage of a level road all the way, as well as the advantages of several other roads leading into Alexandria from various portions of Clark county. We have stated the facts in the case as plainly as possible, and submit them to our readers for their consideration, hoping that the matter will be liberally discussed at the meeting at the Court House to-morrow evening, and that the most practicable and beneficial plan for bridging the Des Moines river will be adopted.

ded as there is nothing practical in it, the hills there being too rough for loaded teams whereas, on the other hand, nature points to the bottom road, giving the advantage of level ground. Now the bridge should be made in the best place for all, and that is the place, and the only place where the ferry has paid during the past twenty years, which item ought to be enough to satisfy any one.

I understand the proposition for securing a wagon bridge to be as follows: That the city of Keokuk shall give to the railroad bridge company, twenty or twenty-five thousand dollars to be applied in building said bridge. That the railroad bridge company shall make and maintain for all time to come a good wagon bridge to be forever free to all who wish to cross; and, further, that the company building said bridge will give to this city one-half of all the tolls that may be collected from all other railroads which shall use this bridge as a crossing.

Now, if my understanding of this proposition is correct, I say this city cannot afford to lose this opportunity of having a free bridge over the Des Moines river, when it can be done at a cost of twenty or twenty-five thousand dollars. I have traveled through the northern part of the State of Missouri since 1848, and I know that neither a railroad or wagon bridge will be made at Yellow Banks, when a crossing can be had below Buena Vista, the only natural outlet to all the county of Clark and North Missouri.

Yours, respectfully,
J. L. CURTIS.

bridge will be a purely gratuitous contribution to our city. We are expected to aid in building it. When the Railroad Company gets ready to commence the construction of it our city will be called upon to contribute a sum of money in aid of the enterprise. We state this on the authority of the officers of the Road. Our city has, however, already expressed a willingness to invest a reasonable amount of money in a substantial iron bridge over the Des Moines river—one that promises to be permanent—so that we apprehend no difficulty on this score when the time for action shall have come. An opportunity will be offered for throwing our doors wide open to the trade of Clark county, and we are sanguine in our belief that our city will not let the chance go by the board.

The Gate City.

Weekly

WEDNESDAY, SEPTEMBER 13, 1871.

The Des Moines River Bridge.

MESSRS. EDITORS—Gentlemen: I notice there is a project on foot of constructing over the Des Moines river, at or near Buena Vista Ferry, a wagon and railroad bridge combined.

This I understand is to be free for all time and for all road purposes. There is no doubt this is the best plan ever brought before the public. With a free bridge at this point, you connect Keokuk with forty miles of the finest country in Missouri, lying between the Des Moines and Fox rivers, containing the flourishing towns of St. Francisville, Peeksville and Mt. Sterling.

A good level road to this crossing, with a free bridge, will draw all the trade of that district to this city, and also that south of Fox river. This route will also be a mutual benefit to Alexandria and this city.

The old project of a bridge to cross at Yellow Banks, ought to be entirely discar-

The Gate City.

Weekly

WEDNESDAY, JANUARY 24, 1872.

THE DES MOINES RIVER BRIDGE.—Mr. J. S. Smith, Superintendent of the Keokuk and Hamilton bridge, received a telegram on Saturday last from Mr. Andrew Carnegie, President of the Bridge Company, instructing him to prepare to make a survey for a bridge over the Des Moines river at or near Buena Vista Ferry. The bridge will be constructed by the M. I. & N. R. R. in which Mr. Carnegie and his associates are largely interested, and will be for the purpose of giving that road an Eastern outlet. This is in accordance with the already announced purpose of that Road. It is proposed to make this a highway as well as a railroad bridge, similar to the one which now spans the Mississippi at this point. The prospect of its early construction will be highly gratifying to our citizens. The benefits to our city of such an enterprise are recognized by all. We must not flatter ourselves, however, that this

THE GREAT DUST FIGHT CALLED
R. J. BICKEL KEOKUK, IOWA

DAILY GATE CITY.

TUESDAY MORNING, JANUARY 12, 1875.

DES MOINES RIVER BRIDGE.

Joint Meeting of the City Council and Board of Supervisors to Discuss the Matter.

What the City Asks of the County.

There was a joint meeting of the City Council, the Committee appointed by the Council, and the Board of Supervisors, at the Council Rooms last evening, to discuss the subject of the proposed bridge over the Des Moines river.

Mayor Jaeger addressed the Board at considerable length, pointing out the provisions of the law authorizing that body to make such an appropriation as is asked by the city, and also the provisions under which the city has a right to demand such an appropriation. It is estimated that such a bridge as the city wants will cost \$40,000. The Board is asked to appropriate \$24,000 of this amount, and the city will be responsible for the balance. At the conclusion of his argument the Mayor submitted the following resolutions, which the committee had agreed upon, and which they asked the Board to act upon:

Resolved, by the Board of Supervisors of Lee County, That the said county of Lee jointly with the city of Keokuk erect over the Des Moines river, between its confluence with the Mississippi river and a place called "Yellow Banks," an iron bridge, with the necessary abutments, of either stone or piles, and the approaches thereto.

Resolved further, That the county of Lee hereby appropriate towards the erection of said bridge the sum of twenty-four thousand dollars, payable in the following manner, viz: the sum of eight thousand dollars on the first day of April, 1875, or as soon as said amount may be required after the commencement of said bridge, to pay the contractors of the same; and another sum of eight thousand dollars on the first day of April, 1876, and the further sum of eight thousand dollars on the first day of April, 1877. For the deferred payments after that of April 1875, said county is to issue its warrants or certificates, bearing interest at the rate of — per cent. per annum. Said county, however, reserves the right to pay said amounts before maturity with accrued interest to date of payment, or pay the full amount of the appropriation upon the completion of said bridge and approaches according to contract that may be made.

Resolved further, That said city of Keokuk shall appropriate or procure all sums of money needed in the construction of said bridge over and above the said sum of \$24,000, and shall for this purpose pass the necessary resolutions by its City Council.

Resolved further, That said City Council shall appoint a committee of two to act in conjunction with the Board of Supervisors in supervising the erection thereof.

Resolved further, That said city of Keokuk pay its proportionate share of the amount required for the building of said bridge, being the amount over and above the sum of \$24,000, either at the same time as the county pays its share or as may be provided for in the agreement with the contractors of said bridge.

Resolved further, That the county of Lee shall not be liable for more than \$24,000 for the erection of said bridge.

Col. Patterson said he thought the city was asking no more than she is entitled to, and could not see why the Board should feel any hesitancy in granting our request.

Supervisor Donnell said he thought Keokuk was entitled to her portion of the bridge fund, and was in favor of appropriating it if he was convinced that they had the legal right to do so. He was not altogether satisfied on that point as yet. The Board has asked the written opinion of their attorney upon this point. They will take the matter under advisement and try to do what is right in the matter.

In reply to the statement of Mr. Donnell, that the tax collected for current expenses of the county is not sufficient to meet the demands, and that it was necessary to draw upon the bridge fund, Col. Patterson said he did not consider it fair to use the bridge fund paid by Keokuk to meet the current expenses of the county.

Mr. S. Hamill thought the demands of the city were very reasonable. The construction of a bridge over the Des Moines river would very much enhance the value of property in Keokuk and the county would be correspondingly benefitted. The city pays more than one-half of the bridge tax of the county, and not one dollar of this tax, so far as he knew, had ever been expended in building a bridge in Jackson township.

Col. Shelley endorsed what had been said upon the subject and especially the proposed resolutions. He recited the benefits that would accrue to both the city and the county from the proposed enterprise. He thought the city has a right to demand the appropriation and that the Board has the legal right to grant it.

Mr. C. P. Birge said that a point has now been reached when a bridge over the Des Moines river is positively demanded. Public sentiment and the interests of the city demand it. Men were sitting before him who had grown gray waiting for a bridge over the Des Moines. The time has come when we must have the bridge. The city was not asking a favor of the county, but simply demanding what she is justly entitled to. He was satisfied that if the county does not make the appropriation, the city can legally retain her portion of the bridge tax and use it for the purpose named.

Mr. Hardin and Colonel Curtis stated that they knew from conversation with the farmers of Clark county that they are anxious to come to Keokuk to do their trading provided a reliable highway over the Des Moines river is afforded them. Col. C. spoke of the agricultural productiveness and growth of Clark county and of the importance of securing its trade.

Mr. Donnell stated that the Board would take the matter under consideration and endeavor to do what is right in the premises.

The meeting then adjourned.

DAILY GATE CITY.

WEDNESDAY MORNING, JANUARY 13, 1875.

DES MOINES RIVER BRIDGE.

The Amount of Bridge Tax That Keokuk Has Paid Into the County Treasury in the Last Decade.

A bridge over the Des Moines river, constructed within or as near as possible the limits of this city, has become an absolute necessity, in order to increase our business and influence. And the bridge ought to be within the limits of the city, if an available place can be found upon which to construct it, and if not then it ought to be as near the limits as possible, in order that it can be considered by our citizens as a Keokuk improvement and public structure; and, as several times the amount required to build the bridge has been paid into the County treasury, as will appear in figures, by this city, there ought to be no reason why it should not be called and considered a Keokuk structure, and all persons having the best interests of the city at heart should put forth every effort to have it built where it can be controlled by the city officers; but wherever the bridge may be built, let it be understood it is Keokuk that is constructing it, and we are justly entitled to the amount of money necessary to build it out of the County Treasury, whether the amount is \$24,000 or \$50,000, because since 1862 to 1873, inclusive, the City of Keokuk has paid into the treasury of the county, as bridge tax alone, the amount of \$78,788.10, and the bridge tax alone for 1874 that is assessed against Jackson township is \$18,859.70, and against the city alone \$12,990.84. Now the question arises how has this bridge tax been used. That bridges have not been built with it is evident, and none of it has been expended for bridges in the city. And if, as the President of the Board of Supervisors remarked in the conference with the committee of the city, upon this subject, it was necessary to use a portion of the bridge fund in order to keep up the gener-

64

al expenses of the county, then it is the duty of the citizens to insist that the general expenses be reduced, and a tax, collected for bridge purposes, be only used for that purpose; and if not necessary for that use, be reduced in amount. The subject of taxation is a very important one, and it is the duty of the citizen and the officers placed in stations of trust by him, to reduce the rate of taxation to the lowest possible amount, and to collect economically every single cent that is assessed; and when the law provides that a tax of six mills on the dollar may be assessed for ordinary county revenue, including the support of the poor, and a tax not exceeding three mills shall be assessed for making and repairing bridges, it evidently does not mean that a tax for one purpose can be used for another, to the damage and hurt of the other fund; and without intending any strictures upon the acts of the Board of Supervisors heretofore, it ought to be understood by them that in future the citizens will not countenance the sharp practice of collecting several thousand dollars under the plea of its necessity for bridge purposes, and then use it to make good a delinquency in some other fund, because the law does not authorize them to collect sufficient money to pay all the demands upon that particular fund.

W. B. COLLINS.

pointed by the City Council for that purpose has presented our claims to the Board of Supervisors and the matter is now pending before that body. It is to be hoped that they will recognize the justness of our claims and that the appropriation asked for will be promptly made.

DAILY GATE CITY.

FRIDAY MORNING, JANUARY 15, 1875.

THE BRIDGE QUESTION.

The Board Defers Action On the Matter Until the 27th.

Yesterday was the time fixed by the Board of Supervisors to take action on the petition of our city to set aside the sum of \$24,000 from the bridge fund for the construction of a bridge over the Des Moines river.

The opinion of Hon. John H. Craig, of this city, as to the legality of such action, was read before the Board. We are unable to give any of the substance of it, except that he gives it as his opinion that the Board has no right to appropriate over \$15,000 for this purpose.

After discussing the matter the Board adjourned until the 27th inst., when they will meet to decide the question.

or over an unnavigable stream separating such county from an adjoining county or State, a sum not exceeding forty dollars per lineal foot for superstructure, but such appropriation must in no case exceed the sum of twenty-five thousand dollars. But Section 54, of the Code of 1873, provides that, "Whenever an act of a general nature passed at the present session of the General Assembly (the Fourteenth) separate from this Code, conflicts with or contravenes any of the provisions thereof, the provisions of the Code shall prevail."

By the provisions of Subdivision 24 of Sec. 303, Code of 1873, it is not competent for the Board of Supervisors of counties having more than twelve thousand population to appropriate more than fifteen thousand dollars for the construction of any one bridge, including the superstructure and approaches to same, without first submitting the proposition therefor to the legal voters of the county.

This last provision is applicable to the proposed bridge, and is a limitation on the authority conferred by said chapters 1, 53, and 130, of the laws of 1872.

My opinion, therefore, is that you have authority and power to make an appropriation of \$15,000 for the construction of the proposed bridge, but that you cannot make an appropriation in excess of \$15,000 without submitting a proposition therefor to the legal voters of the county, as provided for in section 303 of the Code of 1873.

By the provisions of said chapter 28 of the Acts of 1872 the City of Keokuk, out of bridge taxes levied and collected by the county on property within the limits of the city, the costs of the construction and maintaining all bridges exceeding seventy-five feet in length over running streams, within the limits of said city, constructed and maintained by the city. I think that the provisions of this last act apply to bridges within the limits of the city, and that the same do not apply to a bridge contiguous to the city on a road leading to the city.

JOHN H. CRAIG.

Jan. 13th, 1875.

DAILY GATE CITY.

SATURDAY MORNING, JANUARY 16, 1875.

THE BRIDGE QUESTION.

Legal Opinion of John H. Craig.

To the Board of Supervisors of Lee County, Iowa:

In response to your request that I should give you my written opinion on the legal questions involved in the application of the City of Keokuk for an appropriation to aid in the construction of a bridge over the Des Moines river, contiguous to said city, I submit the following:

The premises include two points: 1st, the powers and authority of the Board of Supervisors; 2d, the rights of the City of Keokuk.

The statutes relating to these points are, Chapters 1, 29, 53 and 130 of the Acts of the Fourteenth General Assembly (1872), and Section 54 and Section 303 (24th subdivision) of the Code of 1873.

By the provisions of said Chapters 1, 53 and 130, the Board of Supervisors of counties having more than fifteen thousand population may appropriate for the construction of any one bridge within such county,

DAILY GATE CITY.

THURSDAY MORNING, JANUARY 28, 1875.

THE BRIDGE QUESTION.

The Supervisors Spend a Large Part of the Day in Discussing it,

BUT REACH NO CONCLUSION.

DAILY GATE CITY.

TUESDAY MORNING, JANUARY 12, 1875.

ITEMS IN BRIEF.

—The amount of bridge tax paid into the county treasury annually by the tax payers of the city of Keokuk is in the neighborhood of \$12,000. For a number of years past this tax has been used for the construction of bridges in various parts of the county from which the city has realized very little if any direct benefit. The city now asks that this tax be set apart for a couple of years for the purpose of building a free wagon bridge over the Des Moines river at some point between the Yellow Banks and the mouth of the river. The proposition is that the Board of Supervisors at its present session appropriate the sum of \$24,000 for the purpose named, to be drawn in three installments of \$8,000 each during the next two years. It is generally conceded that a bridge over the Des Moines will greatly promote the commercial interests of our city and enhance the value of property. By this means the county, while paying none of the tax, will be greatly benefited thereby. There is no doubt but that provision is made by the laws of Iowa for an expenditure of that kind and that the city has a right to demand that an appropriation of that kind be made. The Committee ap-

THE GREAT DUST HEAP CALLED HISTORY
 R. L. BICKEL
 KEOKUK, IOWA
 W. BRIDGE-2

Final Action to be Taken To-Day.

[Special Correspondence of the Gate City.]

FORT MADISON, IOWA, Jan. 27, 1875

The Board of Supervisors met at 1 o'clock all three being present.

The bridge question was the first business brought before that body.

Mayor Jaeger, of Keokuk, representing that city, stated the following: "Members of the Board—The people of Keokuk have somewhat modified their claims in regard to the building of a bridge over the Des Moines river. We do not want to ask anything unreasonable, or that this Board have not the power to grant. At a meeting of the Council it was determined that the city of Keokuk would furnish the balance of the money required to finish the bridge provided the Board would appropriate the \$15,000. The bridge will cost about \$40,000, of which the city of Keokuk would be required to pay \$25,000, besides their share of the tax amounting to over half of the appropriation, if allowed, making a total of \$38,000. This, the city were willing to do for their own benefit and the benefit of the county at large. They desired to have the appropriation granted at once without further delay, so that work could be commenced while the river was frozen over, during which time the work could be done much cheaper than at any other time of the year. The city of Keokuk will meet you half way and enter into any agreement that is necessary to complete the arrangements for immediate action; would like the money to be paid into the City Council, or paid as built in equal proportions with the city.

Mr. Timberman stated that the above were his views.

Mr. Connable desired to know whether it would be a county bridge, and whether the county would be responsible for keeping it in repair, or would the city and county be mutually responsible.

This was discussed but no conclusion arrived at.

Mr. Connable introduced a resolution drawn up by Mr. Craig, of Keokuk, in reference to the bridge, which was read.

Mr. Connable stated that he knew our people expected an appropriation from this Board, hence he had presented this resolution.

Mayor Jaeger thought that the resolution bound the city to expend all the money required before receiving any of the appropriation.

Mr. Connable thought this unjust.

Mr. Donnell stated that it had been the custom heretofore to have all the material for bridges on the ground before commencing to build the same.

Mayor Jaeger suggested that one half of

the appropriation be paid after the masonry was completed; the balance when the superstructure was finished.

Mr. Timberman thought this right and the general custom.

Mr. Connable expressed himself in favor of it. He thought the resolution should be changed so as to read stone abutments or something equally as good.

Mr. Timberman stated that iron tubes filled with concrete made stronger abutments than stone. In the various bridges which he had examined, it was considered better than stone; also it was used on the locks of canals.

Mr. Connable said it is hard to get stone that will stand the weather. There is stone of excellent quality near the bridge site.

Mayor Jaeger offered another amendment. Mr. Donnell wanted to know where the money was to come from if the work was finished this year, without crippling the county.

Mr. Timberman thought they could pay one-half when the masonry was completed; the balance in twelve months.

Mr. Donnell said that \$5,000 payments would sound better, to be paid in one, two and three years.

Judge Jaeger said it would be too burdensome on Keokuk to wait so long on last payments.

Judge Jaeger made one more amendment.

Mr. Donnell still insisted on three payments.

Judge Jaeger said that there is \$17,000 in the treasury.

The Board stated that it would all soon be paid out.

Mr. Donnell did not like to appropriate money belonging to one fund to build a bridge, and furthermore that by good management the county should be out of debt in ten years.

Mr. Connable said they ought to have the money as soon as possible, as the city will be so hard run that they can scarcely get along. The county can easily pay it.

Mr. Donnell did not want to see county orders sell for less than 100 cents on the dollar, and that it is best to keep on the safe side.

Mr. Jaeger—There is no danger of that; you can easily raise the money without an additional levy some way or another.

Mr. Donnell—The Board at the September meeting wanted to cut the bridge tax down one mill, but could not do so and pay the regular county expenses.

Mr. Jaeger—The bridge will so improve values of taxable property that the appropriation would be raised by the additional taxes received. No better method could be taken to enhance the value of property in the county.

Deep and prolonged silence.

The Board have a whispered consultation.

Messrs. Jaeger and Timberman left the room.

The Board figured on the amount of taxes received, &c., and found—Taxes received yearly \$59,000, delinquent \$6,000; expense of county \$55,000, debt of county \$7,000; concluded that by good management they could come out square.

A long talk followed on collecting delinquent taxes.

Mr. Donnell thought bridge business a slow form of fever.

Mr. Connable—You think we cannot allow so much at each payment.

Donnell and Overton—We do.

Recess.

Mr. Connable suggested that they talk over and fix the matter up some other way or other.

Here the Board and Keokuk representatives left the room to hold a private consultation.

The Board returned with the resolutions, but they have not yet been adopted. They will be acted upon to-morrow.

DAILY GATE CITY.

FRIDAY MORNING, JANUARY 29, 1875.

HANGING FIRE.

The Bridge Question Not Yet Decided.

Action Postponed Until To-Day.

It was expected that the Board of Supervisors, now in session at Fort Madison, would take final action on the bridge question yesterday. By the following special dispatch, received last evening, however, it will be seen that the matter still hangs fire, and that action has again been postponed:

FORT MADISON, IOWA, Jan. 28, 1875.
Special to Gate City.

The Board has not yet made the appropriation for bridge. Will be decided in the morning.

We are not advised as to the cause of the delay on the part of the Supervisors in deciding the question. We are informed that the Board on Wednesday unanimously agreed as to what action it would take in the premises and promised to formally adopt the measure yesterday morning.

We believe that the city, through its representatives, has obligated itself in every possible way to prosecute the enterprise in good faith and to shoulder the principal part of the burden in a project that, while benefitting Keokuk, will also benefit the entire county.

We believe that no fair minded person

will question the justice of Keokuk's claim to all that is asked of the county. This claim the Board has the legal right to grant and it is impossible to imagine why they should hesitate about deciding the question at once.

DAILY GATE CITY.

SUNDAY MORNING, MARCH 21, 1875.

THE DES MOINES RIVER BRIDGE.—The bill which passed both houses of the Missouri Legislature, providing for bridges over unnavigable streams separating that from other States, was vetoed by the Governor. Yesterday, however, Mayor Jaeger received a telegram from James Hagerman, stating that a bill which would meet the objections of the Governor had been introduced, and would no doubt pass both houses and receive the signature of that official.

THE GATE CITY

TUESDAY MORNING, MAY 9, 1876

THE DES MOINES RIVER BRIDGE

Status of the Work.

Work on the Des Moines River Bridge is progressing with a limited force, the high water rendering it impossible to carry on operations with a large force.

It is expected that the second and fourth piers will be completed on Thursday or Friday of this week. After that nothing can be done until the river falls six feet, as the third pier is that distance under water. The trestle work is all finished and ready for the spans. The abutment and first pier are to build entire yet, but the coffer dam for the former has been sunk and everything is in readiness to prosecute the work as soon as the water goes down.

At 3 o'clock yesterday afternoon the river was within twenty-one inches of the recent high water mark. There is nothing about the bridge, however, that can be damaged in any way by the present flood.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

KEOKUK, IOWA :

WEDNESDAY, MARCH 12, 1874.

DES MOINES RIVER BRIDGE.

Surveys and Estimates.

Report of the City Engineer Made to the Council Last Evening.

He Favors Buena Vista as the Location.

And Estimates that the Structure will Cost \$49,610.

To the Hon. Mayor and Council of the City of Keokuk,

GENTLEMEN:—In accordance with your instructions, I have made surveys for an iron bridge over the Des Moines river, at or near the Yellow Banks and at Buena Vista, and herewith submit my report, giving the probable cost of the abutments, piers, superstructure and approaches—also the probable cost of roads leading to said locations.

LOCATION.

The object of the bridge is presumed to be for the accommodation of the citizens of Keokuk and people traveling to and from said city, and the object can best be attained by a bridge located as near as practicable to the city (and other things being equal) I would regard Buena Vista as the proper location.

As to the Yellow Banks, I can see no advantages or conveniences that are not fully equalled in the Buena Vista location. But on the contrary, there are several disadvantages, which may be enumerated as follows:

1st. The Buena Vista location has the advantage of being in the slack water caused by the Mississippi river, and the bridge would be less liable to injury from a rapid flow of flood wood and ice; also the foundation standing mostly on the bed rock would be free from all danger from the scouring of the bed of the river.

2d. The distance of the bed rock below low water mark is eleven feet less than at the Yellow Banks. This is a matter of great importance in point of stability and cost of construction. In the upper location it would be impracticable with ordinary means to place the masonry upon the bed rock while at Buena Vista the channel portion of the bridge may be placed upon the rock, and the balance upon piles and grillage away from the current and scour of the river; also by reference to the plan which may be relied on as a true basis for calculation, saving in piles alone would amount to over \$1,500.

3d. The extra expense of hauling the rock, superstructure and other material a distance of five miles over an indifferent hilly road, would amount to at least \$3,000.

The further objections of any interruption occasioned by an overflow, which (judging from the past) might occur at an interval of years, is common to both localities.

Therefore, considering it fortunate to find a fair, practical site, where all interests are promoted to the injury of none, I would most cordially recommend the proposed bridge to be located at the point designated at the lower ferry, upon the west side of section 34, within the city limits.

FOUNDATIONS.

I ascertained, by means of sounding rods that the bed rock can be reached at Buena Vista at a depth of from 8 to 17 feet below the surface of low water; and at the Yellow Banks at from 25 to 27 feet below low water mark. Above this are alternate layers of sand and clay, or sediment; the whole being from 8 to 20 feet deep. It will be found difficult to excavate this to the rock, owing to the difficulty of keeping out the water. But this should be done at least at the abutment and channel piers at Buena Vista, so that the masonry may be placed permanently upon the rock.

It, however, it should be found difficult, I would not recommend that any extra expense be incurred to sink the masonry to the bed rock at the two remaining piers on the Yellow Banks; but that piles be driven to the rock and sawed off at the depth which can be reached by means of cofferdams and pumps, and solid timber grillage be framed on the piles to receive the masonry as shown in the drawings accompanying this report.

Sheet piling should be driven completely around these foundations, to retain the sand and serve as a coffer dam. Outside of this should be rip-rap, equal in depth to at least the length of the piles driven.

These pile foundations are considered perfectly secure, as the rock would prevent settling, and the nature of the location makes it improbable that the sand would scour sufficiently to allow any lateral movement. And as a further security, the rip-rap would hold everything in place inside the coffer dam. If, however, after the excavation has been commenced it is found that I have over-estimated the difficulty of excavating, I would recommend that the pits be excavated to the rock, and the masonry be placed thereon. In case where the bed rock is reached, the foundations are the same as shown in the drawings, except that the piles are dispensed with.

SUBSTRUCTURE.

This will consist of one abutment and four piers, and I recommend that they be of first-class masonry, of not less than 16-inch courses, with such an arrangement of headers and stretchers as will secure a complete bond; the joints and bed be dressed to a quarter-inch, and the face to be rock-dressed, the whole to be laid in mortar composed of two parts of clean, coarse sand to one part of Louisville cement.

SUPERSTRUCTURE.

This should consist of four spans of 150 feet each, 16 feet wide in the clear between the chords, and the whole length to be 600 feet.

I recommend these lengths, supposing that a shorter bridge would not afford a sufficient water way, and what is still worse, would be likely to cause an ice gorge, as the pile approaches are not calculated to pass ice. To lessen the spans with less piers would require a more expensive structure, and nothing would be gained; also a long bridge of the same strength is less rigid, and not as good.

I also recommend that the specifications and details of the superstructure be left generally to the builder, but the bridge should be required to sustain a moving load of 1,200 pounds per lineal foot on a factor of 4.

That is, the above load to subject the iron to a strain equal to one fifth of a breaking strength.

As a guide in determining the standard for a bridge, the following data may be relied on.

An ordinary crowd of men weighs from 50 to 60 lbs. to the square foot. When closely packed they weigh 90 lbs. per square foot. A drove of cattle weighs 40 lbs. per square foot. A double row of heavy loaded teams weighs 600 lbs. to the lineal foot.

I recommend that your honorable body advertise for bids for an iron truss bridge, of the above standard, and that you submit the plans that may be offered to a competent engineer for computation and comparison.

APPROACH.

This should be 196 feet long and 16 feet wide, consisting of 14 pile bents, with 10x10 caps 20 feet long, stringers or joists 3x8 and 6x8, with hand rails, sway braces, &c., as shown in the plans already submitted. This, with about 1,000 feet of embankment at the ends, will complete the bridge.

ROADS LEADING TO THE BRIDGE.

At the Buena Vista location it will be necessary to cross and re cross the Keokuk & Des Moines Railroad, and in order to intersect with the public road running east and west through the center of section 32, a short road of about 800 feet will be required at an expense of \$200. It is also estimated that \$300 will be required, upon the opposite side, to extend the road up the Des Moines river, to the intersection of the Alexandria road.

At the Yellow Banks location it will be necessary to clear and open a road on the right bank of the river, about one-fourth of a mile, to the intersection of the Bates ferry road, at a cost of about \$75; and upon the opposite side it will be necessary to clear and open a road about three-fourths of a mile in order to reach the Alexandria road, at an estimated cost of \$150. Also one small bridge will be required at a cost of \$50.

The above surveys and estimates for roads have been made with the view of connecting with such other public roads as are now in use. In the event of constructing a bridge, the increase of trade and travel will make it necessary to furnish improved roads that will meet the demands of an extensive trade. The plans furnished apply to the different locations, unless otherwise noted.

Before contracting for the foundations, substructure or approaches, more particular and full specifications should be prepared.

ESTIMATES.

1,000 yards of excavation for foundation pits, at \$1 per yard.....	\$ 1,900 00
27,000 feet of lumber for coffer dam, equal quantities of hard wood and pine, \$30 per thousand.....	540 00
Piles in foundation; 2,190 lineal feet, at 40 cents per foot.....	876 00
Piles in the approach, 756 lineal feet at 40 cents per foot.....	302 00
Timber and plank in the approach, 16,636 feet, at \$35 per thousand.....	582 00
Pine or elm timber in the grillage, \$5,040 feet, at \$16 per thousand.....	500 00
Masonry, 1,561 yds. at \$12 50 per yard..	20 600 00
Superstructure, 600 feet, at \$40 per foot..	24 000 00
1,000 yards of embankment, at 20 cents per yard.....	200 00
Total cost.....	\$49,610 00

Buena Vista, being considered the most

eligible site, has formed the principal basis in making the estimates. The plans being the same, the estimates were the more readily made by comparison, and would be nearly the same, if the bridge at the Yellow Banks was placed on piles and grillage as shown in the plan, but with the additional cost of piles and hauling as stated \$4,500 should be added to the estimate of the Yellow Banks location.

Respectfully submitted,

OREN BALDWIN,
City Engineer.

KEOKUK, March 15th, 1875.

The Daily Constitution.

KEOKUK, IOWA :
SATURDAY, JAN. 30, 1875.

The Bridge Appropriation.

The resolutions passed by the Board of Supervisors, yesterday, making an appropriation of \$15,000 for the construction of a bridge over the Des Moines river, are as follows:

Resolved, That there is hereby appropriated by the county of Lee, in the state of Iowa, to be applied towards the construction of an iron bridge over the Des Moines river, in the vicinity of the city of Keokuk, the sum of Fifteen Thousand Dollars, to be paid as herein below specified; provided, however, that the city of Keokuk shall appropriate the balance of money necessary to construct and complete said bridge, including the approaches thereto, and shall construct and complete the same, or cause the same to be done; said bridge to be of iron superstructure, on abutments and piers of solid stone masonry, or other material satisfactory to the committee.

Resolved, That the County of Lee hereby appoints A. L. Connable to act for said county of Lee, in conjunction with a committee of one to be appointed by said city of Keokuk, to superintend the construction of said bridge; and no contract shall be made for the construction of said bridge without the approval of the said A. L. Connable.

But the foregoing appropriation is made on the express condition that the city of Keokuk, by the acceptance of the same, thereby waives all right and claim to be reimbursed out of the bridge tax collected within the limits of said city, for the money which said city may appropriate and expend in the construction and maintaining of said bridge under the provisions of chapter twenty-eight of the laws of 1872, or any other act now existing or which may be hereafter enacted by the general assembly of the state of Iowa.

And said city shall file with the board of supervisors of Lee county, the written waiver of said city to that effect, duly authorized and authenticated, before any part of said appropriation shall be paid by said county of Lee.

Resolved, That the sum of \$5,000 of said appropriation shall be paid to said city of Keokuk after the piers and abutments shall have been finished and completed, and that the sum of \$5,000 shall be paid to said city on the 1st day of March, 1876; provided, the superstructure of said bridge shall have been finished, and that the sum of \$5,000 of said appropriation shall be paid to said city on March 1st, 1877, and after the said bridge shall have been finished and completed under the superintendence of said

A. L. Connable, acting for said Lee county, and said committee of one to be appointed by said city of Keokuk, and according to the contract under which the same shall have been constructed.

I certify that the foregoing resolutions were unanimously adopted by the Board of Supervisors of Lee county this 29th of January, 1875.

W. A. DONNELL,
Chairman Board of Supervisors.

The Daily Gate City.

TUESDAY MORNING, SEPTEMBER 27, 1870.

ACCIDENT ON THE BRIDGE.

An Employe Drowned.

On Sunday last, while a force of men was engaged in erecting the trestle work for the fourth span of the Bridge, one of them, named Robert Bradbury, lost his balance, fell a distance of twenty feet into the water and was drowned. There is something very unusual about this case. The man, after disappearing under the water, did not again come to the surface. The current was very swift where he fell in, and he was doubtless carried very rapidly down the stream. Search was made for his body, but without any success.

The unfortunate man was an Englishman by birth, and was about 23 years of age, and had black hair. He had on when drowned a heavy blue woolen shirt, a pair of congress gaiters, considerably run over, and a pair of plaid pants.

He leaves a wife and two small children at Radcliffe, England. A letter from his wife was found in the pocket of his coat, which he placed on a timber near where he was at work.

F. S. Kauffman, foreman of the Keystone Bridge Company, offers a reward of \$20 for the recovery of his body.

The Daily Gate City.

FRIDAY MORNING, NOVEMBER 18, 1870.

SAD CASE OF DROWNING.

A Young Man Falls from a Bridge Pier Into the River.

One of those deplorable accidents which seem in magnitudinous enterprises to be inevitable, occurred yesterday afternoon. A young man named McNurtney, who is an employe of the Bridge Company, was engaged at work on one of the unfinished piers, when he lost his balance, fell into the river, and was drowned. Efforts were made by those present to rescue him, but

his body after disappearing under the water did not again come to the surface.

The current at that place is very swift, and as he fell between the pier and the steamer "Jessie," it is supposed that he was carried rapidly down the river.

We understand that McNurtney was engaged to be married, and that the wedding was to have taken place on next Sunday.

These facts render the case doubly sad. Until recently accidents on the bridge have been altogether unknown, but this has been the second case of drowning in connection with that work within the past few months.

REWARD.—I will pay a reward of \$20 for the recovery of the body of Robert Bradbury, who fell from the bridge at this place on Sunday last and was drowned. He was an Englishman by birth, was about 23 years of age and had black hair. He had on when drowned a heavy blue woolen shirt, a pair of congress gaiters, considerably run over, and a pair of plaid pants.

SEP 27, 1870 F. S. KAUFFMAN,
(28-3t) Foreman Keystone Bridge Co.

The Daily Gate City.

SUNDAY MORNING, AUGUST 14, 1870.

THE NEW FERRY APPROACH, on the Illinois side of the river, was completed yesterday, and Capt. Van-Dyke this morning commences to make his landings thereat. The new approach consists of a trestle bridge starting from the south side of the dyke, and extending down stream a distance of 360 feet, ending on a flat boat which is steadied by two cribs filled with rock. The flooring is of three inch oak plank on 4x12 stringers two feet apart; the side railings are of pine plank five feet high on braced posts, giving a wagon way 16 feet wide. The whole structure, though rough, is very strong and well put together.

Mr. Kauffmann has a barrel of beer to treat his friends to on the arrival of the first boat at the new wharf: he says it is to celebrate the opening. We have an idea, however, that the victories of his native country is a motive power also. We hope he won't take too much, for now that he has enabled the ferry boat to land without going through the spans, we want to see him push along that iron work on the bridge.

The Daily Gate City.

SEPTEMBER 28, 1870.

CITY NEWS.

REWARD.—I will pay a reward of \$20 for the recovery of the body of Robert Bradbury, who fell from the bridge at this place

68

pair of congress gaiters, considerably run over, and a pair of plaid pants.

F. S. KAUFFMAN,
Foreman Keystone Bridge Co.

He was on Sunday last and was drowned. He was an Englishman by birth, was about 23 years of age and had black hair. He had on when drowned a heavy blue woolen shirt, a pair of congress gaiters, considerably run over, and a pair of plaid pants.

THE GREAT JUST HEAP CALLED HISTORY
R. L. BUCKEL KEOKUK, IOWA

SATURDAY MORNING, FEB. 17.

THE FURIOUS FLOOD.

Five Spans of the Des Moines Bridge Go Down.

Watchman L.L. O'Blennis Receives Dangerous Wounds—Others Narrowly Escape a Similar Fate and Even Instant Death—The Railroads—Losses and Incidents of the Flood Here and Elsewhere.

Yesterday morning we gave an extended account of the flood of Wednesday night extending into Thursday morning, presenting all the facts that could be gathered in the short space of time we had in which to make our report of the storm king's ravages. Facts and incidents continue to accumulate, of a character, in some instances, far more serious than those heretofore chronicled by us.

DES MOINES BRIDGE.

Early in the forenoon the startling news reached the city that a serious break had taken place at the Des Moines river bridge, and that the watchman, L. L. O'Blennis, was fatally injured by the accident. There being no telegraphic communication, news did not travel back and forth with lightning speed, and while the extent of the calamity was given to uncertainty, the Des Moines river bridge was the topic of enquiry and conversation in the streets and business places all about the city. One could hear that the structure or a portion of it had been moved slightly; that the southern approach had fallen; that all the bridge was down; that Mr. O'Blennis was fatally injured, and that he was killed outright. We saw one man who had come in on a Rock Island train after the accident occurred, and positively asserted that no portion of the bridge was down, that he passed along by it as near as the Rock Island road could take him, that he saw a number of men about the bridge, but all the spans of the bridge were still in their places.

Two or three engines went down to the scene of the reported disaster. At about 11 o'clock a. m. a special train started from the depot of the company on the line, bearing a number of the Rock Island force, including Superintendent Gvin. A GATE CITY reporter was among the number of those aboard and soon the party was at the bridge to ascertain the facts in the matter.

The men who were on the bridge at the time the accident occurred were still nervous from the excitement occasioned by the scene, which they had so recently witnessed the narrow escape which they apparently made, and the precarious condition of Mr. O'Blennis,

who they believed was injured beyond recovery.

There were on the bridge at the time of the going down of the spans, Hugh Copeland, W. H. Wyatt, L. L. O'Blennis, John O'Blennis, Fred Morris, Sam McQuade and John McQuade.

As soon as possible the GATE CITY representative singled out Hugh Copeland, whose history and description of the occurrence was graphic, more so than can possibly be transcribed to paper. He had just witnessed the fearful scene, was a participant in the rescue of O'Blennis and a sharer in the terrible dangers from which the seven actors escaped so narrowly with their lives.

It was about 9:15 in the morning, when there was such a dense fog that the eye could penetrate it only a short distance, that a crash came and five spans of the Queen's truss approach from the south, usually called the trestle approach, went clattering down into the swollen river, while breaking and creaking timbers, bursting bands and bolts and snapping braces made a sound which would cause the stoutest heart to quail.

Shortly after these went down one span of the Howe truss began to crack and sway, pressed and shaken by the weight of the ice gorge and waters.

Seeing this, Watchman O'Blennis started toward the breaking span, saying: "I am going to detach the rails."

His purpose was to allow the falling span to go without injury to the span to which it was bound. His brother John went with him. Several others followed them on the creaking span, when it began to go down, and realizing their dangerous situation, the party sought safety by returning to the unyielding portion of the bridge, all save Watchman O'Blennis. There was a perfect pandemonium of noises—the sullen voice of the waters, the splitting and breaking and crashing of the bridge material and the loud sound of falling timbers.

After the others of the party were off Mr. Copeland missed O'Blennis and asked where he was. This startled the men, and in turning about they discovered him on the sinking span, which had gone down about five feet. His head was dropped and his arm encircled the hub rail, as it is called, and he was apparently lifeless.

"Save my brother!" exclaimed his brother John, as he rushed toward the apparently dead man.

With the assistance of Mr. Copeland and perhaps others, the watchman was hastily dragged from his perilous position and borne to the toll house on this side of the bridge. A messenger was immediately dispatched on horseback for Keokuk for a physician. Soon after a hand car was utilized and a party started on that for this city to procure the neces-

sary assistance and to notify those concerned of the disaster.

We say that Mr. O'Blennis was "dragged from his perilous position," and this is literally true. There was no time to be lost, no time for ceremony or even tenderness for the dead; the only thought of the living brother was that Watchman O'Blennis was killed, and his uppermost thought was to save his body from burial in the frowning and freezing water and ice in the wide-spreading and cruel river.

During this perilous struggle the broken span continued to creak and crash, and the timbers to fall. The injuries received by Watchman O'Blennis was from a piece of falling timber which struck him quartering across the neck and back of the head. This caused concussion of the brain and serious injuries to the spinal cord. There is no external wound.

Dr. J. C. Hughes was summoned as quickly as possible, and was prompt in his appearance at the scene of the disaster, going down yesterday morning and attending the wounded man. Again yesterday afternoon he was summoned, and went down about 2 o'clock, leaving his patient a little after 3 o'clock. When last left he was rallying, and was resting quite easily, considering the suffering he had endured previously from his injuries. The symptoms were favorable, but it was impossible for Dr. Hughes to say what the result may be. On this he would not venture an opinion.

John O'Blennis barely escaped a similar fate, or perhaps worse. A timber came tumbling down from above, he threw up his arm to ward off the blow, receiving a rather painful wound on the hand.

The mystery is that more were not injured or killed outright. When we take into consideration the double danger in which the men were placed—the yawning abyss below rapidly opening for them, and the falling and flying timbers from above apparently as dangerous to life and limb as bursting bombs. The scene is described as being terrific.

Yesterday morning one of the Messrs. O'Blennis moved his family and goods from the other side of the river to this side. A wagon load of his corn was then driven over, and just as the team struck terra firma on this side of the river the disaster occurred. The driver of the team was enthusiastic in congratulating himself on his narrow escape.

A freight train on the M. I. & N. railroad came over the bridge in the morning before the disaster occurred. The accident took place at about 9:15 yesterday morning, about fifteen minutes before the down passenger train on the St. Louis and Keokuk line was due at that point. All in all the disaster seems a mysterious mixture of luck and ill luck.

SUNDRY ACCOUNTS

The length of that portion of the bridge which went down in the disaster was four hundred feet—five spans of the Queen's truss, each fifty feet, and one span of the Howe truss, one hundred and fifty feet in length.

THE CANAL.

There was quite a flood experienced at the canal caused by the swollen and rapidly running waters of Lamalees creek at Sandusky, and Price's creek, just above the middle lock. In the side sluices the waters ran in a perfect torrent. The faithful crew were at work all night doing what was necessary to prevent any disaster in that quarter. During the night the sluice gates and wickets were kept open. Yesterday morning the lower level was booming, the flood being much heavier there than above. This was from the fact of letting the water out from above into the lower level. When the upper level's volume of water was sufficiently reduced then that in the lower level would be correspondingly lowered. At one time the water was running over the gates of the lower lock. The water was nearly level with the walls of the canal. There seemed to be some apprehension expressed for the safety of the boats in the canal, but those who are best informed on such matters entertain no fears whatever as to the safety of these boats. The government has several valuable boats lying in the canal.

WAVELETS.

The storm of Thursday night was one of the most popular themes of conversation yesterday.

At the residence of G. C. Phillips, Eighth and Morgan, the water was one foot deep in his basement kitchen from Thursday night's storm.

At Charnier's saloon on the levee during the storm a perfect stream of water ran through, coming down the bluff from First street, entering the rear and coming out at the front. The cellar was flooded, and some damage was caused by the breaking of wine bottles. There were other articles in the cellar not much damaged. He fought the water two hours during the flood, but the water finally won the contest.

No trains went out on the Wabash yesterday, and that company declined to receive freight for any point. The cause of this action is that the track between this point and La Harpe is covered in many places with logs and ice.

In the basement dining room at the residence of W. W. Ralston, Eleventh and Morgan streets, the water was eighteen inches deep, ruining carpets and doing other damage.

About twelve feet above the Fifth street bridge over Bloody Run the debris lodged on the switch about twelve or

fourteen feet above terra firma.

On High street, between Ninth and Tenth, nearly all the houses were more or less flooded.

At Elgin's grocery, Ninth street, between Concert and High, the water was nearly shoe-top deep on the first step at the entrance.

On Ninth and Tenth streets, between Concert and High, the water was fully knee deep.

The water in the commons back of the High school building, bounded by Concert, High, Eighth and Ninth streets, would swim a horse.

Brush Creek bridge on the C. B. & Q. railroad is out and no trains passed over that road yesterday, until last night when the regular passenger train attempted its run, but went no farther than Fort Madison, returning to the city last night. The bridge is between Wever and Burlington.

The sidewalk bridge on Fourteenth between Morgan and Fulton was tipped up by the rushing waters.

The Bloody Run bridge No. 4 moved twelve inches down, forced by the flood

On one of the abutments of bridge No. 3 of the North Road, in the suburbs, a huge cake of ice weighing several tons lodged and found a resting place, twelve feet above low water mark.

A stock of chemicals and other articles in the cellar of N. Blom, soap factor, Main street between Thirteenth and Fourteenth, were flooded. His loss will not fall short of \$50, and may reach into hundreds.

At the residence of A. A. Sumner, High between Fifth and Sixth, the water was fifteen inches in the dining-room and kitchen, caused by a defective and frozen drain. There was no special damage reported, barring the inconvenience of camping up stairs.

There was four feet of water in the cellar of J. P. Christy, corner of Eighth and High.

The Eagle mills sustained an unestimated loss, the contents of the cellar and engine-room being flooded with water. The loss will probably reach \$500 or \$600.

At Schouten's bakery, Eleventh and Main, there was a slight damage from water in the cellar.

Chas. Henneman's cellar, Twelfth and Main, suffered a deluge and its contents were valuable. His estimated loss is about \$100.

At the saloon just above between Twelfth and Thirteenth on Main kept by Robert Johnson the loss is estimated at about \$50.

Philip Pelgin between Thirteenth and Fourteenth on Main where the cellar caved in as heretofore reported in the GATE CITY a loss in provisions sustained to the amount of \$40 or \$50. Loss on building not estimated.

Water got into the engine house and cellar at Yenawine's mill, on Twelfth, between Main and Johnson, and also surrounded the stable, incurring considerable loss.

Andy Balbach, at the Franklin House, Main street, between Tenth and Eleventh, was one of the heaviest losers. He had a big lot of provisions, etc., stored in his cellar and he estimates his loss at \$500. One amusing feature was that he had several pigs in a pen on his premises which kept up a terrible squealing during the storm. By some means they escaped from their confinement and yesterday morning he found one of them snugly housed in a sleigh in his wagon yard. His wood also floated around promiscuously.

The cellar of Mrs. Burger, on Main between Twelfth and Thirteenth was flooded causing some loss, the estimate not reported.

At the cracker factory of Ruddick & Schouten, Tenth and Johnson, the water ran into the cellar with a perfect fury. Luckily they were working all night and discovered the danger in time to guard against loss. The water rose to within seven inches of the furnace. Had it reached the furnace the loss would have been serious. The candy factory of this firm, on Main between Tenth and Eleventh, had considerable water in the cellar but here too care was taken to prevent damage.

The cellar at Wilkinson & Co.'s branch drug store, Eleventh and Main, was full of water. It contained some stock, but the loss cannot be ascertained until the goods are examined. It will be from \$50 to \$100.

The North Road's track runs under Bloody Run bridge at Fifth street. At this point the water ran three feet over the track, which is raised a considerable distance above the surface.

Robert Hassett and family, who reside on Cedar street, between Fifth and Sixth, were driven from their home at 3 o'clock yesterday morning by the swollen waters, and forced to seek shelter elsewhere.

It was reported yesterday that there was a washout on the M. I. & N. railroad near Wayland, but a train on that road came in as far as Alexandria to-day.

The thermometer between 7 and 8 o'clock yesterday morning was 62 above zero, at 2 o'clock p. m., 28 above, and at 10:20 last evening, it marked 15 above, being a change of 47 degrees.

From the time the rain storm commenced Thursday night until it ceased raining at about noon yesterday there was a fall of 3 and 66-100 inches.

The Keokuk and St. Louis line will commence to temporarily repair the damages to the Des Moines river bridge and work will probably commence to-day. (END)

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EDITS

THE GREAT DUST HEAR CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

DAILY GATE CITY.

FRIDAY MORNING, SEPTEMBER 8, 1875.

THE DES MOINES RIVER BRIDGE.

Special Meeting of the City Council to Decide on the Location.

The members of the City Council went down to the Des Moines river yesterday to take a survey of the ground where the proposed bridge is to be located. They were accompanied by Mr. Bayless, engineer of the bridge, and Guy Wells, Superintendent of the St. L. K. & N. Railway, who kindly furnished a special train for the occasion.

In the evening the Council met in called session. Present, the Mayor and all the Aldermen except Archer and Leindecker.

The Mayor stated that the meeting had been called to decide on the point at which the proposed Des Moines River bridge should be located.

Alderman Sample offered the following preamble and resolution:

An agreement between the city and the St. Louis, Keokuk, and Northwestern Railway Company, covering the joint construction of the contemplated bridge over the Des Moines River, being impracticable; be it

Resolved, That the substructure therefor, now under contract, is hereby located above and adjoining the Railroad right of way, upon the south bank, but clear of said right of way everywhere, with piers in echelon and parallel with the current, and the north abutment placed to provide a suitable curve upon the east span and approach to effect an easy railway union with the present entry track to Keokuk, as per survey by S. L. Bayless, engineer in charge.

The matter was discussed in all its phases by the various Aldermen, with the assistance of Engineer Bayless.

Alderman Estes offered an amendment to the resolution, locating the bridge at the extreme limits of the city, and at right angles to the current of the river. Lost.

The question then recurring on the resolution of Alderman Sample, the ayes and noes were called and it was adopted by the following vote:

Ayes—Cunningham, Daugherty, McKenzie, Paul, Sample, Smith and Tiede.

Noes—Estes, Gallagher and Hubenthal.

Adjourned.

DAILY GATE CITY.

THURSDAY MORNING, SEPTEMBER 9, 1875.

The Des Moines River Bridge.

Work on the Des Moines River bridge is progressing steadily. Stone cutters are at work dressing stone for the piers, quite a large number of which are piled away ready for use. Work on the coffer dams has been somewhat delayed in consequence of the city not having permanently located the bridge until a day or two ago, but

Captain Kittle says it is a lucky delay for him, as the Des Moines is on a rampage and would in all probability have carried everything away, had work been begun sooner. The river is now within two feet of the high water mark early in the summer. The St. L. K. & N. bridge seems to stand the swift current. Two more car loads of rock for the new bridge were received yesterday making in all, twenty two and more coming.

DAILY GATE CITY.

THURSDAY MORNING, SEPTEMBER 9, 1875.

THE BRIDGE INJUNCTION CASE.

Another Demurrer to the Petition—Opening of the Arguments in the Case.

Last evening was the time fixed for hearing the arguments upon the petition of Major Collins, for an injunction restraining the city from proceeding with the work upon the Des Moines river bridge.

During the day City Attorney Gibbons filed the following demurrer:

W. B. Collins vs. The City of Keokuk—in the District Court of Lee County, at Keokuk, Iowa: demurrer.

Come now respondents, by John Gibbons, their attorney, and demur to the petition of complainant for the following causes:

1. Because it is not alleged in complaint that complainant had not an adequate remedy in the ordinary course of law.

2. Because complainant has a full, adequate and complete remedy at law.

3. Because it is not alleged what special interest complainant has in this suit, aside from the general public, or in what manner he would sustain injury aside from the general public.

4. Because it is not alleged in complaint that the performance of the contract will result in the assessment of an additional tax on the property of complainant, if any property he has.

5. Because it is not alleged in complaint that the city will have to go in debt to the amount of twenty-five thousand dollars, or any other sum, on account of the building of said bridge.

6. Because it is not alleged in complaint but what the city has made provision out of the annual current revenue of the city to fulfill said contract in building the bridge.

7. Because it does appear on the face of the record that the city had made provision to fulfill said contract and pay for the work performed under it, as the work progresses the payment to be made in cash.

8. Because by the charter of the city of Keokuk and laws of Iowa, the control, care and management of the public streets of the city of Keokuk is confided to the discretion of the City Council of said city, and the exercise of such discretion for the welfare of the public is not a matter of review in courts of law or equity in the absence of fraud.

9. Because by the laws of Iowa the city of Keokuk has the right to join with any company, corporations or persons in the building of a railroad and wagon bridge across any river in this State when such

city is situated on such river. or build such a bridge, and join any company, corporation or persons in defraying the expense in such manner and under such circumstances as the city may deem advantageous to the public good.

10. Because it is not alleged but what the bridge tax assessed within this city will be more than sufficient to pay all expenses connected with the building of such bridge.

11. Because a Court of Equity will not enjoin the city and subject it to damages for breach of contract or to the loss of the amount of money paid out under said contract on the application of one citizen tax payer on the mere allegation that he is a citizen and a tax-payer, and without showing what damage he will sustain as such tax-payer, or in what manner he will be injured in the city's fulfilling and complying with the obligations of the contract set out in complaint.

12. Because the Court has no jurisdiction of the subject of the action; and complainant has not stated sufficient facts to constitute a cause of action.

JOHN GIBBONS,
Attorney for Respondents

Mr. Gibbons spoke in support of this demurrer last evening, occupying about two hours.

At the conclusion of his remarks, Judge Newman stated that he could not consent to occupy the time of the Court with the case while the jury is on duty, and therefore postponed further hearing until after the jury trials, which will probably be a week or more.

Major Collins then asked for an order to stop work on the bridge until the case can be heard, but this the Court refused to grant.

The only thing indicating the sentiment of Judge Newman upon the petition, was the remark that proceedings had been instituted at too late a day.

DAILY GATE CITY.

FRIDAY MORNING, JULY 2, 1875.

THE DES MOINES RIVER BRIDGE.

Meeting of the Citizens' Committee and Railroad Authorities Yesterday Afternoon.

The committee appointed by the citizens of Keokuk met Superintendent Hill, of the M. I. & N., and Superintendent Wells, of the St. L. K. & N., at the office of Patterson & Timberman yesterday afternoon and had quite a lengthy consultation in regard to building a bridge over the Des Moines river, and the proposition of the M. I. & N. Railroad to run their road into this city.

Mr. Miller, on behalf of the citizens of Keokuk, stated that a month or two ago there was considerable talk of building a wagon bridge over the Des Moines river, but that the people had about come to the conclusion that this was all nonsense, and were now willing to enter into an agreement with the railroads to build a com-

bined railroad and wagon bridge, the city to pay a certain proportion, which the Council would consent to do, and they think that the city paying for one-third of the cost of building the bridge would be substantially the same as the appropriation of \$20,000 which is asked, and would prove mutually beneficial. The tolls collected would amount to quite a sum, and would more than keep the bridge in repair. We are willing and anxious to do all we can, but it is not in our power to grant the amount asked.

Mr. Hill, in reply says, I do not think the revenue from a bridge would keep it in repair. I have with me estimates made by Joseph Smith, civil engineer, for two bridges, one at Buena Vista and the other near the old bridge site. The estimates are made on iron and wood superstructures, with and without wagon way, and the estimated cost of these are from \$282,000 to \$334,000, this price, including the approaches with track to connect with the K. & D. M. on this side, and two miles of road on the Missouri side. It is true that these estimates are 15 or 20 per cent. too high if the bridge was built at once, but if left for a year longer it will in all probability cost the full amount of the estimates. If this is true, what is there to be gained by the M. I. & N. R. R. in expending this large amount of money to come into your city, especially when we have not one dollar invested there, and no interest of any description in your city to influence us. If we owned plenty of ground in your city whereon to build the necessary tracks and buildings, then it would be expedient to extend the line. None of our people were willing to run into Keokuk under any consideration, but I went East and finally induced them to consent to build the road to Keokuk, providing we were given the right of way and \$20,000. We do not propose to promise more than we will fulfill, and have been saving the earnings of the road for this purpose. You do not seem to understand your position, nor do you know what you are losing; and if you desire us to come to your city we must know it soon. Our ultimatum is that we are allowed the right of way and \$20,000, or else we cannot and will not do anything further. I have no interest in the matter, and if the road is extended it will be at a sacrifice of about \$150,000 to myself and brothers.

No further action was taken, and the committee will probably be present at the next Council meeting to urge the appropriation desired.

THE GATE CITY:

SUNDAY MORNING, OCT. 3, 1875.

INJUNCTED.

The City Restrained from Expending More Than \$9,000 on the Des Moines River Bridge.

On yesterday the case of W. B. Collins vs. the City of Keokuk, seeking to enjoin the city from the construction of the bridge over the Des Moines river, came up for hearing before Judge Newman, at Burlington. The cause was heard on bill and answer and testimony.

After a very patient hearing, Judge Newman held that the city had unquestioned power to appropriate ten dollars per lineal foot to the construction of the bridge; that the city was the sole judge of how the money should be applied; but that it had no right under the law as it now stands, to appropriate more than this sum, and he would accordingly allow the writ of injunction to issue, restraining the city from the expenditure of more than ten dollars per lineal foot.

This allows the city to expend the sum of \$9,000, which, with the \$15,000 appropriated by the county, would, it is claimed, be ample for the construction of the substructure. But we understand that the plaintiff will at once apply for an injunction restraining the county from appropriating the \$15,000 in question. So the matter is by no means fully settled as yet.

In the cause plaintiff was represented by himself and James Hagerman, Esq. The city was represented by John Gibbons, City Attorney, and J. H. Craig, Esq. Capt J. W. Kittle had for his attorneys Messrs. Gillmore and Anderson.

The cause has been hotly contested and argued at great length. The following is a copy of the injunction:

W. B. Collins vs. Edward Jaeger, Mayor of the City Council of Keokuk et al.

INJUNCTION.

Now, on this day, this cause came on for hearing before me at chambers, at Burlington Iowa, on application of plaintiff for a preliminary injunction in said cause. The plaintiff appearing by himself and James Hagerman, his attorney, and defendants by John Gibbons Gillmore and Anderson, and Craig and Collier their attorneys; and the cause being presented by the bill, and answers and on affidavits from both sides, and oral cross examinations of the affiants, and the argument of counsel being heard and the cause fully considered, it is ordered that an injunction issue restraining the city, defendant, from appropriating or paying from the city treasury or funds any greater sum or amount than ten dollars per lineal foot for the construction of said bridge, and that the defendants are all restrained from the execution or performance of the contract at the cost or expense of the city to any greater extent than ten dollars per lineal foot, to-wit: In the sum of \$9,000 upon the plaintiff giving bond and security to the satisfaction of the Clerk in the sum of \$1,000 at costs of defendants.

T. W. NEWMAN, Judge.

October 1st, 1875.

The following is the resolution of the Board of Supervisors, passed January 29th, 1875, which provides for the manner in which the \$15,000 appropriated shall be

paid:
Resolved, That the sum of \$5,000 of said appropriation shall be paid to said city of Keokuk after the piers and abutments shall have been finished and completed, and the sum of \$5,000 shall be paid to said city on the first day of March, 1876, provided the superstructure of said bridge shall have been finished, and the sum of \$5,000 of said appropriation shall be paid to said city on March 1st, 1877, and after the said bridge shall have been finished and completed, under the superintendence of said A. L. Connable, acting for said Lee county, and Committee of one appointed by said city of Keokuk, and according to the contract under which the same shall have been constructed.

THE GATE CITY:

SATURDAY MORNING, OCT. 30, 1875.

THE DES MOINES RIVER BRIDGE.

Like Banquo's Ghost, It will not Down.

But Comes to the Surface in a New Shape.

The Matter Considered at a Special Meeting of the Council Last Evening.

And a Contract For a Combined Railway and Highway Bridge Adopted.

The Prominent Features of the New Plan.

Pursuant to a call from the Mayor a special meeting of the City Council was held last evening. All the Aldermen except Archer and Hubenthal were present.

The Mayor stated that he had called this meeting to take into consideration the matter of the Des Moines River Bridge. He said that the recent injunction prevented the Council from appropriating a sufficient sum to complete the structure, but there is a law in force which gives the city power to unite with a railroad company or individual in such an enterprise. The Bridge Committee had been in consultation with the officers of the St. L. K. & N. R. R. Company, and a contract had been agreed upon which the Council would now be called upon to consider.

He said that the railroad company had entered into a contract with Captain Kittle, the present contractor, for the completion of the substructure of the bridge.

He also stated that the Board of Supervisors at their recent session, amended the resolutions appropriating \$15,000 toward the bridge so as to make the money available as the work proceeds. Warrants are to

Des Moines Bridge #1

THE GREAT EAST RIVER CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

be issued by the county and placed in Mr. Connable's hands, to be used by him as the work progresses, the contract for the construction of the bridge to be approved by him. The resolution requiring that the superstructure of the bridge be of iron, was also changed by the Board.

The Mayor also stated that the piece of land on the Iowa shore, which is required in the construction of the bridge, had been secured.

John H. Craig was then called upon to read the draft of the proposed contract between the city and the Railroad Company, as well as that between the Railroad Company and J. W. Kittle.

Alderman Daugherty said that in listening to the contract he noticed three objections. The first was that the Railroad Company was not to be responsible for accidents on the highway part of the bridge from its neglect. The other two were as to the maintenance of certain piers, and the terms on which other railroad companies are to be admitted. The contract was explained so that the objections were overcome. Alderman Daugherty then moved that the contract be accepted, and that the Mayor be authorized to sign the same.

The ayes and naves were called for, and the motion was adopted by a unanimous vote.

At the request of the Council the contract is withheld from publication until it shall have been executed. This will probably be done to-day, in which event the contract will be published in to-morrow morning's GATE CITY.

The following are the prominent features of the instrument:

The city to furnish a stone abutment on the Iowa shore and four stone piers; the Railroad Company a pile abutment on the Missouri side and ten or eleven pile piers.

The Railroad Company to protect the bank one hundred feet above the bridge and fifty feet below; furnish four Howe truss and eleven or twelve beam truss spans for the superstructure—all to be eighteen feet wide in the clear.

The city to plank and rail the bridge for highway purposes.

The city and the Railroad Company each to pay the expense of one watchman.

The Railroad Company to forever maintain everything except the stone part of the substructure and the highway portion of the superstructure, and to permit the use of the bridge to other companies wishing to enter the city, for a reasonable rental or joint ownership upon the basis of an equal division of the cost.

The contract was drawn up to meet the views of both parties, and is therefore acceptable to both. The plan is to construct the piers and abutments just above the present railroad bridge, and to transfer the superstructure now in use to them and add an additional span. The cost to the city under this new arrangement will be about

\$20,000, not including the \$15,000 appropriated by the county.

We understand that the plan agreed upon is satisfactory to the parties who secured the recent injunction. The work will proceed at once and it is expected that the bridge will be constructed during the coming winter and spring.

DAILY GATE CITY.

FRIDAY MORNING, DEC. 24, 1875.

THAT BRIDGE QUESTION.

Special Meeting of the City Council to Consider the Matter.

The American Bridge Company to Take Hold of the Work.

The City Council held a meeting yesterday afternoon, at the call of the Mayor, to take action on the Des Moines River Bridge matter.

All the Aldermen were present but Leindecker and Smith.

The Bridge Committee, to whom was referred the communication of J. W. Kittle, contractor on the bridge, proposing to surrender his contract upon payment by the city of the bills set out in an annexed schedule, and lose, himself, the amount he has personally put into said contract, as well as his time since he began work, (the schedule aluded to toots up \$6,981.21) submitted the following report:

To the Honorable City Council of the City of Keokuk:

Your Committee, to whom was referred the communication of J. W. Kittle, proposing that the city of Keokuk should pay him the sum of \$6,981.21, for work alleged to have been done and material said to have been furnished for the contemplated Des Moines River Bridge would beg leave to report as follows:

The work on the Des Moines river bridge under J. W. Kittle, the present contractor, with the St. L. K. & N. W. Railway Company, does not progress satisfactorily to the railway company—in fact the said contractor is utterly unable to finish or even prosecute said work any further, as admitted in his own proposition, and has been virtually abandoned by him. Under existing contracts we believe the city is not liable to either the Railway Company or to J. W. Kittle, contractor, or sub-contractor or laborers for any amount whatsoever, and we also believe the city is amply secured for the amount already paid on said work. While we deplore the hardships that may fall on the laborers if they should not succeed in getting pay for their labor, it must be apparent to every right thinking man, that the city cannot be held responsible for misrepresentations that may have been made to them, that the city would pay for all the labor and material furnished. The city did not make any contract with J. W. Kittle, and if any liability exists the city should do whatever the courts may decree. Our sympathy as individuals certainly ought not over-ride our plain duty as representatives of the city.

Your Committee has had several conferences with the representatives of the Rail-

way Company on this subject, and they are of the opinion that an immediate change of contractors is imperative. In such case said Company desires a modification of the contract now existing between the city and said Company, and in view of the advanced season of the year, we think there should be a supplemental contract made. The Railway Company represent to your Committee that it can contract with a responsible bridge company to complete the entire portion of the work of said bridge, to be built or paid for by the city at a total cost of \$38,500, the city to furnish the cement for the stone piers and abutments. The character of the company that would contract with the Railway Company would be a guarantee for the success and early completion of the bridge.

In view of the foregoing remarks, your Committee would submit the following resolutions and move their adoption, viz:

Resolved, That the Mayor be and he is hereby authorized and instructed to enter into a supplemental contract with the St. L. K. & N. Railway Company, modifying and changing the contract between said Company and the city, dated — day of —, 1875, so as to make the consideration to be paid to the said Railway Company, for the entire completion of the said bridge, including stone pier abutments, pile piers and abutments, and the planking and the completion of the highway portion of the bridge, so as to make it complete in all its details, and for the furnishing of all the necessary and required materials of every kind, including cement, &c., the sum of thirty-five thousand dollars to be paid in monthly estimates of seventy-five per cent, as the work progresses. Seventy-five per cent, of the estimates to be retained by the city until the bridge shall have been entirely completed, and the city shall have the option in lieu of cash to execute to said Railway Company, a city warrant, payable in six months after the completion of said bridge, bearing eight per cent, interest, providing in said contract for the protection of the city against illegal claims or liens for work or material said to have been heretofore furnished, and taking action against said J. W. Kittle or his securities for breach of contract, &c. The said Railway Company to use all the material now on hand that may be made useful to such an amount as may be needed to keep the city harmless for moneys already advanced, and to be advanced, and to allow the amount so taken on the estimates, as provided for in said contract.

Resolved, That, for the purpose of ascertaining the value of the materials now on hand, S. L. Bayless is hereby appointed, on behalf of said city, to act as appraiser, in conjunction with Guy Wells, on behalf of said Railway Company.

Respectfully submitted,
EDMUND JAEGER, Mayor.
J. B. PAUL,
J. C. ESTES,
Bridge Committee.

A lengthy discussion took place as to the merits of the proposed plan of the American Bridge Company, which is to put down a caisson of oak timbers, settle it down to the rock bed, remove the earth and fill the cavity with concrete, and make this the foundation for the piers.

Judge Edmunds, President of the St. L. K. & N. Railway, being present, explained the situation at some length, and stated that if the city wanted to get a bridge in connection with his company, steps must be

Des Moines River Bridge

immediately taken to put the contract into the hands of some parties, who would get the work out of the way of the spring freshets in the Des Moines river, and in order to facilitate matters, his company had agreed to pay the difference between the maximum figures of the city, and the minimum sum the Bridge Company could be induced to do the work for.

J. H. Anderson, Esq., as attorney for J. W. Kittle, made a statement in behalf of his client, who did not claim anything for himself, but claimed that laborers and material men had a lien on material on the ground, that would take precedent over that of the city or any other party.

Alderman Sample, while he thought the price pretty high and the contemplated caisson plan inferior to solid masonry from the ground up—yet, if, after mature deliberation of all the members of the Council, they agreed to it, he would acquiesce, as this looked like the speediest way of getting a bridge, and therefore, he suggested that final action be deferred till all the members of the Council were present.

The debate promising to again become protracted and somewhat lively, Alderman Daugherty moved the previous question, which the Council ordered.

Alderman Sample moved to adjourn.

The Mayor decided the motion out of order. Alderman Sample appealed from the decision of the chair.

The question was taken on the appeal, and the ruling of the chair was sustained.

The main question was then taken on the report of the Bridge Committee, and it was adopted.

On motion the Council adjourned.

DAILY GATE CITY.

THURSDAY MORNING, SEPTEMBER 23, 1875.

THE DES MOINES RIVER BRIDGE.

Not Injuncted, But it Probably Will be.

At Least That's the Way it Looks at This Writing.

On yesterday Judge Newman overruled the demurrer of City Attorney Gibbons to the petition of Major Collins for an injunction to restrain the city and the contractor from proceeding with the work on the Des Moines river bridge.

The attorneys for the city then filed an answer to the petition, to which Major Collins replied.

The defendants in their answer admit that they entered into the contract with Capt. Kittle but deny that the city entered into said contract contrary to law as charged in the petition, and they deny that said

contract is illegal, they deny that the said bridge will cost the city of Keokuk the sum of \$60,000 or thereabouts and that plaintiff will suffer irreparable injury if said contract is carried out. They deny that they intend or are about to create any debt whatever on the part of the city for carrying out said contract in the construction of said bridge and they deny that said contract will require the appropriation or expenditure by the city of more than the city council are legally authorized to appropriate for such purpose. They claim that the proposed bridge is located within the city limits, and is to be built across an unnavigable river between the county of Lee in the State of Iowa and the State of Missouri; that it is one of the highways of said city, and will be a part of such highway, and that such highway is necessary for the public convenience as well as for the trade, growth and prosperity of said city. They also set forth that the county has appropriated \$15,000 toward said bridge, which sum was placed in the control of the city to be applied to the construction of the substructure, and that the city in making the contract with Kittle was acting in pursuance of said trust. They allege that it is the intention to unite with the St. L. K. & N. in building a combined railway and highway bridge, and that the city has extended the benefits of said bridge to any other railroad company desiring to cross the Des Moines, at that point.

They further allege that long prior to the date at which the contract was entered into the Plaintiff well knew that Defendants proposed to contract for the substructure of said bridge, and that they were in negotiation with the Board of Supervisors and said railroad for the location and construction of said bridge, to which Plaintiff made no objection, but suffered the Defendants to enter into said contract without opposition, and allowed said Kittle to expend large sums of money in carrying on the work, therefore they pray to be dismissed with their costs.

Major Collins filed a reply to this answer, in which he re-affirms all the allegations of the original petition and denies all of the allegations of the answers. He denies that said bridge is located within the city of Keokuk and on one of the highways thereof, and that it will be of material benefit to the city; denies that the county has appropriated \$15,000 and placed it in the control of the city for the purpose of being applied to the construction of said bridge. He denies that he made no objection to the letting of said contract, but alleges that himself and other citizens made earnest and repeated protests and objections to said contract; denies that he had any knowledge that the contract had been let and the work begun prior to the bringing of this suit, and alleges that if the defendants have done these things, it has been with the knowledge that the

city had no authority to enter into said contract, and with the intent on the part of the defendants to misappropriate the trust funds under their control in the city treasury. Capt. Kittle, the contractor, also files an answer, to which Major Collins replies.

Judge Newman stated that if the allegations set forth in the petition are sustained by the evidence, he will grant the injunction and intimated that in his opinion the city has no authority to construct the bridge in the manner proposed.

The evidence will be submitted before Judge Newman at Burlington on Friday evening of next week.

The attorneys for the city say that if the injunction is granted they will file the required bond, proceed with the work and appeal the case to the Supreme Court.

DAILY GATE CITY.

SATURDAY MORNING, JAN. 1, 1876.

DES MOINES RIVER BRIDGE. Adoption of a Supplemental Contract with the American Bridge Co.

The City Council met at the call of the Mayor last evening, to consider and take action on the supplemental contract for the proposed Des Moines River bridge. After stating the object of the meeting, the Mayor called on John H. Craig to read the contract which he had drawn up in connection with Judge Edmunds, President of the St. L. K. & N. Railway. The contract is in accordance with the resolutions adopted at a previous meeting of the Council, in short, the city to pay \$35,000 as its proportion for a wagon and highway bridge. New specifications were also prepared and submitted by Mr. Bayless.

Alderman Sample moved that the contract be amended so as to strike out that portion allowing the foundations of the abutments to be made of concrete, and substituting solid masonry.

Alderman Paul stated that the Bridge committee had got the best terms from the Bridge Company possible. He also felt convinced, from thorough investigation, that the caisson foundation filled with concrete, was as substantial and durable as masonry; also that at this season of the year it is impossible to put in the coffer dams necessary for masonry.

After some further discussion, Alderman Sample's motion was voted on, and lost.

Alderman Paul moved that the Mayor be authorized to sign the contract on the part of the city. Motion adopted.

After which the glims were doused, and the dads went out to usher in the Centennial year.



DAILY GATE CITY.

SATURDAY MORNING, AUGUST 14, 1875
DES MOINES RIVER BRIDGE.

The St. L. K. & N. Ry. Company's
Proposition to Unite with the City
in the Enterprise.

Mayor Jaeger received a day or two since from the St. Louis, Keokuk and Northwestern Ry. Co. a written proposition to unite with the city in building a combined railway and highway bridge over the Des Moines River, and a special meeting of the Bridge Committee was held at the City Clerk's office last evening to consider the same. All the members were present. The matter was discussed in an informal way for a half or three-quarters of an hour, and from what was said upon the subject, we infer that while the present proposition does not meet the approval of the committee, a majority of them, at least, would be in favor of some such plan, provided satisfactory terms could be agreed upon, and the city be made perfectly secure.

No action was taken upon the proposition, but Mayor Jaeger was authorized to draw up a proposition that will meet the views of the committee, and that is to be considered at a future meeting.

The following is the proposition of the railway company:

OFFICE OF THE ST. L. K. & N. W. RY.
CO., KEOKUK, IA., Aug. 12, '75.

Hon. E. Jaeger, Mayor of the City of Keokuk:

DEAR SIR:—If the city of Keokuk will construct and maintain a substantial and sufficient stone abutment on the north shore of the Des Moines river and four like piers in the river, at such places and in such form and of such dimensions as shall be designated and approved by Guy Wells, and construct and maintain pile piers one each fifty feet, from centers, from the south stone piers to the north end of the present dump of the St. L. K. & N. W. Ry., south of said river, of such dimensions, style and construction as shall be designated by Guy Wells, and construct such approaches as shall be needed for common road purposes, and will furnish and construct such parts of a bridge as shall be needed for a common road, and is not needed for a railroad bridge, such as floor pins, ties and plank, furnish lights and pay watchmen, to be selected and approved mutually between the city and superintendent, for the time being, of said railway.

The said railway company will furnish and maintain a good and sufficient Howe Truss bridge between such abutment and stone piers, and Beam Truss bridge from the south stone pier to said dump, 18 feet in the clear, of sufficient strength for railroad purposes, with ordinary bridge ties for railroad purposes.

The city to put such additional ties, stringers and floor in as shall make a substantial common road bridge, and not interfere with the use of said bridge for railroad purposes. all to be done subject to the discretion of Guy Wells.

The city to have the use of the bridge at all times for common road purposes, when not needed for railway purposes, and to keep same in repair, so far as the roadway is concerned, and pay one day and one night watchman, to be appointed or selected by the Superintendent of said railway as aforesaid, and said railway to have the use of said bridge for all railroad purposes, and to have precedence in such use.

It is mutually understood that the bridge is to be where the present Railroad bridge is, but is to be about three feet higher, the abutment being placed where the present north abutment of the bridge is, or where said Wells shall approve; and the first three piers of stone to be where the present piers are, except they are to stand parallel with the current of the river or as said Wells shall approve. The fourth pier to be 150 feet south from said third pier in line of present trestle work, and as said Wells shall approve.

Each pile pier is to contain at least 25 piles of best quality, and be properly capped and fastened or secured together, as said Wells shall approve.

The Railway Company will perform its part of the work immediately after the city shall complete such substructure.

The bridge at all times to be under the control of the Railway Company.

ST. LOUIS, KEOKUK & N. W. RY. CO.
By G. EDMUNDS, JR., President.

DAILY GATE CITY.

SATURDAY MORNING, AUGUST 28, 1875
DES MOINES RIVER BRIDGE.

Special Meeting of the City
Council Last Evening.

The Bridge Committee Authorized to Join With the Railroad Company on Certain Conditions.

Otherwise, to Proceed With the Independent Bridge.

Pursuant to a call from the Mayor a special meeting of the City Council was held last evening. The Mayor and all the Aldermen were present.

The Mayor stated that he had called the meeting to take into consideration matters connected with the Des Moines River Bridge. He said that the Bridge Committee had held conferences with the representatives of the St. Louis, Keokuk and Northwestern Railway, but as yet nothing definite had yet been arrived at. What he wanted was to obtain the sense of the Council on the proposition of the Railroad Company as well as that of the city.

Since the last meeting he had also had a conference with the Supervisors of Lee county, which was entirely satisfactory. The Supervisors had expressed a willing-

ness to consent to the use of the \$15,000 appropriated by the county in the construction of piers and abutments for a combined highway and railway bridge, provided the exclusive title to said piers and abutments be vested in the city. But they would not make any change in the resolutions heretofore adopted unless some guarantee to that effect is furnished. He stated further that the representatives of the Railroad Company had said that the Trustee will enter into a contract and release the piers and abutments from any claims the Company might have upon them, but declined to say by what authority it would be done, or what effect it would have in a legal point of view. The Mayor then submitted the following:

Resolved, That the Bridge Committee be and the same is hereby instructed to enter into an arrangement with the St. L. K. & N. W. R. R. Co. in relation to the building of a combined railway and highway bridge over the Des Moines river, on the basis and substantially the terms submitted by said Committee to the President of said Railroad Company, and in case such an arrangement can be effected the City Attorney is directed to draw up the necessary contract and submit the same to the City Council, at a special meeting to be called by the Mayor.

Resolved further, In case no arrangement can be made, that the Engineer for the city at once locate the abutment and piers for an independent bridge, to be built by the city, and the work to commence immediately.

City Attorney Gibbons, was called upon for his opinion upon several points of law touching the rights of the city under certain circumstances. In reply Mr. Gibbons stated that any action that the Trustee of the railroad company might take, would be subject to litigation if the trust deed should be foreclosed, and a contract made by him would be inquired into. If it proved to be of advantage to the bondholders, it would, without doubt, be approved by a Court of Equity; otherwise not.

The city could build piers and abutments outside the right of way of the railroad company and lease to the company. But if the piers and abutments were built within the right of way of the railroad company, the city could not secure the exclusive title to the same.

Engineer Bayless was called upon, and gave estimates upon different kinds of bridges. The independent highway bridge, he said, will cost \$52,000. The Mayor said he was opposed to building a bridge on the right of way of the railroad company, and that if some arrangements cannot be made with the Company, and that speedily he was in favor of going ahead with an independent wagon bridge.

Alderman Estes offered the following as a substitute for the majority report of the Bridge Committee:

Resolved, That the Bridge Committee be instructed to have another survey of the

Des Moines river made at a point above Ward's coal kiln

Mr. Estes said that he was in favor of an independent wagon bridge, and believed that it can be built at the point designated for \$15,000 less than the present estimated cost.

Alderman Daugherty expressed himself in favor of an independent bridge

Alderman Sample said he was in favor of proceeding to build a sub-structure that will answer either for an independent bridge, which he hoped will not be built, or for a combined bridge, which he hoped will be built. The city will then be in position to treat with any railroad company that might wish to join with her in a combined bridge.

Alderman Paul said he had favored a combined bridge because it would be of assistance to the railroads, but if the railroad companies do not wish to be benefitted he did not desire to thrust it upon them. On reflection, he was persuaded that, taking into consideration the numerous risks to be incurred in a combined bridge, it will be to the best interests of our city to build an independent wagon bridge. He predicted, however, that upon the plan proposed the independent bridge will cost \$70,000 instead of \$52,000, the present estimate.

Alderman Sample agreed with Alderman Paul as to the probable cost of the bridge, but believed that a combined bridge will be for the best interests of the city, and favored locating the present bridge where it can be made available for that purpose.

The question upon the adoption of the resolutions submitted by the Mayor was then put, and resulted in their adoption.

The Council then adjourned.

DAILY GATE CITY.

WEDNESDAY MORNING, SEPTEMBER 1, 1875.

DES MOINES RIVER BRIDGE.

Major Collins Prays for an Injunction to Restrain the City from Proceeding with the Work.

FULL TEXT OF THE PETITION.

The following petition for an injunction to restrain the city from proceeding with the work on the proposed bridge over the Des Moines river at Buena Vista, was filed in the District Court at this place yesterday

District Court Lee County, Iowa, at Keokuk:
W B Collins vs Edmund Jaeger, Mayor of the city of Keokuk; S S Sample, J B Paul, J F Daugherty Wm McKenzie, H Tleke, W H Cunningham, B F Smith, S M Archer, J C Estes, Chas Eubenthal Jas Gallagher, John Leindecker, composing the City Council of the city of Keokuk.

Your petitioner represents that he is a citizen of the city of Keokuk, a municipal corporation under the laws of the State of Iowa, as embraced in the special charter of Keokuk, Lee county, Iowa, and is the owner of property within the limits of said city and is a tax payer on property to the city of Keokuk.

2d. The plaintiff alleges that the defendants, composing the City Council aforesaid, have, contrary to law and disregarding all forms of law, as the legislative body of the city of Keokuk and for the city of Keokuk, made and entered into a contract with J. W. Kittle to build and construct the stone piers or a bridge across the Des Moines river near the city of Keokuk, with the north end resting and being within the State of Iowa, and the south end resting and being within the State of Missouri; which said contract involves the expenditure on the part of the city of Keokuk of the amount of \$25,000; that the estimated cost of building said bridge across the Des Moines river is \$60,000, or thereabouts; that the southerly portion of said bridge is beyond the State of Iowa and in the State of Missouri; the northerly end resting in section thirty-four, township sixty-five, range five, Lee county, Iowa, and the southerly end resting in section thirty-three, township sixty-five, range five, in Clark county and State of Missouri; that said bridge will be more than forty feet in length, it being estimated to be 900 feet in length, composed of four piers, or one abutment and three piers, and three hundred feet of trestle work on the Missouri side of the river, and will cost more than \$10 per lineal foot to construct the same, and if said contract is complied with on the part of the City of Keokuk, will require the City Council to appropriate to exceed \$10 per lineal foot of money out of the city treasury; that the question of the appropriation by the City Council of the money to fulfill the said contract and the building and construction of said bridge, has not been submitted to a vote of the inhabitants of the City of Keokuk; that the building of said bridge will require the appropriation on the part of the Council of the City of Keokuk more than \$10 per lineal foot for the superstructure or substructure of said bridge; that a portion of said bridge will lie without the State of Iowa, and the inhabitants of the State of Missouri are not appropriating money to assist in building said bridge, and the action taken by the City Council is illegal and void and contrary to law, with the intention of taking money out of the treasury of the city of Keokuk to carry out said contract and illegal intentions and acts of the Council of the city of Keokuk, in building said bridge across the said Des Moines river into the State of Missouri; that if the City Council of the city of Keokuk appropriate money out of the treasury of the city of Keokuk to complete said contract, entered into with J. W. Kittle, to build the piers and abutments for the bridge across the Des Moines river, as mentioned and described in said contract, this plaintiff will suffer irreparable damage; that the said contract is in the hands of some one of the defendants and is not among the archives and records of the city, and where the books and papers and records of said city are kept, and this plaintiff has asked and requested B. H. Smith, acting Clerk of the said City Council, to inspect and see and examine said contract, and he says it is not among the city records, so this plaintiff cannot set out a copy of said contract because

it is not in his possession and control; Wherefore, he prays the Court to restrain by injunction the defendants and their successors in office from appropriating money out of the treasury of the city to build and construct the abutments and piers of the said bridge mentioned and described, across the Des Moines River, and complying with the contract entered into with J. W. Kittle and for working any bridge and highway beyond the limits of the State of Iowa, and for using and appropriating more money from the treasury of the city of Keokuk to build any bridge to exceed \$10 per lineal foot, and for other and further relief as to equity and good conscience by law and costs.

W. B. COLLINS,
For Self.

DAILY GATE CITY.

TUESDAY MORNING, SEPTEMBER 7, 1875.

THE BRIDGE INJUNCTION CASE.

A Demurrer and an Amended Petition.

Yesterday morning City Attorney Gibbons filed the following demurrer to the petition of Major Collins, for an injunction to restrain the city authorities from proceeding with the work on the proposed Des Moines River Bridge:

W. B. Collins, vs. Edmund Jaeger, Mayor et al.—In District Court of Lee county, Iowa, at Keokuk.

Come now, respondents by John Gibbons, their attorney, and demur to the petition of complainant for the following causes:

1st. That petitioner complains of the actions of defendants as members of the City Council of the city of Keokuk; whereas, if they are liable at all, they are liable on their own personal liability and not as members of the City Council aforesaid; and for that the City of Keokuk is a municipal corporation organized and existing under and by virtue of a special charter from the Legislature of the State of Iowa, and as such municipal corporation can only sue or be sued in its corporate name, and not in the name of the individual members or officers of such corporation.

2d. Because it is not alleged in the complaint that respondents have authority to contract for and in behalf of the City of Keokuk.

3d. Because complainant has not stated what special interest he has in protecting the interests or acting as foster father for the people of Keokuk, or in what manner he would sustain injury aside from the general public.

JOHN GIBBONS,
Attorney for Respondents.

Major Collins then filed an amended petition, making the city part defendant to the action, and re-affirming and re-alleging all the allegations of the original petition.

He also files a copy of the contract and specifications entered into with J. W. Kittle. To-morrow night is the time fixed for hearing the arguments in the case.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

KEOKUK, THURSDAY, AUGUST 17.

OUR NEW BRIDGE.

How It is Progressing--The Prospects for the Finish.

Our people are all interested in the completion of the wagon and railroad bridge over the Des Moines river, as it will open to Keokuk a trade from one of the richest sections of country in the west.

We have managed to hold what might be called a trade from Clark county, Mo., but it has been a fitful one, and depended entirely on the moods of the river and the seasons. The completion of the bridge will allow an entry into Keokuk at all seasons of the year, and floods, storms or ice, cannot debar it.

The high water this season has delayed the work, and it is only within the past two weeks that work has been resumed upon it.

All of the piers are now finished, except the one next to the Iowa shore, and work will be commenced upon that to-day. The coffer dam was ready to float into position last evening when we were down there.

By the way, did you ever see one of these coffer dams ready to sink. This one looked to us like a big barn built on two flat boats. Timbers are placed across between the two boats, and when they are in position the coffer is raised by jacks, the timbers withdrawn, and the dam is lowered by the same means with which it was raised.

The mason work on the piers is the best we have seen; in our opinion it is better than that on the Keokuk and Hamilton bridge, and it has stood the very worst test that could be applied to it. The high water came upon the piers, while the cement was yet green and there was no bridge resting upon them, and they stood the pressure without being in the least injured. If they do this while in this condition, they will stand anything after the cement hardens and the superstructure is placed upon them.

Work is progressing finely on the abutment on the Iowa shore, which will soon be completed. The substructure will be completed in about thirty days, and the bridge will be complete in about sixty days. There are thirty men at work now.

We are indebted to the engineering skill of Mr. S. L. Bayless, who has been in charge of the work, for the solid and substantial structure we will have. It has been through his skill and watchful care—taking pains to see that none but the best material entered into the work, and that none but the best of work was done—that this good result has been brought about.

KEOKUK, TUESDAY, DECEMBER 19.

TERRIBLE DISASTER.

The False Work of a Bent of the New Des Moines Bridge Gives Way, and Precipitates Three Men on the Ice.

One Dies from the Injuries Received--The Other Two Badly Hurt.

This morning about eleven o'clock Dr. F. D. Sanford received a message stating that an accident had happened at the Des Moines river bridge, at Buena Vista, three miles below Keokuk, and his services were required.

On his arrival at the scene of the disaster, it was ascertained that an accident had happened by which three men, S. S. Warrington of St. Joseph, Mo., Wallace Smith, of Cleveland, and Charles Morley, residence unknown, were hurt. The injuries were received by the giving way of the false work on the second bent of the bridge from the Iowa shore.

The men were at work upon it, Smith and Morley being at one end and Warrington at the other. The bent stood about fifteen feet high, and as it gave way precipitated the men onto the ice below. The end that Warrington stood on went down, and landed him on the ice on his heels. So severe was the shock he sustained that both heel bones were broken. His injuries are of a serious nature, and of a nature that seldom occurs.

Smith and Morley, who stood on the opposite end of the timbers, were raised up as the end on which Warrington stood sank, and were pitched over, alighting on their heads. Smith received injuries that caused his death a short time after the accident occurred. Morley had his hip and leg badly injured. He was brought to the city, this afternoon, and placed in the Eagle House, where Dr. Sanford is attending him.

Smith's body was brought to town this afternoon for Coroner Stotts to hold an inquest over. Morley was left at his boarding place, at Buena Vista.

As soon as the accident was discovered, the people of Buena Vista and the workmen on the bridge hastened to the unfortunate men's aid, and telegraphed to Keokuk for a surgeon.

The three men were employes of the American Bridge Company, which has the contract for erecting the bridge.

Nobody can account for the accident. The false work gave way without any warning whatever, and we understand was deemed secure.

All of the injuries received by the men seem to have been caused by the fall, as none of the timbers struck them.

KEOKUK, THURSDAY, SEPTEMBER 7.

FLUKED.

The Coffor Dam at the Des Moines River Bridge Sails Out--Narrow Escape of the Watchman.

The heavy rains which we have experienced for the past few days, and which have been general all along the Des Moines Valley, have raised the river very rapidly.

Anticipating a freshet at the new bridge over the Des Moines, the coffer dam recently placed in position there, was anchored to the pier with a three inch line tied to her nose. About twenty tons of rock were also placed upon it, and a flat-boat placed on the opposite side of the current to protect it. Below the dam was anchored a barge with two engines upon it.

There was a heavy flood of drift wood in the river yesterday, and the men were kept busy clearing it away from the dam where it would lodge.

Last night, after Mr. Smith, the night watchman, went on duty, the river rose fourteen inches. During the night he cleared away the drift three or four times and at 6 o'clock this morning was on the dam engaged in the same business. While he was using his pike some men on shore shouted to him that the dam was going. He looked around and found that such was the case.

The strain was so great on it that, the rope not giving way—the nose of the dam was pulled clear off, and the structure was thus set afloat. The dam commenced to tip over and Mr. Smith, seeing his peril, made a leap for life. He jumped for the flat, spoken of above, and, though it was a tremendous leap, succeeded in making it.

The dam, after being released from its moorings, ran against the line anchoring the barge with the engines on it, below the bridge, broke the line and nearly upset the barge—the latter was rescued by Mr. Smith after great exertion. The dam upset after striking the barge, and after that floated down stream till it struck the ferry line, where it upset again and now lies on a bar five or six hundred feet below the bridge, across the stream. The coffer dam is 52x14 feet.

The men who went down on the seven o'clock train, went to work to save what they could. They will recover the most of the timber, but the dam can never be got back in its present shape.

The loss will be a severe one to the bridge company, and delay the completion of that structure for some time.

KEOKUK CONSTITUTION.

KEOKUK, WEDNESDAY, NOVEMBER 15.

THE DES MOINES BRIDGE.

The Last Pier Finished--The Work on the Superstructure Commenced.

For many weary months the people have awaited the completion of the railway and wagon bridge over the Des Moines river, which would give us access to the trade of the adjoining counties in Missouri.

There is a rich trade lying in this region, which is anxious to come to this city, but heretofore, there has only been a few months in the year when the river would be at such a stage as to allow crossing by the ferry. The water was too high, or else ice in the river prevented. Indeed, for some time the people of that section, or the majority of them have abandoned the idea of crossing at all, and have driven to Alexandria with their teams, left them and come on to Keokuk by rail.

This has been a source of much annoyance and has caused the loss of many shekels to our merchants, who have earnestly prayed that a substantial bridge might soon span the Des Moines.

The work on the new bridge, which is being built conjointly by the city and the St. L., K. & N. W. R. R., has been delayed a number of months by the high water which prevailed to an unusual extent this year, and these delays have caused a heavy loss to the contractors, the American Bridge Co., which has, however, pursued the work with considerable energy, and at last they have finished the last pier and the work on the superstructure has been commenced.

If nothing happens now to interfere, the bridge will be completed and ready for use inside of the next forty days, when all troubles from high waters in summer and ice in winter will be obviated and the doors of the Missouri trade will be opened to Keokuk.

DAILY GATE CITY.

SUNDAY MORNING, FEB. 20, 1876.

DES MOINES RIVER BRIDGE.

The Enterprise Progressing in a Business like Way.

Modus Operandi of Sinking the Piers.

After twenty years of agitation, and two years of strife, litigation and ill-luck, it begins to look as though the consummation so long and so devoutly wished for, in the matter of a wagon bridge over the Des

Moines, is soon to be realized. The enterprise is now being pushed forward in a way that looks very much like business. We were impressed with this fact by a survey of the situation in company with Engineers Bayless and Werrall, of the Rapids Improvement, on Friday afternoon.

Since the American Bridge Company took the contract, they have been conducting operations with all the modern machinery and appliances, and are making rapid and satisfactory progress. They have a force of about one hundred men at work and every department of the enterprise is being prosecuted with vigor.

Under the present contract the bridge is to consist of four stone piers and a stone abutment, five Howe truss spans—one of 190 feet, and four of 150 feet each—and eight beam truss spans of 50 feet each, the latter rested on piling driven well into the ground. The abutment and first pier are to be of solid masonry, built upon bed rock. The remaining three stone piers are to be built upon caissons, sunk to solid rock. It is this latter portion of the work that is being pushed forward now, and that to which our attention was particularly attracted. The *modus operandi* of sinking these caissons is a very interesting one, but to be understood and appreciated by the uninitiated, it must be seen. It would be difficult to give a thoroughly comprehensive elucidation of it in a newspaper article. A few facts in a general way, however, will give the reader something of an idea of the plan.

These caissons are hollow and are constructed of pine timber, in the most substantial manner. They are located upon the surface of the water and the stone piers built upon them until they are sunk to the bottom of the river. Compressed air is then injected into the interior of this caisson and a force of men descend through a shaft and proceed to excavate the sand from beneath. This is a very simple and easy process. All they have to do is to shovel it to the mouth of two pipes leading to the surface of the water and it is forced up through them by the compressed air. The caisson is sunk as fast as the excavating is done, by adding the stone masonry on top. When bed rock is reached the caisson is leveled up and filled with concrete and rubble masonry. When completed this forms the foundation for the pier. It is not as good as solid masonry, but is considered the next best thing, and had to be resorted to in this instance, as the Bridge Company would not agree to construct solid stone piers at any stipulated price or contract to have them done within any specified time, owing to the risk and uncertainty of the undertaking.

The GATE CITY reporter was invited to descend to the interior of the caisson which is now in progress, and very promptly accepted. To a timid being the subterranean journey would not be an attractive one.

This caisson is filled with compressed air, the pressure of which is ten pounds above normal. The normal condition of the atmosphere is fifteen pounds, so that while you are in there you sustain a pressure of twenty-five pounds to the square inch. This is not considered a very heavy pressure, however.

The descent is made through a cylindrical shaft made of boiler iron. You climb in at the top, the lid is closed down, and you find yourself in pitchy darkness. The man at the gauge turns it and the shaft is filled with compressed air. This process produces a peculiar sensation. You feel as though your head was being held near a safety valve when the steam was blowing off. Then you imagine that a current of air is passing through your head from one ear to the other, and that you were being pressed on all sides by some inconceivable force. One of the party tells how a couple of men went down the other day, and the moment they reached the open air they were doubled up like jack knives.

Another relates his experience—how he descended into the caisson several days ago, and had not recovered from the effects of it yet. Altogether the situation is not a cheerful one, and you incontinently brace up so as to be able to face the music. After the shaft has been filled with compressed air, you descend by means of a ladder until you reach the caisson, where the men are busily engaged filling in with concrete. You are then twenty feet below the surface of the water. These men are accustomed to this heavy atmosphere, and can work there all day with as much ease and comfort comparatively as you would in the open air. But they have to get used to it, and when they do they generally command pretty good wages, for it is difficult to find men who can stand it. After watching the work a short time we made the ascent, and experienced a sense of relief on catching a breath of the pure atmosphere of heaven.

This compressed air is supplied by means of an air pump located on shore. It is forced to the caisson through a large rubber hose.

If the high water or ice do not interfere with the construction of the abutment and first pier, it is estimated that the bridge will be completed and ready for use by the last of May. The plan originally was to transfer the Howe truss spans from the old bridge to the abutments of the new, but this has been abandoned and new spans will be built, so that the bridge will be a new one entire. It will be a very substantial structure, and will be eight feet above extreme high water mark.

F. W. Hamilton is superintending the work in behalf of the city, with S. L. Bayless, of the Rapids Improvement, as consulting engineer. The interests of the city are safe in their hands.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

THE GATE CITY:

THURSDAY MORNING, FEB. 1, 1877.

CONSUMMATED.

PRACTICAL COMPLETION OF THE DES MOINES RIVER BRIDGE.

The Last Rail Laid and the First Train Crosses Over.

The completion of the bridge over the Des Moines river at Buena Vista is an event that has been looked forward to with no small degree of interest by all of our citizens. Its value to Keokuk has been universally recognized and urged for years, and the final consummation of the scheme may be said to mark an important era in our history. Work on the enterprise was commenced in January, 1876—something over a year ago—and its progress through the different stages has been eagerly watched. Unlooked for obstacles have arisen which have greatly delayed the work, but these have been finally overcome, and this morning we are enabled to announce the

PRACTICAL COMPLETION

of the bridge. The last rail was laid last evening and the first train crossed over. The train was the St. L. K. & N. passenger going south, which left here at 7:30 p. m. in charge of Conductor Finlay McDoel. It passed over in safety and went speeding on its way. The bridge is, therefore, an accomplished fact which the people of Keokuk will hail with delight.

THE DIMENSIONS

of the structure are about as follows: The total length is 1,240 feet and the width 18 feet. It consists of five Howe truss spans, four of which are 150 feet each in length, and one 190 feet in length. There are also nine beam truss spans, each 50 feet in length. The abutment on the Iowa side and four piers are of solid masonry, the balance of the bridge resting on piling.

The structure is a most substantial one in every respect, everything about it being entirely new, except the long span which was taken from the old bridge, and as this was put in very recently, it is as good as new.

THE COST

of the bridge has been between \$60,000 and \$65,000. We are unable as yet to give the precise figures, but they are somewhere between the above named sums.

The structure, as is well known, has been built jointly by the St. L. K. & N. Ry. and the City of Keokuk, and will be used for both.

RAILWAY AND HIGHWAY

traffic. The contract has been performed in a very satisfactory manner by the American Bridge Company, under the supervision of Mr. S. S. Boomer. The work of planking the bridge is progressing rapidly. The joists are already laid the length of two spans, and the bridge proper will be entirely finished within a week. The city will at once build temporary approaches on piling, and it is expected that in two weeks the bridge will be ready for teams to cross.

The consummation of this important enterprise is an event over which our people can all rejoice, and it would not be inappropriate to celebrate it in some way. Can't we have a little excursion to Buena Vista to afford our citizens an opportunity to see the new bridge?

THE GATE CITY:

TUESDAY MORNING, FEB. 6, 1877.

INSPECTED.

Impromptu Excursion to the Des Moines River Bridge--The New Structure Viewed by Several Hundred Citizens.

We chronicled the other day the practical completion of the new Des Moines River Bridge, and the crossing of the first train. Yesterday the last nail was driven and the bridge proper, is now entirely finished. In order to afford our business men and citizens an opportunity to view the new structure the St. L. K. & N. Railway Company gave an impromptu excursion in the afternoon. No public announcement of the affair was given, the only notice being the word that was left at the business houses during the forenoon. Notwithstanding this fact our citizens began to congregate at the depot in large numbers considerably in advance of the hour announced for starting, which was 2 o'clock. At first the train consisted of a locomotive and one passenger coach. The latter was soon filled and a second coach was added. The excursionists crowded into this until there wasn't standing room, and in order to accommodate all who wanted to go, it became necessary to attach a baggage car. The party consisted of the Mayor, all the Aldermen and between two and three hundred of our citizens, including a large number of leading business men. The train left the depot shortly after 2 o'clock, in charge of Conductor Phillips, of the K. & D. M. R. R. Maj. H. A. Rust, President of the American Bridge Company, was one of the party.

On arriving at Buena Vista the excursionists proceeded to view the new bridge—many of them for the first time since the enterprise was commenced.

We have already given the dimensions of the bridge, its cost, &c., and there is but little for us to add in this respect. The width is eighteen feet in the clear, which is amply sufficient for teams to pass when necessary. The flooring rests on four joists 3x14 inches, running the entire length of the bridge. Between the rails the flooring is double, being made of two two-inch planks—a total thickness of four inches. Outside the rails the flooring is of single plank, three inches in thickness. The bridge, as we have already stated, was built jointly by the city and the St. L. K. & N. Ry. Co. The city built the substructure and did the planking, at a cost of about \$35,000, and is responsible for those portions only.

If the superstructure should be swept away the Railroad Company is required by the terms of the contract to replace it at their own expense. The bridge is to be operated by two watchmen—one at each end. One of these will be furnished by the Railroad Company, and is to be a competent telegraph operator—the other to be furnished by the city. The system of signals and the rates of toll have not yet been decided upon.

The approaches are to be built by the city. The one at this end will consist of a small amount of filling. At the other end piles will be driven and a frame approach erected for the present. The Bridge Committee and City Engineer Cole were figuring on this work yesterday, and expect to have it completed so that the bridge will be ready for teams to cross in a week or ten days.

The bridge is one foot above extreme high water mark. It is protected at this end by a row of piling along the shore above the abutment, and at the other end by two rows of piling extending out into the river for a considerable distance. The work was performed by the American Bridge Company. Competent engineers who have examined it, pronounce it a most substantial structure in every respect. Nothing but the very best of material has been used, and this has been put together in the strongest and most durable manner. There is no modern improvement in bridges of this class that the Company has not made use of. Everything connected with it is entirely satisfactory, and the bridge has been accepted by the Railroad Company.

The substructure was built under the direction of S. L. Bayless, of the Rapids Improvement, on behalf of the city, and is a superb piece of engineering, reflecting the highest credit on his skill and ability.

The old bridge is being torn away, and

has almost entirely disappeared.

For the present the river road to the bridge will be used, but before long another one will be opened up over the hill, so that wagon travel to and from the city will have the choice of two routes.

The completion of this important enterprise is an event upon which Keokuk may well congratulate itself.

THE CONSTITUTION.

KEOKUK, SATURDAY, MARCH 11, 1876.

NARROW ESCAPE.

A Caisson at the Des Moines River Bridge Keels Over with Seven Men Inside of it.

There was quite a sensation created at the Des Moines river bridge yesterday afternoon about three o'clock, by the upsetting of a caisson

We have explained in previous articles, how the piers for the new bridge are sunk on air tight caissons to bed rock in the river, and how the men who work in the caissons are supplied with air from a steam pump located on the bank.

Yesterday afternoon the workmen at the bridge were engaged at work on one of these caissons, on which some three or four layers of masonry had been built, the caisson was anchored to a flat boat and had been sunk and filled with water, in order that it might settle. One corner of it had sunk further than the rest, which made it stand "lop-sided" in the river. After the job of sinking the caisson had been completed, the machinery was put in motion and the water was being blown out from the interior by the air pressure process.

The pumps had been at work some time, and seven of the men had entered the chamber to descend to the bottom when an accident occurred, which, but for a fortunate circumstance, would, doubtless, have cost the men their lives.

While the men were in the chamber, and the process of blowing out the water was still in progress, the pressure of the air upset the caisson. In tilting over it fell against a flatboat, and the men in the chamber, with the exception of Mr. Hamilton, the engineer, were thrown out onto the boat. Mr. Hamilton and some seventy yards of stone were dropped into the river. Mr. H. "swam for it" and saved himself. The stone couldn't swim and was lost in the river.

The escape was a narrow one, and the men have reason to be thankful that the caisson tilted toward, instead of from the flatboat.

The Daily Gate City.

SATURDAY MORNING, SEPTEMBER 9, 1871.

DES MOINES RIVER BRIDGE

MEETING AT THE COURT HOUSE LAST EVENING.

Report of the Special Committee.

An adjourned meeting of the citizens of Keokuk was held at the Court House, on Friday evening, Sept. 8th, for further considering the proposition of the Mississippi Valley & Western Railroad Company to construct a combined railroad and highway bridge over the Des Moines river at Buena Vista Ferry.

Mayor Rothert, President of the former meeting, occupied the chair.

In the absence of Mr. B. S. Merriam, the Secretary, Charles Smith and Sandie Stone were elected Secretaries *pro tem*.

The first business in order was the reading of the report of the committee appointed to examine the site of the proposed bridge and the wagon roads leading to it from Clark county, Mo. The following is the report:

To the Citizens' Adjourned Meeting of Keokuk, Iowa, Sept. 1871.

GENTLEMEN:—Your Committee, to whom was referred the matter of the location of the bridge across the Des Moines river, and the character of bridge required, would most respectfully report that they have examined the matter of location by comparing the two positions mostly advocated, that is to say, the position or site called the Buena Vista and the site called the Yellow Banks or Sugar Creek crossing, and have to offer for your consideration the following facts, viz:

1. The distance from the point of divergence, from the Alexandria and St. Francisville road, to make the crossing at or below the mouth of Sugar Creek, is substantially the same by either route to the center of Keokuk.
2. The Buena Vista crossing is three miles west of the foot of Main street, and a route can be constructed to this crossing, on the Iowa side, on a nearly level surface, which road when so constructed becomes a street of two and one-half miles long within the corporate limits of the city.
3. The route on the Missouri side, via Buena Vista, must from the nature of the ground be nearly a dead level.
4. The route on the Iowa side, via the

Yellow Banks, would be six miles long from the old limits on the Iowa side, a small part of which would form a street, and must be under the most favorable location more or less hilly. This route would require about the same distance to be constructed on the Missouri side to connect with the St. Francisville road that would be required from Buena Vista to connect with the same road farther down the Des Moines river.

5. Three railroad companies now rapidly constructing their roads, are proposing to cross at or near Buena Vista, and will soon build one or more bridges. One of these railroads has already made forty miles of track into Alexandria, and will be compelled to build an additional two miles of road to cross at Yellow Banks. The road hence from Canton has located their line to the Buena Vista crossing.

And your Committee would further submit as to the character of the bridge to be constructed, of which the citizens can recommend the City Council to aid and by their aid induce the company building to so plan their bridge as to accommodate the highway travel. That they have no hesitation in saying that the plan of a short wooden bridge with temporary approaches, is not such bridge. That they are assured that a more permanent bridge of iron of the pattern of the Keokuk and Hamilton bridge, with solid permanent approaches, can and will be built within a very short time, and that for a moderate and reasonable aid from this city, will be fashioned to accommodate the highway travel in the same way that the Keokuk and Hamilton bridge company now does.

Your Committee are of the opinion that two bridges across the Des Moines river will not be too much for the interests of the city of Keokuk. Say one at Buena Vista and one at the Yellow Banks, or higher up the stream, and that they both may be in a reasonably short time supported. But they feel convinced that the city at this time should not refuse to induce the construction of a highway bridge in connection with the railroad bridge at Buena Vista. For not only will this accommodate all of Clark county but a large portion of Clark county now comes into the Alexandria road east of the Yellow Banks line of travel, and the roads in now existence there can be more easily put into first rate condition than can new roads be constructed on this side, and when so improved will present a level surface to draw over, instead of hills; and, in addition to the question of distance and expense, the Buena Vista crossing gives a most direct route to Alexandria, which, in the event of a highway bridge being constructed, becomes an

THE GREAT DUST-HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

important suburb to Keokuk. The construction of a bridge at the Yellow Banks involves the building of the road on the Iowa side, the cost of which, together with the subsidy to the bridge, will, in the aggregate, be twenty-five thousand dollars more than it would be by the Buena Vista route.

Respectfully,
JNO. ADAIR McDOWELL,
GUY WELLS,
G. R. PARSONS,
Committee.

On motion, the report was received. Mr. Crickett, of Oskaloosa, having been called upon, stated that the cost of the superstructure of a wrought iron bridge, of four spans 150 feet water-way each, would be \$24,000, and that of three spans 200 feet each \$27,000.

Mr. Stannus moved that the report of the Committee be adopted, and that the same Committee be requested to meet and confer with the officers and Engineers of the Railroad Company with regard to the location of their proposed bridge.

Mr. Hubbard moved to amend by adding still further that the Committee be requested also to confer with Mr. Crickett, with regard to the cost of an independent wagon bridge.

Pending the motion of Mr. Stannus, Mr. Clark offered the following resolutions, which were adopted:

Resolved, 1. That when we adjourn we adjourn until next Friday evening.

2. That we lay upon the table the motion of Mr. Stannus, as amended by Mr. Hubbard, until the adjourned meeting.

3. That a committee of five be appointed to draft resolutions and submit to that meeting, as expressive of the sense of the citizens.

4. That this committee confer with Mr. Crickett and other competent parties, and ascertain and report the approximate cost of building a wagon bridge, both at the Yellow Banks and at Buena Vista.

The following gentlemen were appointed said Committee: Geo. B. Smyth, A. Haggy, C. P. Birge, Wm. Timberman and Guy Wells.

Col. McDowell, Mr. Clark and Sam. S. Sample declined serving on the Committee.

During the meeting remarks were made by Col. McDowell, Mr. Hubbard, S. M. Clark, John Stannus, A. Haggy, C. P. Birge, Capt. Edwards, N. D. Prouty, Capt. Sam. S. Sample, Geo. B. Smyth, and others.

On motion, the meeting adjourned.

H. W. ROTHERT, Chairman.
CHARLES SMITH, } Secretaries.
SANDIE STONE, }

WHOOPLA SOME MORE.

Now Keokuk will have that Long Talked of Bridge Over the Des Moines River.

For the Supervisors have Appropriated \$15,000 toward the Enterprise.

And the City Council Has Pledged Itself to Provide the Remainder.

RESOLUTIONS ADOPTED BY THE BOARD YESTERDAY.

We are gratified to be able to state definitely and authoritatively this morning that the Board of Supervisors has appropriated the \$15,000 asked for to aid in building a free bridge over the Des Moines river, at some suitable point in the vicinity of this city.

The Board discussed the question at Ft. Madison for two days, including an evening session on Thursday, the proceedings of which we give elsewhere in this morning's paper. Some of the Supervisors expressed a desire to have certain additions made to one of the resolutions submitted to them for adoption, in order to bind the city more firmly to a faithful performance of its part of the agreement, and for that purpose wished to consult their attorney, Hon. John H. Craig. So it was determined to adjourn to this city and take final action upon the question here.

The Supervisors arrived by the C. B. & Q. train yesterday morning and had Mr. Craig draft the desired amendments to the resolutions. At two o'clock they met at the Court House, and without any further discussion of the matter made the appropriation of \$15,000 by a unanimous vote.

The resolutions as adopted are as follows:

Resolved, That there is hereby appropriated by the county of Lee, in the State of Iowa, to be applied towards the construction of an iron bridge over the Des Moines river, in the vicinity of the city of Keokuk, the sum of Fifteen Thousand Dollars, to be paid as herein below specified; provided, however, that the City of Keokuk shall appropriate the balance of money necessary to construct and complete said bridge, including the approaches thereto, and shall construct and complete the same, or cause the same to be done; said bridge to be of iron superstructure, on abutments and piers of solid stone masonry, or other material satisfactory to the committee.

Resolved That the County of Lee hereby appoints A. L. Connable to act for said county of Lee, in conjunction with a committee of one to be appointed by said City of Keokuk, to superintend the construction of said bridge; and no contract shall be made for the construction of said bridge without the approval of the said A. L. Connable.

But the foregoing appropriation is made on the express condition that the city of Keokuk by the acceptance of the same, thereby waives all right and claim to be reimbursed out of the bridge tax collected within the limits of said city, for the money which said city may appropriate and expend in the construction and maintaining of said bridge under the provisions of chapter twenty-eight of the laws of 1872, or any other act now existing or which may be hereafter enacted by the General Assembly of the State of Iowa.

And said city shall file with the Board of Supervisors of Lee County the written waiver of said city to that effect, duly authorized and authenticated, before any part of said appropriation shall be paid by said county of Lee.

Resolved, That the sum of \$5,000 of said appropriation shall be paid to said city of Keokuk after the piers and abutments shall have been finished and completed, and that the sum of \$5,000 shall be paid to said city on the 1st day of March, 1876; provided, the superstructure of said bridge shall have been finished, and that the sum of \$5,000 of said appropriation shall be paid to said city on March 1st, 1877, and after the said bridge shall have been finished and completed under the superintendence of said A. L. Connable, acting for said Lee county, and said committee of one to be appointed by said city of Keokuk, and according to the contract under which the same shall have been constructed.

I certify that the foregoing resolutions were unanimously adopted by the Board of Supervisors of Lee county this 29th of January, 1875.

W. A. DONNELL,
Chairman Board of Supervisors.

The much mooted question of a bridge over the Des Moines river may now be considered practically settled. The City Council has already pledged itself in an informal way to raise, in some manner, the additional means required to construct a suitable bridge, provided the Supervisors would make an appropriation of \$15,000. As the bridge will cost in the neighborhood of \$40,000, it will be seen that even now the heaviest part of the burden will fall upon Keokuk, while the benefits resulting from the project will extend to the entire county.

It is the opinion of good lawyers that by resorting to legal measures the city could obtain from the bridge fund of the county, or retain from the bridge fund of the township rather, a much larger sum than has been appropriated. But the city authorities preferred that assistance should come in a friendly and amicable way, and determined therefore to accept and be satisfied with what the Supervisors saw fit to appropriate from the bridge fund of the county. And it is due to those gentlemen to state that although they have hesitated about the matter considerably, they have done in their final action

DAILY GATE CITY.

SATURDAY MORNING, JANUARY 30, 1875

all that could have been expected of them under the circumstances.

It is hoped and believed that some assistance can be obtained from Clark county. That county will be largely benefited by the bridge. It will open up to the farmers a free and reliable highway at all seasons of the year to a very advantageous and desirable market for their products, and will have a tendency to very much enhance the value of their lands.

The bridge is to be of iron with stone piers and abutments. It will be located at or near Buena Vista.

We presume the City Council will proceed at once to have the necessary surveys and estimates made, and inaugurate the enterprise at the earliest possible day.

We think the bridge ought to be completed, if possible, in time to afford the people of Clark county and Northwest Missouri free access to the next State Fair.

DAILY GATE CITY.

TUESDAY MORNING, MARCH 16, 1875.

DES MOINES RIVER BRIDGE.

Surveys and Estimates.

Report of the City Engineer Made to the Council Last Evening.

HE FAVORS BUENA VISTA AS THE LOCATION.

And Estimates that the Structure will Cost \$49,610.

To the Hon Mayor and Council of the City of Keokuk:

GENTLEMEN:—In accordance with your instructions, I have made surveys for an iron bridge over the Des Moines River, at or near the Yellow Banks and at Buena Vista, and herewith submit my report, giving the probable cost of the Abutments, Piers, Superstructure and Approaches — also the probable cost of roads leading to said locations.

LOCATION.

The object of the bridge is presumed to be for the accommodation of the citizens of Keokuk and people traveling to and from said city, and that object can best be attained by a bridge located as near as practicable to the city (and other things being equal) I would regard Buena Vista as the proper location.

As to the Yellow Banks, I can see no advantages or conveniences that are not fully equalled in the Buena Vista location. But on the contrary, there are several disadvantages, which may be enumerated as follows:

1st. The Buena Vista location has the advantage of being in the slack water caused by the Mississippi River, and the bridge

would be less liable to injury from a rapid flow of flood wood and ice; also the foundation standing mostly on the bed rock would be free from all danger, from the scouring of the bed of the river.

2d. The distance of the bed rock below low water mark is eleven feet less than at the Yellow Banks. This is a matter of great importance in point of stability and cost of construction. In the upper location it would be impracticable with ordinary means to place the masonry upon the bed rock, while at Buena Vista the channel portion of the bridge may be placed upon the rock, and the balance upon piles and grillage away from the current and scour of the river; also by reference to the plan which may be relied on as a true basis for calculation, a saving in piles alone would amount to over \$1500.

3d. The extra expense of hauling the rock, Superstructure and other material a distance of five miles over an indifferent hilly road, would amount to at least \$8,000.

The further objections of any interruption occasioned by an overflow, which (judging from the past) might occur at an interval of years, is common to both localities.

Therefore, considering it fortunate to find a fair practical site, where all interests are promoted to the injury of none, I would most cordially recommend the proposed bridge to be located at the point designated at the lower ferry, upon the west side of Section 34, within the city limits.

FOUNDATIONS.

I ascertained, by means of sounding rods, that the bed rock can be reached at Buena Vista at a depth of from 8 to 17 feet below the surface of low water, and at the Yellow Banks at from 25 to 27 feet below low water mark. Above this are alternate layers of sand and clay, or sediment, the whole being from 8 to 20 feet deep. It will be found difficult to excavate this to the rock, owing to the difficulty of keeping out the water. But this should be done at least at the abutment and channel piers at Buena Vista, so that the masonry may be placed permanently upon the rock.

If, however, it should be found difficult, I would not recommend that any extra expense be incurred to sink the masonry to the bed rock at the two remaining piers or at the Yellow Banks; but that piles be driven to the rock and sawed off at a depth which can be reached by means of coffer dams and pumps, and solid timber grillage be framed on the piles to receive the masonry as shown in the drawings accompanying this report.

Sheet piling should be driven completely around these foundations, to retain the sand and serve as a coffer dam. Outside of this should be rip-rap, equal in depth to at least the length of the piles driven.

These pile foundations are considered perfectly secure, as the rock would prevent settling, and the nature of the location makes it improbable that the sand would scour sufficiently to allow any lateral movement. And as a further security the rip-rap would hold everything in place inside the coffer dam. If, however, after the excavation has been commenced, it is found that I have over-estimated the difficulty of excavating, I would recommend that the pits be excavated to the rock, and the masonry be placed thereon. In cases where the bed rock is reached, the foundations are the same as shown in the drawings, except that the piles are dispensed with.

SUBSTRUCTURE.

This will consist of one abutment and four piers, and I recommend that they be of first-class masonry, of not less than 16-inch

courses, with such an arrangement of headers and stretchers as will secure a complete bond; that the joints and beds be dressed to a quarter-inch, and the face to be rock dressed, the whole to be laid in mortar composed of two parts of clean, coarse sand, to one part of Louisville cement.

SUPERSTRUCTURE.

This should consist of four spans of 150 feet each, 16 feet wide in the clear between the chords and the whole length to be 600 feet.

I recommend these lengths supposing that a shorter bridge would not afford a sufficient water way, and what is still worse, would be likely to cause an ice gorge, as the pile approaches are not calculated to pass ice. To lessen the spans with less piers would require a more expensive structure, and nothing would be gained; also a long bridge of the same strength is less rigid, and not as good.

I also recommend that the specifications and details of the superstructure be left generally to the builder, but the bridge should be required to sustain a moving load of 1200 pounds per lineal foot on a factor of 5.

That is, the above load to subject the iron to a strain equal to one-fifth of its breaking strength.

As a guide in determining the standard for a bridge, the following data may be relied on.

An ordinary crowd of men weighs from 50 to 60 lbs. to the square foot. When closely packed they weigh 90 lbs. per square foot. A drove of cattle weighs 40 lbs. per square foot. A double row of heavy loaded teams weighs 600 lbs. to the lineal foot.

I recommend that your honorable body advertise for bids for an iron truss bridge, of the above standard, and that you submit the plans that may be offered to a competent engineer for computation and comparison.

APPROACH.

This should be 196 feet long and 16 feet wide, consisting of 14 pile bents, with 10x10 caps 20 feet long, stringers or joists 3x8 and 6x8, with hand rails, sway braces &c. as shown in the plans already submitted. This, with about 1,000 yards of embankment at the ends, will complete the bridge.

ROADS LEADING TO THE BRIDGE.

At the Buena Vista location it will be necessary to cross and re-cross the Keokuk & Des Moines railroad, and in order to intersect with the public road running east and west through the center of section 34, a short road of about 800 feet will be required at an expense of \$200. It is also estimated that \$300 will be required, upon the opposite side, to extend the road up the Des Moines river, to the intersection of the Alexandria road.

At the Yellow Banks location it will be necessary to clear and open a road on the right bank of the river, about one-fourth of a mile, to the intersection of the Bates ferry road, at a cost of about \$75; and upon the opposite side it will be necessary to clear and open a road about three-fourths of a mile, in order to reach the Alexandria road, at an estimated cost of \$150. Also one small bridge will be required at a cost of \$50.

The above surveys and estimates for roads have been made with the view of connecting with such other public roads as are now in use. In the event of constructing a bridge, the increase of trade and travel will make it necessary to furnish improved roads that will meet the demands of an extensive



KEOKUK, IOWA

R. J. BICKEL

bridge x

trade. The plans furnished apply to the different locations, unless otherwise noted.

Before contracting for the foundations, substructure or approaches, more particular and full specifications should be prepared.

ESTIMATES.

1,900 yards of excavation for foundation pits, at \$1 per yard.....	\$ 1,900 00
27,000 feet of lumber for coffer dam, equal quantities of hard wood and pine, \$20 per thousand.....	540 00
Piles in foundation, 2,190 lineal feet, at 40 cents per foot.....	876 00
Piles in the approach, 756 lineal feet, at 40 cents per foot.....	302 00
Timber and plank in the approach, 16,638 feet, at \$35 per thousand.....	582 00
Pine or elm timber in the grillage, 25,040 feet, at \$16 per thousand.....	560 00
Masonry, 1,651 yards, at \$12 50 per yard..	20,650 00
Superstructure, 600 feet, at \$40 per foot.....	24,000 00
1,000 yards of embankment, at 20 cents per yard.....	200 00
Total cost.....	\$49,610 00

Buena Vista, being considered the most eligible site, has formed the principal basis in making the estimates. The plans being the same, the estimates were the more readily made by comparison, and would be nearly the same, if the bridge at the Yellow Banks was placed on piles and grillage, as shown in the plan; but with the additional cost of piles and hauling as stated, \$4,500 should be added to the estimate of the Yellow Banks location.

Respectfully submitted,

OREN BALDWIN,
City Engineer.

KEOKUK, March 15th, 1875.

THE GATE CITY.

KEOKUK, IOWA: 1876

WEDNESDAY MORNING, MAY 30.

THE BRIDGE QUESTION.

Mr. EDWARD KILBOURNE, of this city, has received a letter from his brother, written from Washington, May 24th, in relation to the bridge matter. As the subject is of importance to our citizens we extract as follows:

"I stay over until to-morrow morning to go before the Committee on Post Offices and Post Roads, to which the bridge Bill in the House was referred." There is a delegation here from the St. Louis Chamber of Commerce to oppose the passage of any law for 'pontoon' bridges, as they call them. That is to say bridges on piers with a draw. They insist on bridges without draws and to be built so that the lower chord shall be fifty feet above high water mark. Gov. WOOD, of Quincy, is here, aided by BROWNING and other, advocating draw bridges. The St. Louis gentlemen probably think that if they can carry their measure there will be no bridges built above St. Louis after this."

In a subsequent letter he says: "I was before the committee this morning from 10 to 12 o'clock A. M. DAN ABEL and five or six others were present. It was arranged that they should first speak and that our side should close. After they were through I made the best talk I was able and satisfactorily to the committee, I think, refuted many of their statements, some of which were perfectly ridiculous." "BROWNING followed and

closed with a speech of about thirty minutes. He used up their arguments, I think, pretty essentially. He showed conclusively that this opposition all came from the steamboatmen of St. Louis, who wanted a monopoly of the navigation. He stated that navigation above St. Louis was open about eight months in the year; and in consequence of that and the fear of the steamboatmen, they might occasionally have to wait a short time for a draw to open. They would shut out the great railroad interest for twelve months in a year from crossing except by boats; and a part of the time from crossing at all on account of the ice. He urged the committee to consider it in view of the commerce of the whole country and not to meet the views of the steamboat monopolists of St. Louis."

Mr. KILLBOURNE expressed his opinion that the bill-permitting draw bridges will be sanctioned by the committee. It certainly should be. There should be no monopoly either by railroad or steamboat lines. No policy should be adopted fettering the facilities for transit by land or water travel-routes. There is much identity between our interests and those of St. Louis; but we ask of that city that, by no narrow exclusiveness, by no local jealousies, or spirit of monopoly, she attempt to wrong the cities and sections above her on the river. Let St. Louis build such bridges as she can, and let each of the cities above her have the same privilege. The wants of the public, not of one municipality, even though that be St. Louis, should control herein.

The Daily Constitution.

KEOKUK, IOWA:

THURSDAY MORNING, APRIL 18, 1871.

THE BRIDGE.—A considerable blow and sputter is made in some of the one-horse towns, above and below Keokuk, over the slight accident which occurred in carrying the first train of cars over the bridge at this city.

It no doubt afforded the jealous 'little creatures' (we speak after the manner of Horace Greeley) much pleasure to chronicle the breaking of a paltry iron cap upon the draw, which proved to be defective upon trial, into a huge affair.

The following is the account given of it in the Burlington Gazette:

BAD ACCIDENT TO THE KEOKUK BRIDGE.—This morning the draw was closed, and since that time it has been stationary. Some of the machinery has broken. What machinery, and to what extent, we have been unable to learn. The Minneapolis is detained below. This is an unlucky event, and will create a loss, both to the bridge builders and the boating interests.

A very big accident, indeed, that was, which only delayed the crossing of the train about half an hour. The fact is, we have the best bridge across the Mississippi river

above St. Louis, and that's what's the matter. Grumble away, grumble away, Burlington. Keokuk is going ahead, and has no time nor cause for grumbling. Brother Barker, if you want to take a pleasant ride across the Mississippi river on the cars, in a carriage, or on foot, just come down to Keokuk, the metropolis of the state, and enjoy yourself. No wonder a man who lives in Burlington should have the blues. Get down and look with jealous eyes upon the thriving, go-ahead, city of Keokuk.

The Daily Constitution.

KEOKUK, IOWA:

WEDNESDAY MORNING, APRIL 13, 1871.

THE "BRIDGE OF SIZE."

(After Hood.)

BY EDDY MILES.

A couple of ferry-boats
Smoke puffing breath,
New fashioned commerce votes
Slowly to death.

Haul them up tearfully
On the levee.
Old friends, though fearfully
Shocking to see.

Look at their rival—
In beauty a marvel—
As the stream, rolling on,
Her piers are laying;
Think, as you travel on,
What time is saving.

Walk on her boastfully,
Brag on her toastfully:
A grand anomaly—
Iron and wood—in her:
Safe for saint or sinner,
Bring all your family.

Raftsmen may swear at her,
Run all their logs at her;
Let their abuse batter,
Spend time in tears;
Still she rests safely there,
Like a thing built in air.
Everything resting square,
Secure on her piers.

Look at her construction—
The finest production
Of Art and of Science;
Hurrah for a song of joy,
Iowa, Illinois,
One grand alliance.

Saint Louis, Saint Paul,
with the towns one and all
That lie on the stream
Of these points between,
If they think they can do it—
Better Bridges may build,
And then we shall know it.

Thirty-three hundred tons,
Iron, banded together,
Keeping up rail and plank,
Safer than vault or bank,
With stone piers a solid rank
No flood can sever.

The T. F. & W.,
And F. W. & W.,
Over this bridge
Still shall keep pouring in
Wealth to our merchantmen,
From valley and ridge.

While the D. V. R. R.,
Stretching westward afar,
Our products exchanges;
Bringing good evidence
Of its pre-eminence,
And by a wise Providence
Keokuk changes.

North Missouri's coming too,
Railroad and produce too,
And with us she'll join;
Building up town and farm,
Keeping up friendship warm,
And, to complete the charm,
Will bridge the Des Moines.

Who was the builder?
Who the contractor?
Is there a better one?
On the great river,
There may be a poorer one,
But never a surer one
Time can deliver.

Thanks to the engineer,
Kattle's brain is sharp and clear;
May he live (far or near),
Long for success;
Thanks to the moul'd men,
Mechanics and labor-men,
All who, with hand or pen,
Worked for success.

And in the coming years,
As we are flourishing,
Never let jealous fears
Keep us from nourishing
Those who now bless us
With enterprise grand,
While ignorance guesses,
Or blindly confesses
Their name and their land.

Now let us, every man,
Strive to do all we can,
Labor to build and plan
An age for good luck;
Then shall pass gloomy days,
Old fashioned, foggy ways,
And the new bridge shall raise
A great Keokuk

ber, 3,300 feet piling, 1,500 yards rip-rapping, and 200 yards concrete, viz: J. W. Kittle's bid amounts to \$25,035; Tim Ford's to \$25,409; Sam. Davis' to \$26,986; Wells, Timberman & Co's (without concrete) \$29,775; A. Wallbaum's, (without rip-rap and concrete) to \$33,150. It will be noticed that the lowest bid is that of J. W. Kittle, and that he would be entitled to have the contract awarded to him. Accompanying this report you will find a draft of a contract, the principal provisions of which are to the effect that the work of masonry and piling must not be commenced later than the first of September next, when it is supposed the water in the river will be sufficiently low, giving the contractors sufficient time to procure and prepare the materials, and that the work must be completed on or before the first of December next, under the supervision of a competent engineer to be appointed by the city council. Payments for the masonry, piling, &c., to be made on monthly estimates of work done; the city to retain ten per cent. of the estimate till the completion of the entire work.

You will also find accompanying their report a bond in the penal sum of twenty thousand dollars, to be executed by the contractor to the City of Keokuk to be approved by the city council.

We would therefore recommend the adoption of the following resolutions, viz:

Resolved, That the contract for the building of the necessary abutments and piers of the proposed bridge over the Des Moines river between the present railroad bridge and the Buena Vista ferry in the City of Keokuk be, and the same is hereby awarded to J. W. Kittle, in accordance with his written proposals and bid, and the plans and specifications made by S. L. Bayless, Esq., the engineer of the City of Keokuk for this purpose.

Resolved further, That the city of Keokuk, through its Mayor, enter into a contract with the said J. W. Kittle, in accordance with the terms of said bids, specifications, &c. The Mayor is hereby authorized to sign said contract on behalf of the city of Keokuk, and the terms and provisions of the said contract must be substantially the same as contained in the draft of a contract submitted with this report.

Resolved further, That the said J. W. Kittle file with the Clerk of the Council of the city of Keokuk a bond in the penal sum of twenty thousand dollars, on or before Monday, the 19th day of July, 1875, for the faithful performance of the duties and obligations as such contractor, as contained in the contract above described, which said bond must be signed by sureties and approved by the City Council.

Resolved further, That in case the said J. W. Kittle should fail to execute the said contract and the said bond, on or before Monday, the 19th day of July, 1875, then these resolutions should cease to be of any further force and effect as far as the same affect the awarding of the contract to the said Kittle, and the city of Keokuk is at liberty to accept any of the other bids in this report described, or advertise the work for a new letting.

Resolved, That the city of Keokuk hereby accepts the resolutions of the Board of Supervisors of Lee county, Iowa, passed and adopted on the 29th day of January, 1875, in relation to appropriation of the sum of fifteen thousand dollars by said county to the city of Keokuk in aid of the construc-

tion of a bridge over the Des Moines river in the vicinity of the city of Keokuk.

Resolved, That S. L. Bayless be and the same is hereby appointed as engineer to superintend the construction of the piers and abutment in accordance with the contract between said city and the said J. W. Kittle.

Respectfully submitted,
EDMUND JAEGER,
J. B. PAUL,
J. C. ESTES.

The Mayor explained the report, the action of the Bridge Committee, and their views as to future action. He also advocated at length the going ahead with work on the bridge. He would like to unite with the railroads in building a bridge, but they had not manifested a disposition to join with the city. He had heard reports that the St. L. K. & N. Road was willing to join the city, but he had not had anything definite or official on the subject from them. He therefore thought if we ever got a bridge over the Des Moines river, the only way to get it was to go to work and build it. He said that the engineer had decided that it would not require any stronger piers for a railroad bridge than for a wagon bridge, and it at any time hereafter before the work was commenced on the superstructure, any railroad wished to join us they could do so by paying their portion of the expense. He explained that two roads would be constructed leading to the city, one coming in at Twelfth street, the other at the lower end of Main street, so that all sections of the city would be equally benefited.

Alderman Paul would like to unite with the railroads if that were possible. He thought we could get a better bridge in that way, and would favor delay if there was any hope of uniting with the railroads.

Alderman Estes favored going ahead with the work.

Alderman Daugherty moved the adoption of the resolutions of the Committee. He favored going ahead with the piers, and if anything afterwards turns up by which we can get a bridge on better terms, all the better. He had examined the bids and thought them very favorable to the city.

Alderman Sample urged caution and deliberation. In order to retain our Eastern roads, we must foster their feeders, and he would help weak railroads and help ourselves by building a combined railroad and wagon bridge.

He favored postponing the matter till the next meeting, and offered a resolution to that effect.

After a long discussion on the resolution it was lost.

The question then recurring on the motion to adopt the report of the Bridge Committee and award the contract, a protracted discussion took place, pending which the Council adjourned till this evening.

DAILY GATE CITY.

FRIDAY MORNING, JULY 16, 1875

CITY COUNCIL.

Special Meeting to Award the Contract for the Des Moines River Bridge.

The City Council met last evening at the call of the Mayor to award the contract for the substructure of the proposed bridge over the Des Moines river.

The Mayor and all the Aldermen were present except Hubenthal.

The Bridge Committee, to whom the bids had been referred, submitted the following report:

To the President, &c.—Your committee, to whom were referred the several bids for the construction of the abutments and piers of the proposed Des Moines river bridge, beg leave to report as follows:

We have examined the several proposals submitted to us, and ascertained the following aggregate results for the proposed work and material as contained in the engineer's specifications for 1,500 cubic yards masonry, 3,000 yards excavation, 15,000 feet oak tim-

THE GREAT WEST HEAR CALLS
R. J. BICKEL KEOKUK, IOWA

THE DES MOINES RIVER BRIDGE.

The proposition of the Mississippi Valley & Western Railroad Company, to construct a wagon bridge, in connection with the railroad bridge which they are now building at Buena Vista Ferry, is a matter which is attracting the attention of our public more than anything else just now. The importance, and we might even say the necessity, of a public highway over the Des Moines river no one pretends to underrate. The question is, how shall it be secured to the best advantages. Some of our citizens consider the proposition of the M. V. & W. R. R. a tangible one—one that is within our means, and one which we ought to accept. Others are disposed to think that before taking any action in the matter, we should have some proposition from the M. I. & N. R.R. with regard to the contemplated iron bridge.

A meeting of the Citizens' Association to consider the matter was called last Saturday evening, but there was not a sufficient number present to constitute a quorum, so there has been no expression of public sentiment on the subject.

We give below a copy of the agreement which the M. V. & W. Road proposes to make with our citizens:

It is understood between the Mississippi Valley and Western Railway Company of the first part, and Trustees of the Township of Jackson, Lee county, Iowa, of the second part—

That the Mississippi Valley and Western Railway Company are to plank their bridge across the Des Moines river, and put the same in good condition for public travel—that part within the Howe Truss as wide as the same can be made, as the bridge is framed, and that part on piling to be planked sixteen feet wide, with substantial railing, and furnish good approach thereto on the Missouri side, if license can be had to keep said bridge as a toll bridge.

The party of the second part are to aid in constructing said railroad under Chapter 48 of the laws of Iowa of 1868, to the amount of \$10,000, to be levied and collected during the year 1872.

The party of the second part are to make the approach on the Iowa side.

The Missouri approach is to be made as good as that on the Iowa side.

The rates of toll to be charged shall not exceed:

- 25 cents for two horse teams.
- 20 " " one horse teams.
- 15 " " one horse and rider.
- 5 " " cattle and horses loose per hd.
- 2 " " hogs and sheep per head.
- 5 " " footmen.

Teams, horses and footmen may return same day or next without additional charge.

The bridge is to be maintained as aforesaid by the party of the first part for twenty-five years, and the party of the first part to receive all tolls. The tolls to be fixed as above for 10 years; after that to be regulated by the County Court of Lee county, Iowa.

Whenever it is necessary to renew said bridge it is to be made 18 feet wide.

A petition, of which the following is a copy, is now being circulated asking the Trustees of the Township, to call an election for the purpose of submitting the question of voting the aid asked for by the railroad company. We publish the proposition and the petition in order that our citizens may have an opportunity of examining them before being called upon for their signatures:

To the Trustees of the township of Jackson, County of Lee, State of Iowa:

The undersigned, resident tax-payers of the aforesaid township, hereby respectfully ask you to submit the question of aiding in the construction of the Mississippi Valley & Western Railroad (or Railway) to the people of said township, to the amount of ten thousand dollars, to be voted for at a special election, to be ordered by you under and by virtue of the power and authority given you by the provisions of Chapter 102, of the acts of the Thirteenth General Assembly of the State of Iowa, being "An act to enable Township and Incorporated Towns and Cities to aid in the construction of Railroads," which was approved on the 12th day of April, A. D. 1870.

THE DAILY GATE CITY.

Entered at Keokuk Postoffice as second class matter. *Aug. 30* Subscription Rates: 1883

BOUND IN IRON.

The Reconstruction of the Des Moines River Bridge Now in Progress—New Piers and Spans.

The C. B. & Q., since leasing the Keokuk & St. Louis line have been placing the road in excellent condition. Their most recent work of reconstruction is to make an iron bridge of that spanning the Des Moines river south of the city. New cylinder piers are now in process of construction on the Missouri side, south of those built by the city several years ago. The city's portion of the bridge was completed at that time and now all the expense it incurs is in keeping the flooring in good repair which has been done with satisfaction up to the present time. In the construction of the additional piers fifteen piles are driven down together as close as is possible as far as the rock bottom which is found to be eighteen feet. There piles have iron points and after being driven in are bound with iron cylinders into which concrete is poured rendering them solid. It will take about two weeks long to complete the pile driving. One iron span of 190 feet has been the better portion of the bridge for the last two years.

85

Three Howe truss spans of 150 feet each have been in position seven years. The new work will consist of two iron spans, one of 174 feet and the other 149 feet. These have been manufactured by the Delaware Bridge Company, of Trenton, N. J., and are now on the ground ready for placement. S. F. Clapp, superintendent of construction has a force of between thirty and forty men at work who are pushing the work to completion as rapidly as possible. The new work is entirely at the expense of the railroad company. Superintendent Clapp thinks it will take from six weeks to two months to complete the reconstruction. A better stage of water for the work in hand, that of driving the piles, could not be desired. Some of the railroad officials wished to have the bridge entirely spanned with iron this fall, but this will not, in all probability, be done until next year. The bridge approach on the Iowa side is now in good shape and the track has been raised to accord with the bridge, which was raised eighteen inches last winter. There is a little delay to travel at present when the pile-driver is at work, but this will be overcome when this part of the work is completed. It remains for the city to see that when the new spans are being placed in there may be perfect safety to teams, as it is feared by some there will be a hindrance caused to trade by a general wrecking of the floor. When the present work is completed the Clark county approach will be placed in excellent condition for the convenience of the people from that section.

The Daily Constitution.

KEOKUK, IOWA : TUESDAY, FEB. 2, 1875.

WHAT THE CITY COUNCIL DID ABOUT THE BRIDGE.—The City Council last night appointed a committee, consisting of the Mayor, City Engineer and others, to examine the Des Moines river in the vicinity of the city, with the view of ascertaining the best place for the erection of a bridge across said river, and the cost thereof. The committee was directed to make an estimate of the cost of at least two of the proposed crossing places, and report to a subsequent meeting of the council.

THE GATE CITY:
SUNDAY MORNING, FEB. 11, 1877.

FREE FROM TOLL.
No Charge to be Made for Crossing the Des Moines River Bridge—Action Taken at a Special Meeting of the Council Last Evening.

It has been understood all along that a light toll would be charged for crossing the Des Moines river bridge. We believe that provision was made therefor in the charter, and the impression has been that the city would collect a small toll from the wagon travel, in order to provide a revenue with which to pay the watchman, and keep the highway portion of the bridge in repair. Recently, however, the Council have had under consideration the question of making it a free bridge, and throwing our doors wide open to the trade of Clark county. A special meeting of the Council was held last evening, and as will be seen by the following proceedings, this course was decided upon by a unanimous vote.

This action of the council will, we are certain, meet with the universal approval of our citizens. We want to cultivate friendly business relations with our neighbors of Clark county—to offer them every inducement to come to Keokuk to trade—and this action will no doubt demonstrate to them that we are determined that no obstacle shall be in the way so far as we are concerned. As soon, therefore, as the bridge is completed, which will be in a few days, the people over there will have uninterrupted free access to our city, and it is hoped that they will avail themselves of it.

The subject of grounds for the car shops of the St. L., K. & N. Railway did not come up last evening, but we are assured that the committee to whom the proposition of the company was referred have taken hold of the matter in earnest, and will give it prompt attention.

The following are the proceedings of the special meeting:

SPECIAL SESSION OF CITY COUNCIL.
COUNCIL ROOM, Feb. 10th, 1877.

Council met in special session, at the call of the President *pro tem.* Mayor Irwin being absent. Alderman Timberman, President *pro tem.*, presided.

Present—All the Aldermen, except Archer.

The Chairman stated the object of the meeting to be to consider matters in connection with the Des Moines river bridge; also whether the city shall direct the Engineer to advertise for 1,000 yards of macadam for Main and other streets.

Alderman Voorhies offered the following resolution:

Resolved, That the bridge recently constructed over the Des Moines river, as soon as the approaches are completed, be opened for the free passage of teams, vehicles, live stock, footmen and to be known as a thoroughfare free from toll. The yeas and nays being called for, resulted as follows:

Yeas—Bishop, Blom, Daugherty, Gallagher, Hubenthal, Higham, Lowry Leighton, Paul, Timberman and Voorhies.

Nays—none.

On motion, Council adjourned.
J. W. DELAPLIN, Clerk.

THE GATE CITY:

FRIDAY MORNING, SEPT. 8, 1876.

CARRIED AWAY.

The Coffer Dam at the Des Moines River Bridge Washed Out.

The construction of the Des Moines river bridge has thus far been attended by frequent accidents and delays, caused principally by sudden and unexpected high water. Another one of these occurred yesterday morning. The substructure is all complete except pier No. 1, and the coffer dam for this was in process of construction. It had been sunk and the divers had worked several days in getting it down to a solid foundation. During Wednesday night the river rose eighteen inches, having already been over the dam the night previous. At 6 o'clock yesterday morning the line with which it was anchored pulled out, the dam rolled over once or twice, and went floating down stream. It caught on the ferry line and was again turned over. It finally lodged on a sanbar about five hundred feet below the bridge, where it remained till yesterday afternoon, when it was picked up and carried out into the Mississippi. It lodged along the shore about half way between Buena Vista and Alexandria. A number of men were sent after it in skiffs, and by means of ropes, succeeded in securing about one-half of it. Work on the pier will necessarily be delayed until the river falls again. The night watchman was on a scow which was anchored by a separate line along-side the dam when it went out.

THE GATE CITY:

FRIDAY MORNING, NOV. 18, 1877

The Keokuk Bridge.

A rumor gained credence yesterday, and especially on the river front, that an injunction had been granted restraining the owners of the Keokuk bridge from repairing the broken span, lately damaged by the steamer War Eagle running into it. The cause alleged was that the bridge was built diagonally across the river instead of directly across the current, in violation of the United States law on that point.

A reporter of the *Globe-Democrat* called upon the officials of the Wabash, but nothing had been heard at that office of any injunction and, in fact, they said that inasmuch as they were not the owners of the bridge the injunction would not have been served on them, but would be served on the principal stockholders, who reside in Pittsburg. They scarcely thought that any injunction had been granted, or even applied for, inas-

much as the contractor for the repairs to the bridge had recently called upon them and brought material on the ground this week to immediately commence putting the bridge in condition to cross trains.—*St. Louis Globe-Democrat.*

Superintendent Cole stated to a GATE CITY reporter, yesterday, that no injunction had been issued and that he had received instructions from the secretary and treasurer of the Bridge Company, Mr. Gilman, and President Carnegie's orders to proceed with the work of repairing the broken bridge. One of the spans of the Howe truss, purchased in Toledo, is expected to arrive to-day.

The *Globe-Democrat* of yesterday says: "Further inquiry was made in the Keokuk Bridge case yesterday, and on good authority it was learned that the bridge is built within the laws of the United States governing bridges on the Mississippi. While the upper works of the bridge really cross the river diagonally, the piers themselves are built according to law, and after the plans of government engineers, consequently it would appear unreasonable to apply for an injunction restraining the company from rebuilding the broken span."

Daily Constitution.

MARCH 2, 1885.

THE BRIDGE COMPANY ANSWERS.

Answer of the Keokuk and Hamilton Bridge Company in the Suit Brought by the Packet Company against Them in the United States Court.

In the case of the St. Louis and St. Paul Packet company vs. the Keokuk and Hamilton Bridge company in the United States circuit court, in which the packet company claim \$50,000 damages by reason of the wreck of the War Eagle the night of Nov. 4, 1881, the defendant has filed an answer in which they deny every allegation of plaintiff except their existence as a corporation and the citizenship of each as alleged, and charge negligence on the part of the officers, agents and employes of the packet company, and file a counter claim for \$100,000 damages for damage done the bridge; and also charge the plaintiff with undertaking to make a passage through the draw in an improper way and at an improper time, and at an improper and dangerous stage of water. In answer to the charge of plaintiff that the bridge was improperly located, and was improperly constructed, defendant avers that plaintiff knew, or by the exercise of ordinary care, could have known of the exact location of said bridge and draw thereof, and without protest or complaint, or promise of amendment, continued to use same for the passage of their said boats, including the War Eagle, whereby plaintiff waived any right of action for the matters and things complained of.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

THE ICE GORGE. 1883

The Des Moines River Gorged for a Distance of over Twenty Miles—The Railroads and What they are Doing to Repair Damages—Incidents.

The ice gorge at the mouth of the Des Moines river which took 400 feet of the bridge out on Friday morning has gradually extended up the river beyond Belfast, a distance of over twenty miles. Last evening the river was open but filled with running ice from the end of the gorge to Beacon, eighty miles from Belfast. A few years ago an ice gorge in the Des Moines extended up stream seventeen miles. When the break up occurred the ice moved out gradually and no damage resulted. The present gorge is the heaviest in the Des Moines river for twenty years. At the mouth of the stream the ice is piled up in a confused mass and firmly impacted. The main outlet is blocked, and the water is reported as having cut out the old channel between the Missouri shore and Nassau Island, forming a new channel with its mouth near Alexandria. The low lands beyond the Des Moines river bridge were overflowed and the railroad track and the new wagon road submerged. The water has fallen considerably, but last night it was still over both in many places and ice was forming on the railroad track which will be removed at once. The wagon road will probably be damaged. Ice formed on the surface of the water a quarter of an inch thick before it began to fall and when it receded the ice was held up by weeds and now presents a vast field of ice with the water fully two feet below it. At Benton's port yesterday the river was eight feet above low water mark and falling all the way up. The Keokuk & St. Louis Line expect to be able to run trains from Keokuk to Quincy on Monday transferring passengers over the ice at the bridge. The Wabash is undecided as to what course they will pursue as to getting passengers into Keokuk. Two of the Queen spans of the bridge now lie on the ice a quarter of a mile down stream and the other three and a portion of the Howe Truss 200 yards below and against an island. The latter will be anchored to the island and saved if possible. A C. B. & Q. pile driver will be put to work soon to repair the approach to the bridge.

VARIOUS ITEMS.

The thermometer indicated a fall in the temperature yesterday morning of fifty degrees within twenty-four hours.

The Mississippi has risen about six feet in the past few days. But for the density and solidity of the ice fears would be entertained of its moving out at this point which would endanger the

SUNDRY ACCOUNTS

wooden span in the bridge and possibly damage the lumber yards in the lower part of the city. A force of men are at work hauling stone to weight down the crib supporting the wood spans.

The ice gorge in the Des Moines caused that stream to rise at the mouth fifteen inches higher than during the high water last year.

The cold snap saved the railroads further damage.

L. L. O'Brien rested easier yesterday, but his recovery is doubtful.

The Rock Island train Friday morning was delayed five hours by mud on the track.

THE GATE CITY:

FRIDAY MORNING, AUG. 4, 1876.

THE DES MOINES RIVER BRIDGE.—A force of between thirty and forty men is at present employed upon the Des Moines river bridge at Buena Vista. Pier No. 3 upon which they are at present at work, will be finished on Saturday. This will complete the sub-structure of the bridge, all except the Iowa abutment and pier No. 1. The coffer dam for the former is in readiness, and the work of pumping it out will be commenced to-day.

If we have no more high water, the bridge will no doubt be completed during the present season.

THE GATE CITY:

FRIDAY MORNING, JULY 28, 1876.

OPERATIONS RESUMED.—On Wednesday last the American Bridge Company resumed operations on the Des Moines river bridge at Buena Vista, and a force of men is now busily engaged laying stone on the piers. If the river remains at its present stage, the early completion of the long looked-for bridge may be anticipated; and when it is finished there will be more travel over it from Missouri than even the most sanguine Keokukian has imagined.

The Des Moines River Bridge.

A wrong impression prevails in reference to the Des Moines river bridge. Only 400 feet of the bridge was taken out and that on the Missouri side of which 250 feet was the trestle approach and 150 feet a Howe truss span. The Keokuk and St. Louis Line have a force of men at work getting material ready to put the bridge up as soon as the ice goes out, and the main bridge is being raised. The ice is now firm and people cross and passengers are transferred with perfect ease and safety. FEB 24, 1883

THE GATE CITY:

SATURDAY MORNING, AUG. 12, 1876.

DES MOINES RIVER BRIDGE.

Importance of Pushing the Work Forward.

Work on the remaining piers of the Des Moines River Bridge is progressing rapidly. The coffer-dam for the abutment on the Iowa side has been pumped out, the excavation is now being made, and the work of laying the masonry will be commenced to-day. Work on pier No. 1 is also in an advanced stage of progress.

It is of the utmost importance especially to the retail interests of our city that the bridge be completed, if possible in time for a portion at least of the Fall trade.

We understand that the contract for the superstructure has not yet been awarded, or at least has never been signed. Without wishing to be officious in the least, we would suggest the advisability of closing the contract with some responsible party and having work on the superstructure commenced at once. The substructure is now ready for three Howe truss and eight beam truss spans. By the time these were up the balance of the substructure would be ready so that there would be no delay in prosecuting the work.

We do not know whose business it is to look after this matter but simply call attention to it on account of its importance to our city. The Buena Vista ferry now has all the business it can do. If the bridge was rendered available the trade from Clark county would be several times larger.

THE GATE CITY:

SUNDAY MORNING, NOV. 27.

THE BRIDGE.

The Work of Repairing the Damage Done by the War Eagle to be Commenced Tomorrow.

The citizens of Keokuk and of Hancock county will be gratified to learn that on to-morrow the work of repairing the Keokuk and Hamilton bridge will be commenced in earnest. J. H. Traverse, superintendent of bridges for the western division of the Wabash arrived in the city yesterday, with a force of sixteen skilled and experienced workmen, and will commence the work of putting in the crib for the false work to-morrow. It will take about eight days to put in the crib.

The Daily Gate City.

SUNDAY MORNING, DECEMBER 11 1870.

The Importance of Bridging the Des Moines River.

On the 31st day of December 1867, across the partially frozen, rapidly running, ice crowded current of the Mississippi, my wife and I gazed with sinking hearts at the cold inhospitable bluffs of the strange unknown (to us) city of Keokuk.

Ordered to Keokuk in the prosecution of my profession, with only a week's notice—obliged to leave old ties and make a new home amongst total strangers—the cheerless view from the Hamilton Dyke, struck a chill to our hearts that the uncomfortable ferry arrangements augmented, dreadfully. We had to stumble over the rough ice for part of the way, clamber into the boat as best we could, land at the levee amidst howling buss drivers and tavern runners, half frozen as to feet and hands, and at last after an eternity of waiting, we were taken to a hotel, where we found cheerful fires and comfortable rooms, and in a very short time we also found that the cold, bleak, cheerless outside of the city of Keokuk was a very poor index of the warm hearts and hospitable homes that opened to receive us, total strangers as we were.

Such was no doubt the experience of nearly all strangers arriving at Keokuk in the winter—for Keokuk's arrangements for travelers, whether arriving or departing, were limited in a most extraordinary manner.

The Keokuk & St. Paul Railroad, that started bravely towards its nominal destination, ignominiously stopped a little below the jail at Fort Madison.

The Des Moines Valley Railroad turned and twisted and curved in an eccentric and unprofessional style, until it unwound its tortuous length as far as the Capital of the State.

The Toledo, Wabash & Western ran a little accommodation car from Clayton to Keokuk, for the delectation of persons obliged to brave the dangers of the river, which was sometimes on time, but generally wasn't.

Such is a rapid enumeration of the facilities for outside communication enjoyed by the citizens of Keokuk during the winter of 1867-68.

The winter of 1870-71 presents an entirely different arrangement for inter-communication.

The old Keokuk & St. Paul Railroad, formerly the high road to the Penitentiary, belongs now to the C. B. & Q. Connection is made with the bridge at Burlington, and passengers, mails and freight arrive at the time specified.

Through the enterprise of the D. V. Railroad lessees most of the objectionable

twists and dangerous trestles of their road have been changed and a continuous track o Ft. Dodge and the State line of Minnesota carries passengers to their destination.

The Keokuk & Minnesota Railroad is being pushed with wonderful activity, and direct communication with the centre of the State—sleeping coaches attached to all night trains—will soon startle the old fogies of the Gate City.

The St. Louis and Keokuk Railroad is uncoiling its iron lengths up the west bank of the Mississippi, and soon will direct rail communication with St. Louis gratify the longings of those doing business there.

The Southern Iowa R. R. Contracting Co. are in the field this winter, and iron is being laid on the old grade of the Alexandria and Nebraska City R. R., which railroad will probably bridge the Des Moines river in the neighborhood of Keosauqua, and taking advantage of the D. V. track, center here, and participate in the benefits of the Keokuk and Hamilton bridge over the Mississippi.

The T. P. & W. opens a new and direct route to the East, and the completion of the bridge gives a safe transit from Hamilton to Keokuk, in spite of the ice-crowded current of the Mississippi.

In view of this array of facts, showing the material prosperity of the city, and the means of enlarging that prosperity by the proper exertion of a commendable enterprise, allow me to propose the reconsideration of an old time-worn proposition. The eyes of the citizens of Keokuk have been dazzled by the glittering array of benefits to be enjoyed in the lengthened ramifications of continuous lines of railroad iron stretching into illimitable space. Their gaze has been concentrated upon distant points, until it seems as if their enterprise, like Mrs. Jelliby's charity, was exercised only for the benefit of the inhabitants of Boorioboola Gha. Charity and true enterprise should begin at home, and the way to build up a large city from the nucleus already started is to increase the facilities for neighboring retail trade.

The Bridge over the Mississippi will attract a very large increase of the trade now enjoyed from Suckerdom; and already some of our really enterprising men, acknowledging the benefits to be derived, are purchasing sites for country seats along the beautiful banks above Hamilton.

There is a trade ten times as large as the Illinois trade awaiting the chance to throw itself, regardless of consequences, into the laps and pockets of the merchants of Keokuk. That trade is in Missouri, and is principally enjoyed by the little town of Alexandria—which is more than drowned out every year, just to be resuscitated and rebuilt by the benefits of the country trade.

Citizens of Keokuk, you want a bridge over the Des Moines, and until you have one you are in danger of being crowded out of the Missouri trade entirely by little

half drowned Alexandria. Build the bridge and in a month you will absorb all the trade within a radius of forty miles—you will absorb Alexandria itself, for, bereft of its country trade, it would never recover from the effects of the first flood after the building of the bridge.

Build the bridge—make the connection with our neighboring State sure—and the citizens of Clark county, Missouri, will flood your markets with their produce and buy up all of your retail stores.

Bridge the Des Moines, and an increase of prosperity will descend upon the Gate City like the falling of manna in the wilderness. "ROEBLING."

The Daily Gate City.

TUESDAY MORNING, JANUARY 23, 1872.

THE DES MOINES RIVER BRIDGE.—Mr. J. S. Smith, Superintendent of the Keokuk and Hamilton bridge, received a telegram on Saturday last from Mr. Andrew Carnegie, President of the Bridge Company, instructing him to prepare to make a survey for a bridge over the Des Moines river at or near Buena Vista Ferry. The bridge will be constructed by the M. I. & N. R. R. in which Mr. Carnegie and his associates are largely interested, and will be for the purpose of giving that road an Eastern outlet. This is in accordance with the already announced purpose of that Road. It is proposed to make this a highway as well as a railroad bridge, similar to the one which now spans the Mississippi at this point. The prospect of its early construction will be highly gratifying to our citizens. The benefits to our city of such an enterprise are recognized by all. We must not flatter ourselves, however, that this bridge will be a purely gratuitous contribution to our city. We are expected to aid in building it. When the Railroad Company gets ready to commence the construction of it our city will be called upon to contribute a sum of money in aid of the enterprise. We state this on the authority of the officers of the Road. Our city has, however, already expressed a willingness to invest a reasonable amount of money in a substantial iron bridge over the Des Moines river—one that promises to be permanent—so that we apprehend no difficulty on this score when the time for action shall have come. An opportunity will be offered for throwing our doors wide open to the trade of Clark county, and we are sanguine in our belief that our city will not let the chance go by the board.

Bridge Company

Contractors Paying

But 30c an Hour

MAYOR WIRES CONTRACTORS

March 30, 1931.

Widell Company,
Mankato, Minn.

Your foreman is disregarding requirement of Iowa State Highway Commission, minimum hourly wage 40c. His actions responsible for labor demonstration today. Instruct him to meet State requirements immediately and make all pay checks to date at minimum rate.

FRED W. LONG, Mayor.

HIGHWAY COMMISSION LETTER.

Iowa State Highway Commission, Ames, Iowa, March 27, 1931.

Mr. W. E. Holmes,
Keokuk, Iowa.

Dear Mr. Holmes:

Receipt is acknowledged of your letter of March 24th. I note your reference to construction work on the 7th Street Viaduct and particularly your inquiry "Is there anything in the contract requiring them (the contractors) to pay a general scale to all classes of labor." In reply would say that there is nothing in the contract relative to the scale of wages to be paid. However, on November 12th, 1930, the Commission passed a resolution covering several matters with respect to construction operations. Among these matters were the following:

"3. That contractors are requested to use Iowa labor insofar as possible in carrying on their operations.

"4. That in preparing their bids, contractors are requested to base their labor estimates on forty cents per hour as the minimum wage, and that contractors will be expected to pay not less than forty cents per hour as the minimum wage paid to any of their laborers during the construction of said work."

In keeping with the spirit of that resolution, the contractor would be expected to pay the minimum wage of not less than forty cents per hour.

Yours very truly,
F. R. WHITE,
Chief Engineer

mission Wrote Chamber 40
Cents Minimum.

A. F. Knoff, superintendent for The Widell Company, which has the contract for the viaduct work, state to a Gate City reporter, Chamber of Commerce and police department officials this afternoon that while Secretary Holmes had sent men to him at his request for temporary work, he denied that Holmes had ever said anything to him about the price for labor. He said that thirty and thirty-five cents an hour was all that his company, at Mankato, Minn., had paid for labor, and he was wiring them this afternoon for instructions. He had not known anything about the highway commission's action in setting forty cents as the minimum.

It was stated by Knoff that Secretary Holmes had sent six men to him today for temporary work, and that their names and addresses were all that was written on the paper given each man. Knoff denied that Holmes at any time had said anything about wages for labor. Sherman Miranda, one of the men, said when he asked Holmes what the company would pay, the latter said he thought that he would get forty cents an hour, and that he had gone to the foreman of the bridge company with that idea.

Chamber of Commerce officials denied that there was anything in the rumor they were dictating a price of thirty to thirty-five cents. It would be to the advantage of Keokuk and Keokuk merchants to have the highest possible wage paid, it was said, and the Chamber of Commerce wrote Fred R. White, chief engineer of the Iowa State Highway Commission to ask what was the minimum. A letter from him disclosed the fact that forty cents had been set as the minimum on state contracts of this nature.

Groups of unemployed laborers who had gathered on Keokuk streets today, incensed at a rumor that the Chamber of Commerce was attempting to dictate a cheap wage scale for the workmen on the Seventh street viaduct, were asked by Mayor Long early this afternoon to disperse. The mayor personally walked into the group at Sixth and Main streets and addressed them, stating that he had documents from the state highway commission to the effect that on

**LOCAL LABOR
MAKES PROTEST,
RIOT AVERTED**

Bridge Foreman Knoff Denies That Chamber of Commerce Official Attempted to Dictate Low Wage Scale.

HIS COMPANY ORDERED IT

Mayor Long Talks to Demonstrators, Wires Mankato Firm of Contractors—Highway Com-

state work the minimum wage would be forty cents an hour. It was suggested by a by-stander and a local man that a committee of three from the men co-operate with the mayor and act as advisors for those in the group.

The mayor told the men that he personally would see that they received the wage to which they were entitled. He said that according to the action of the state highway commission the contractor should pay the minimum wage of forty cents an hour and he was going to see that it was done. He asked the men to disperse and declared with some emphasis that there was going to be no rioting in Keokuk. He told them he had documents in his office to substantiate his statement as to the wages.

Report Is Denied.

Earlier in the day Chamber of Commerce officials had denied the report that was current that it was dictating a wage of thirty cents an hour. This wage has been paid on the emergency work on the river front, but officials of the Chamber denied that they had ever gone into the matter of wages with any one on the viaduct contract. When the contract was let the Chamber of Commerce demanded preference for local labor, from the company. In fact, the Chamber has a letter from Fred R. White, chief engineer of the Iowa Highway commission, stating that by action taken November 12, 1930, the minimum wage for labor on state work would be forty cents an hour.

Incensed by the reports which had been circulated and which gained considerable circulation, unemployed men gathered on the streets of Keokuk this morning and discussed the matter. Some of them visited the Chamber of Commerce offices, and the culmination came when a group intercepted Secretary W. E. Holmes as he was going down Sixth street. He had in his hand then the letter from the state highway commission, as the group jostled and milled around him, but listened to the reading of the letter by a local business man with him.

Sheriff Escorts Secretary.

Police were called when the group intercepted Holmes, but none was available, and Deputy Sheriff E. F. Dunlavy took charge and escorted the secretary to his office.

Groups continued to gather after the noon hour, and it was early this afternoon that Mayor Long made his appeal to the men. He addressed the group at Sixth and Main streets, telling them that they should go back to their homes, and promising the men that he personally would see to their interest in this matter.

"You can trust me to take care of your interests," he said, and asked the men to quietly go about their business. In a second talk to the crowd at the police station this afternoon, after he had asked them to move off the corner of Sixth street, the mayor suggested that the men go fishing.

The majority of the men in the groups addressed by the mayor evinced a willingness to comply with his request that they should not block the sidewalks about the stores.

Another Story Denied.

M. Clifton Cooke, superintendent of the I. E. DuPont de Nemours company at Moear stated this afternoon to The Gate City that no official of the Chamber of Commerce had ever talked with him about cutting wages in his plant. A story was circulated some time ago that the Chamber of Commerce secretary had gone to Cooke and had attempted to have wages cut there, and that he was ordered out of the grounds. Mr. Cooke denied any such occurrence.

C. S. Abell, chairman of the work committee; G. E. Weissenburger, Sheriff Maas, police officials and others were in the group with the mayor when he made the final appeal to the men to go home, and assured them that the city would look after their interests. Some of these men talked to the group, too, explaining the general situation.

Earlier in the evening groups of the men had been reported to have gone to the Y. M. C. A. and the Y. W. C. A. buildings seeking Secretary Holmes. He was at the Y. W. C. A. at a meeting of the retailers during the evening.

Company Wires Mayor.

Mayor Long, who early in the afternoon had wired the Widell company at Mankato, Minn., that their foreman here was disregarding the forty cent minimum for state work, received a reply from the company to the effect that it knew nothing of any such wage agreement.

The telegram to the mayor was the following:

"Your wire. We do not know of any labor law as stated in your wire. Please wire advising year this law was passed."

The mayor replied giving the date of the highway commission's action as outlined in the letter to the Chamber of Commerce published in yesterday's Gate City.

Highway Commission Notified.

This morning Mayor Long telephoned to Ames to the state highway commission and found that body in session. He laid the matter before the commission through C. C. Riepe, of Burlington, a member of the board. A letter was also written by the Chamber of Commerce last night to the commission explaining what had happened and asking what was to be done in the matter.

While it was reported at the city hall today that there were a few groups on the street, there was no disorder and everything apparently was quiet, the mayor said at noon. Efforts were made by some of the men last night to hold a meeting in protest of the wage rate which it was reported the bridge contractors were paying, but they were reported as unable to secure the hall they wanted and the meeting was held out of doors.

**DAILY GATE CITY
MARCH 24, 1931**

**CITY IS QUIET
TODAY; MAYOR
TALKS TO MEN**

**Groups Which Gathered
Last Night Finally Urged
to Disperse When Long
and Members of
Committee Ad-
dress Them.**

Comparative calm reigned in Keokuk today, after the turmoil of yesterday and last evening, which was occasioned by a protest of laborers over the wage to be paid by contractors on the Seventh street viaduct.

The developments since yesterday were these:

1. The state highway commission at Ames is considering the Keokuk situation, Mayor Long was informed this morning over the long distance telephone, by C. C. Riepe a member of the commission.

2. Mayor Long told the group which gathered at the police station last night, that the city would take care of the interests of the laboring men in the matter of the forty cent an hour minimum wage on state work.

3. The mayor said he told the men who were said to have been leaders of the various groups, which still gathered in spite of his promise in the afternoon that the city would look after their interests, that if they persisted, arrests would be made. He said that Secretary Holmes of the Chamber of Commerce, whom the groups was said to be seeking, was entitled to protection by the city and that he would have that protection. He told them that Mr. Holmes has been doing considerable work in connection with the community's effort to furnish employment.

Group Disperses.

Following the mayor's talk to the men last night, the groups dispersed. Members of the Committee of Thirty, J. O. Boyd, chairman,

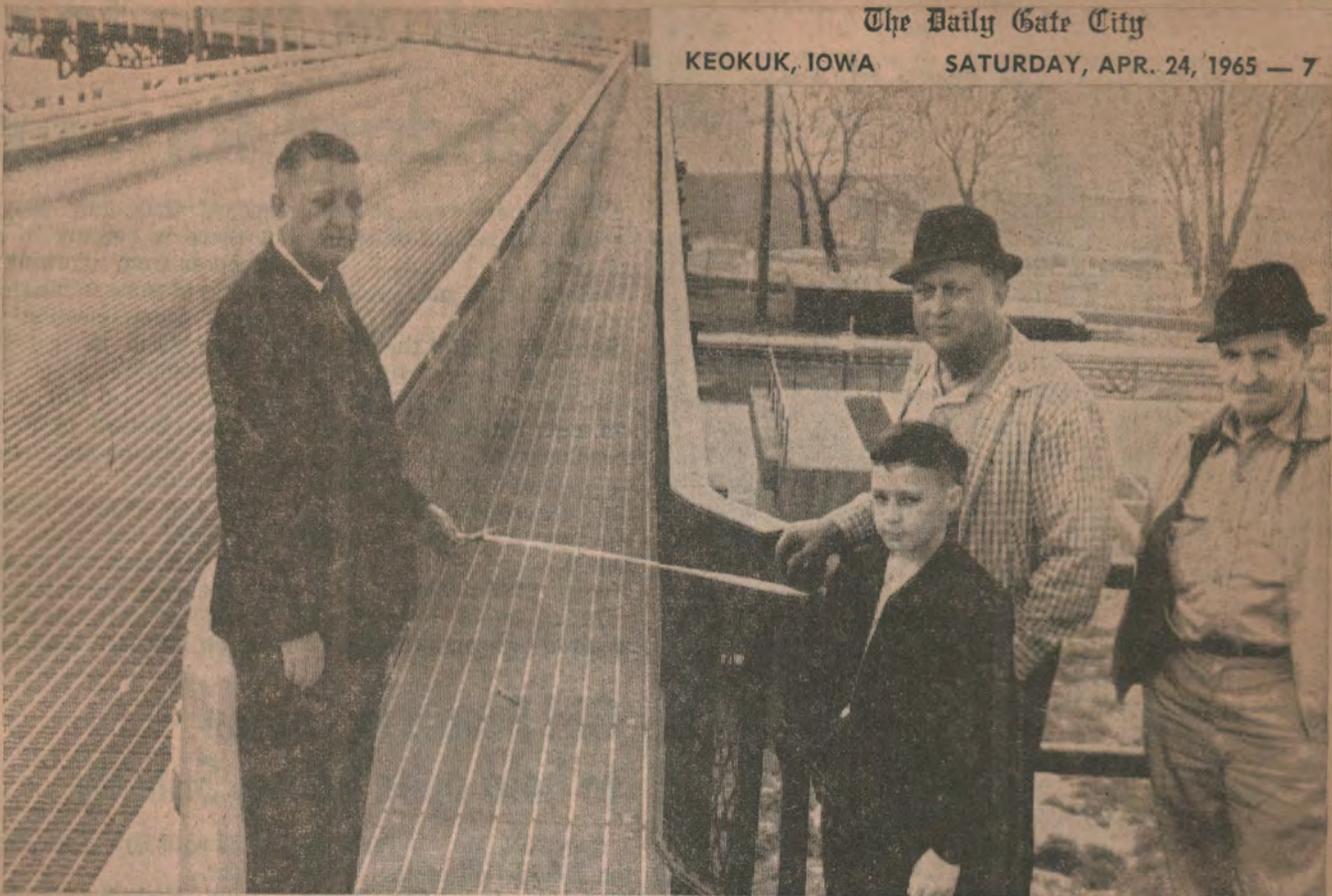
**DAILY GATE CITY
MAR. 28, 1931**

**OLD VIADUCT IS
CLOSED AS WORK
STARTS ON NEW**

**Preliminary Activity Begins
and Construction Will be
in Full Swing Within
Week or Ten Days.**

7th St. Bridge

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA



OPEN TO TRAFFIC! Mayor James O'Brien cuts the ribbon this morning to open the Keokuk-Hamilton bridge to pedestrian traffic following completion of a new iron grate walk installed by the Sammons Construction company. Picture with Mayor O'Brien are,

William Bornscheuer, bridge superintendent, Morrell Payne, assistant superintendent, far right, and 12 year old Steve VanZant who was the first to walk the bridge today. Cost of improvement on the span was \$71,000. —Gate City

KEOKUK CONSTITUTION

KEOKUK, FRIDAY, FEB. 16, 1883.

BRIDGE GONE.

THE SOUTHERN SPAN OF THE DES MOINES RIVER BRIDGE

And Six Hundred Feet of the Approach Thereto Washed Away—Watchman O'Blennis Badly Injured.

The damage which was occasioned by the storm here last night, was not merely local. The storm extended west and north of here, growing lighter in its violence the further from here it reached. It rained at Des Moines, though only lightly and at twenty miles south of Des Moines, the rain changed to snow. The rain which extended west, brought the Des Moines river up, and this morning the ice began moving out of that treacherous stream, with what results may be seen by visiting the Des Moines river bridge. This presents a deplorable sight. When the ice began moving this morning, it took out the south end span and about six hundred feet of the southern approach, rendering the bridge a complete wreck.

There were many and various rumors as to the damage done, flying rife on the streets, and another rumor that Mr. L. L. O'Blennis, the watchman, had also been carried off with the bridge, but investigation proved these rumors to be false. Mr. O'Blennis was injured, it is true, though in what manner and how seriously, cannot now be ascertained. The taking out of a span was an event that was not wholly unlooked for, as preparations were nearly complete to begin the work of repairing that end, it being a settled fact that it was sadly in need of overhauling.

The carrying out of this span completely cuts off southern traffic, as it blocks out the Keokuk and St. Louis line and the M. I & N. division of the Wabash. There will be no trains out on those roads today.

LATER.

Since writing the above we have learned from Dr. J. C. Hughes, Jr., who attended Mr. O'Blennis, that his injuries are of a serious nature indeed. The manner in which Mr. O'Blennis came to be injured is as follows: Seeing that the span which was swept away was doomed, and hoping to save as much of the property as possible, he ran out upon the approach to un-

couple the railings so that the span, when it should fall, would not pull in any more of the bridge. While engaged in this work and before he had completed it, the doomed span was swept away. In the crash Mr. O'Blennis was struck upon the head and back of the neck by a large timber. The force of the blow rendered him unconscious. He was picked up and taken to the house of a Mr. Ward, who lives near at hand, and Dr. Hughes called to attend him. Upon an examination it was found that the skull was not injured nor any bones broken, but that the force of the blow had produced concussion of the brain. Everything that medical skill and good nursing could do, was done to alleviate his sufferings, and before Dr. Hughes returned to the city the injured man was resting more easily and hopes are entertained that his injuries are not as serious as at first supposed. It will require some time and careful nursing, however, to bring him out, and as his case is in good hands, it is likely that the best of care will be given him.

The particulars of the accident are as follows: When the first, or wooder of the bridge fell out, the laterals that rest

on the fish-plates, fell with a crash, striking L. L. O'Blennis across the back of the neck and head. At the time of the accident L. L. O'Blennis, the injured man, his brother, John O'Blennis, the contractor who did the work last summer at the bridge, and H. Copeland, the ice man, were on the bridge. They had gone out to disconnect the irons, in order to keep the Howe truss from going out. While engaged in this work a field of ice, which was an immense one, struck the pier and carried it away and with it part of the Howe truss. About 600 feet of the bridge was washed away. Messrs. John O'Blennis and H. Copeland picked L. L. O'Blennis up and carried him to the watchman's office, under the impression that he was dead. When they reached the office it was found that O'Blennis was still alive and Dr. J. C. Hughes was promptly sent down by the officers of the Keokuk route, and rendered the necessary surgical aid. About noon John O'Blennis came up again after the doctor and stated that there was but little chance for his brother to recover from the effects of his terrible injuries.

THE LATEST.

At 3 p. m. Mr. O'Blennis was resting easily and, though by no means out of danger, his symptoms are regarded as being favorable.

dam for the first stone pier next to the Iowa shore has been sunk. These stone piers will be located just above those of the railroad bridge and will be four in number—one more than at present. They will be built parallel with the current of the river, and it is expected that three of them will be completed this Fall.

The St. L. K. & N. Ry are making preparations to put up an additional Howe truss span, making four in all. Two cars of timber to be used for that purpose passed through the city yesterday. The new bridge will be finished and ready for use some time next Spring.

DAILY GATE CITY.

THURSDAY MORNING, JULY 12, 1875.

DES MOINES RIVER BRIDGE.

The Adjourned Meeting of the City Council Last Evening.

Adoption of Resolutions Awarding the Contract for the Bridge.

The Council met pursuant to adjournment last evening, to award the contract for the substructure of the proposed Des Moines river bridge.

Present—The Mayor and Alderman Archer, Cunningham, Daugherty, Estes, Gallagher, Hubenthal, Leindecker, McKenzie, Sample and Smith.

Alderman Sample moved that the resolutions be considered seriatim. Lost.

The question then came up on the motion of Alderman Daugherty, for the adoption of the resolutions offered by the Bridge Committee, [published in yesterday's GATE CITY.]

Alderman Sample called for the yeas and nays, and the Aldermen voted as follows: Yeas—Aldermen Archer, Cunningham, Daugherty, Estes, Gallagher, Leindecker, McKenzie and Smith.

Nays—Aldermen Hubenthal and Sample. The Council then adjourned.

DAILY GATE CITY.

THURSDAY MORNING, JULY 15, 1875.

—We will soon have more agitation on the bridge question. A movement is now being inaugurated to press upon the attention of the City Council the importance and extreme necessity of bridging Bloody Run, at Seventh street. The expense of the work is estimated at from nine to ten thousand dollars. A bridge at the point designated would certainly be of very great convenience to those residing in Reid's Addition—a portion of Keokuk that is gradually growing and rapidly improving in every particular. But are the city's money bags prepared for such a draft?

THE GATE CITY:

SATURDAY MORNING, NOV. 6, 1875.

Des Moines River Bridge.

Work under the new contracts for the construction of a combined highway and railway bridge over the Des Moines at Buena Vista has been commenced, and will be prosecuted with vigor by the contractor, Capt. J. W. Kittle, who is personally superintending the enterprise. The coffer

The Gate City. Weekly

WEDNESDAY, SEPTEMBER 6, 1871.

That Des Moines River Bridge.

EDITORS GATE CITY:—I am glad to note the interest you take in that Des Moines River Bridge. Its importance to Keokuk can hardly be over-estimated. We have waited year after year for the right time for us to act. That time seems to be near at hand, if it is not already here.

A definite proposition is now before our City Council, made by the railway company now building a road from Canton, Mo., to this city. The proposition is to build a combined Wagon and Railroad Bridge at Buena Vista, and it asks of us a local subscription of \$25,000. This proposition has been referred by the Council to the people of Keokuk—its merchants, manufacturers and holders of real estate—for their instructions.

Do they feel any interest in this matter? If they do, let them show it by attending the adjourned Citizens' Meeting to be held next Friday evening, the 8th inst at the Court House.

This proposition, though official, is lame in one essential particular. It does not state the cost of the proposed bridge, so that we might judge whether the amount asked of us to build a wagon way upon it, would bear any just proportion to its cost. This we must know before we can act intelligently upon the proposition.

Again, this proposition opens up, or suggests several other important questions, some of which I will mention.

Is the proposed location at Buena Vista the best one for our interests, namely: To reach the farmers of Clark county, Mo.?

Is the bridge which that Company proposes to build of sufficient capacity and strength to insure its permanency?

Is the Railway Company which makes the proposition, or, are any of its managers in any way identified with the interests of Keokuk? If not, what reason have we to believe that they would keep up a free wagon bridge after they had spent our money?

Has said Company enough of pecuniary responsibility, as a corporation, to justify us in believing that its obligations or contracts would be of permanent value to us?

If not, would not a sale of the road, under a foreclosure of its mortgage bonds, carry with it all our rights and interests, and sweep away all the contracts we may make with the Company? These are grave matters for consideration, connected with this proposition.

There are two other projects for securing the "consummation so devoutly to be wished," namely: An iron bridge, in connection with the Southwestern roads, and an exclusive wagon bridge to be wholly under our own control, to be located wherever we please and free from the dangers and delays of all railroad bridges.

I am not sure but that our true policy would be to build our own independent bridge.

A good and substantial wagon bridge can be built for \$30,000 to \$35,000. This would not be a heavy outlay for the city of Keokuk, assisted, as it doubtless would be, by the counties of Lee and Clark, both of which would be materially benefited by such a structure. Or, such a bridge could

Citizens! Attend the meeting at the Court House next Friday evening and perhaps in the multitude of counsellors we may find wisdom in the matter.

be railroad and wagon bridge, and would be under our control instead of being controlled by parties who had little or no interest in the local interests, which is the great objection we desire to guard against.

which this city and Clark county would derive from a direct and easy communication with each other. An independent bridge would be free from the risks and delays incident to a combined

be built, erected by a corporate company of the citizens of Keokuk and Clark county, and, if made a toll bridge, would undoubtedly be a paying investment in itself in addition to the large advantages of having

KEOKUK, IOWA
R. J. BICKEL

COUNCIL VOTES UNANIMOUSLY TO ACCEPT BRIDGE

Concrete Design Was Also Considered But Accept- ance of Steel Bridge Does Away with Bond Issue and Election.

— Aug 1/30

The city council today passed a resolution unanimously accepting the proposition of the Iowa State Highway commission to build a steel viaduct over Soap Creek at Seventh street, for \$62,000 at no cost to the city, except the maintenance of the structure exclusive of the roadway. The acceptance of this type of viaduct will do away with the necessity for an election and subsequent bond issue to which the council is opposed.

There were two propositions submitted to the city, one of a concrete viaduct to cost \$80,000, the city to pay the difference of \$18,000 between the two plans; and the other the steel viaduct costing \$62,000 which would be presented to the city by the highway commission. The council preserved an open mind, made investigations and listened to the arguments pro and con, weighing them all.

Today Mayor Long announced at the city hall that the council had taken the final action and would accept the steel bridge.

Council Collects Data.

"The city council," the mayor said, "has delayed taking definite action on the Seventh street viaduct until it could get some figures on the maintenance of concrete bridges. As a result of this investigation they are deciding upon the steel structure."

Boiling down all the figures it was found that maintenance of the steel bridge annually would be \$640 against \$3,322 for the concrete.

Figures are Submitted.

The following figures submitted by the council in reaching their conclusion to take the steel bridge are of interest to local tax payers:

The Capitol extension viaduct, Des Moines, cost \$65,000. It was built in 1916. Repairs in 1927 cost \$15,000.

The Locust street bridge, Des Moines, cost \$124,000. Built in 1908, it was repaired in 1929 at a cost of \$34,883.

The Main street bridge in Dayton, Ohio, cost \$143,000. It was built in 1903, and repaired in 1928 at a cost of \$68,000.

When the concrete bridge has to be replaced, it is a total loss. Steel bridges can always be salvaged at a good rate. Engi-

neers are now figuring on the value of our old Seventh street viaduct.

Comparison of Costs.

A financial comparison of steel and concrete for the Seventh street bridge, assuming that the city maintains the bridge, but not the slab; that the city pays all costs above \$62,000, and that the useful life of the bridge is forty (40) years, presents the following interesting facts, according to the council:

The floor slab will cost \$22,000 on either bridge, bringing the

maintenance on the steel bridge to \$40,000 and on the concrete bridge to \$58,000. The estimated cost of maintenance annually on steel is .8 percent, or \$320 on \$40,000. For forty years, 40x\$320 equals \$12,800. Without attempting compound interest, the interest on maintenance for twenty years at 5 percent equals \$12,800, the total cost for forty years thus being \$25,600, or \$640 per year.

With concrete costing \$18,000 more than steel, the interest on \$18,000 at 5 percent for forty years is \$36,000, making the city's total investment \$54,000.

The estimated cost of maintenance on concrete is 1.7 percent. This amounts on \$58,000 to \$986 annually, or \$39,440 for forty years and the interest on this maintenance for forty years is \$39,440, making a total expenditure over a term of forty years of the total investment, \$54,000, plus maintenance—\$39,440, plus interest \$39,440—total cost \$132,880, or an annual cost of \$3,322 for the concrete as compared with an annual cost of \$640 for the steel.

Steel Viaduct is Accepted for Seventh Street Over Soap Creek

COUNCIL VOTES UNANIMOUSLY TO ACCEPT BRIDGE

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Creek

DAILY GATE CITY

SEVENTH STREET BRIDGE PLANS ARE BEING MADE

Viaduct Blue Prints Will Be Ready for Bidding Within Next Few Weeks According to Word From Riepe.

Hon. C. C. Riepe of Burlington member of the State Highway Commission, advises the good roads committee of the Chamber of Commerce that the plans for the Seventh street viaduct are "in the mill," which means that the bridge designing department will have the completed plans ready for bidding within the next few days. It is confidently expected that work on this large structure will provide no small amount of employment during the winter months.

NOV. 6, 1930

"THE GREAT DUST HEAP CALLED HISTORY"
B. J. BICKEL KEOKUK, IOWA

Preliminary work on the new Seventh street viaduct was commenced by a small force Friday morning, but was suspended at noon on account of rain. With the return of fair weather and the arrival of more equipment, work will be in full swing, probably within a week or ten days.

Traffic over the old bridge has been shut off, but the structure will not be torn down for some weeks as it will afford the contractor access to and fro over Soap creek, facilitating the movement of material and of the workmen.

The plans for the new viaduct indicate that this structure will be without the "elbow" which the present bridge contains.

To Be 600 Feet Long.

The highest concrete piers will be forty-three and forty-five feet respectively. The main structure will be approximately 400 feet long but the entire structure will extend from the intersection of Palean and Seventh streets to the alley between A and B streets on Reid, approximately 600 feet with an incline of fourteen feet.

Reid street from the end of the viaduct to C street will be graded to an incline approximately the same as the viaduct, eliminating the hump between B and C streets.

To Move Houses.

The state highway commission has purchased four pieces of residence property along Reid street between A and B streets, and the houses will be moved at once. This is made necessary by reason of the angle at which the viaduct will strike Reid street.

The plans for the new viaduct show a very attractive and practical structure. The floor will be paved with cement requiring practically no maintenance over a long term of years. The iron railing on the outside of the sidewalks, which are a foot higher than the floor of the driveway are of pleasing design and the plans for concrete piers call for graceful although substantial construction.

Fred W. Long was advised by Fred R. White, chief engineer of the commission this morning. Mayor Long asked the engineer to hasten their decision if possible, as the city had promised to look after the interests of the local laborers.

The mayor said that some of the men reported yesterday that forty cents was being paid, but today another group reported that thirty cents was the wage offered. With this report the mayor got in touch with the highway commission's chief engineer, and asked for an early agreement between the commission and the engineering contractors.

In his conversation with Engineer White, Mayor Long reviewed the situation here, which he said had been keeping the men restive and had brought a couple of hectic days to the city. He told the engineer of his conferences with the men and the promise that the city would protect their interests.

In the conference in the afternoon yesterday with district engineers, the mayor explained that the thirty cent wage paid here was only on emergency work to the unemployed, and was not the normal wage scale.

deck plate girder laid to divide the driveway from the sidewalks. This will make it impossible for pedestrians to get onto the driveway or for cars to climb the barrier and encroach on the sidewalks.

Over Thirty at Work.

The Widell company, bridge contractors who are building the new crossing, have some thirty or more men on the job now. The main arch to the bridge is being completed now, and piers are being built which will support the steel framework. The piers are being anchored into the solid foundation of the rock formation into which the bridge builders are digging. Strange as it may seem Supt. Knoff of the bridge company stated that more difficulty had been encountered with the soapstone formations than with the blue limestone. While the latter is harder, there are seams in the formation which make it possible to drive wedges and to break off the ledges.

Blasting processes have been used in digging for some of the foundations, but a point has been reached where the rock work is being done by hand with sledges and drills. The rock bed is being penetrated some six inches to a foot to make the anchorage secure in case there should ever be a severe flood let loose through Soap creek and "Bloody Run," of sufficient force to cause a slipping of the piers.

Much false work has been constructed in the building of the forms for the big pier at the Reid street end of the viaduct. Concrete is mixed on the old bridge and is poured down a chute from this level to the pits where the new foundations are being built.

From the general plans and from the appearance of the work already completed it is evident that the bridge will be one of the most artistic structures that has been constructed in this section.

Other Bridge Plans.

Information has been received this week, also, by Secretary W. E. Holmes of the Keokuk Chamber of Commerce from the Iowa State Highway commission to the effect that preliminary plans for the new bridge over the Des Moines river, joining the Seventh street project have been made and are being submitted to the Missouri Highway commission for approval.

Once these plans are approved it is expected that the complete blue prints will be made, and surveys can be completed for grades so that if the contract is let by fall the contractor can have all winter in which to work on the construction of the abutments.

DAILY GATE CITY

MAY 23, 1931

**NEW VIADUCT
OVER SEVENTH
TAKING FORM**

**Unusually Artistic Bridge
Construction is Found in
Building of Bridge
Over Soap Creek.**

Two months of work on the new Seventh street viaduct begins to show results, and gives an idea of the size and beauty of the new structure which will be constructed over Soap Creek connecting Seventh street with the new paving to the Des Moines river. The bridge will have a gradual rise from the present anchorage of the old bridge to the alley between B and C streets on Reid. This hump will be taken out when the new viaduct is completed.

The bridge floor which will be of concrete will be six to seven feet higher than the present level at the commencement of the bridge at the north approach. It will rise gradually to something like twenty-six feet above the present level of the floor as it comes out on Reid street. There will be a vehicle driveway flanked by five-foot sidewalks.

A steel lattice of particularly artistic design will form the guard rails, and there will be a

DAILY GATE CITY

APRIL 2, 1931

**MAYOR ASKING
AGREEMENT IN
WAGE MATTER**

**Talks With Engineer White
of the Highway Commission Who is Taking
Up Subject with
Contractors.**

The Iowa State Highway commission is taking up with the Widell company of Mankato, Minn., contractors on the Seventh street viaduct, the question of wage scale for laborers, Mayor

724 ST BRIDGE

THE GREAT DUST HEAP CALLED IT'S LIT.
R. J. BICKEL KEOKUK, IOWA

THE GATE CITY

KEOKUK, IOWA

SATURDAY MORNING, APRIL 10.

The Rapids Improvement.

Its Importance one that has
Long been Felt.

PROGRESS OF THE WORK.

About One-Fourth of it has
been Completed.

A Day with the Engineer of the Section Work.

It is needless to recall to the people of Keokuk the many and various plans urged and attempted since 1837 for the improvement of the navigation of the lower or Des Moines rapids of the Mississippi. There are few now living here who have not heard the long-winded arguments of the advocates of all sides—"build a canal around the rapids," "build a canal alongside of the rapids," "blast a channel through the rapids," and some in despair exclaim with the impracticable few, "dam the rapids." All plans and projects however, whether supported by that sturdy pioneer of Western improvement, General Curtis, or effeminately essayed by the effete efforts of a transcendently scientific endeavor to blast a channel eight miles long, six feet deep, and two hundred and fifty feet wide, from the "sucker chute," just above Keokuk, to the "Nashville crossing," a little below Nauvoo, the monuments of which noble enterprise are visible to this day, during low water, as they protrude their unsightly heads from the middle of the river, opposite the shops of the North road—all these plans and projects have failed: and it has descended to our day and to our Congresses, with their enormous land grants to railroads, and immense appropriations for other purposes, to find work for some of our soldiers fresh from the triumphs of war, by appropriating the loose change of our wealthy Uncle in clearing the obstructions from his commercial veins and creating a healthy circulation of the green representative of vitality, thereby knitting the bone and sinew of the North and South into a new and stronger garment. It remained for our Congresses to pass an act on June 23d, 1866, for the survey of the lower or Des Moines Rapids of the Mississippi, and under that authority the Ad-

jutant General's office at Washington issued a special order, August 3d, 1866, appointing Brevet Major General J. H. Wilson (then) Captain Corps of Engineers, U. S. A., to superintend the improvement of the said rapids. The General immediately set to work to carry out this order, by ransacking the dusty pigeon holes of the Engineer Department in Washington for old maps, profiles and documents pertaining to the matter in hand. He found that the leader of the armies of the late Confederacy, General Robert E. Lee, had wasted his sweetness, laved his blistered feet and cooled his heated brow upon these memorable pests of inland navigation by a useless and unintelligible survey of the same in 1837.

The next mouse given up by the mountain of Government archives was an elaborate map and immensely scientific solution of the navigation difficulty, embodied in a report on the bottom of the river, by Lieutenant H. K. Warren, of the Topographical Corps (since Major General), in 1854. This scientific solution cost the Government some two or three hundred thousand dollars, and a barely visible improvement of the navigation across part of the lower chain.

General Wilson not arriving at any satisfactory conclusion by dirtying his hands with these dusty records, "rallies upon the center," and "deploys his skirmishers." H. A. Ulfers, Civil Engineer and late Bvt. Lt. Colonel of Volunteers, and E. F. Hoffman, Civil Engineer, to make another survey of the topography, hydrography, geology and hydraulics of these rapids. The immediate effects of this survey helped to swell the volume of the dusty mountain of records in Washington. The ulterior effect was an appropriation by Congress of \$700,000 for excavating the prism and building the embankment walls for the canal for the improvement of the Des Moines Rapids.

The papers of the country were at once filled with advertisements for proposals for this work. The work was let September 4th, 1867, and upon September 25th, 1867, the Government through its agent, Gen. Wilson, entered into a contract with Wm. Henegan and John Henegan, his son, to do the work—they having bid some two hundred and seventeen thousand dollars lower than any one else.

"Now is the winter of our discontent
made glorious summer—"

"Bind up my wounds, * * *

A horse! a horse! my kingdom for a horse."

And the Messrs. Henegan with the loud braying of their own horns, rushed frantically at the work—country taverns, city saloons, railroad stations, blank walls and fence corners are covered with their posters; they want men, and in a remarkably short space of time their call for men is answered. Crowds come pouring in; the supply exceeds the demand, and in about just the same length of time they find they don't want so many men. Their cry is answered, but the work goes slowly on. Why is this thus? How happens it that these descendants of delvers in earth, since the memory of man ranneth not to the contrary, cannot excavate

99
a prism three hundred feet wide and build an embankment an average of, say eighteen feet high, protected by rip rap. Oh! ye ambitious contractors, hoping for changed prices and leniency from the Government; look and heed—it was low prices, and those very prices swamped our friends, the Henegans, and after something more than a year's work, they succumbed under the effects of "circumstances entirely beyond their control," and the Government declared their contract abandoned, Oct. 24, 1868. But the Government could not afford to let this work lie idle, because Wm. Henegan and John his son were unable to excavate earth and haul it nearly two miles, more or less, for thirty-three cents a yard; so on Oct. 28th, the engineers in charge were ordered to carry on the work with Henegan's tools, and to work they went, repairing Henegans bad management as best they could, and endeavoring to get the work into ship-shape.

Now again do the papers teem with advertisements of the reletting of the section work of the canal, and proposals for the balance of the work were opened in the U.S. Engineer's Office here, Nov. 18, 1868. The lowest bidder was Mr. J. J. Dull, of Harrisburg, Penn., an old contractor, and a man of great and varied experience on public works. Unfortunately, however, he bid without seeing the work—as our quondam steamboat acquaintances would say, "he went it blind." But even then his prices were some twenty per cent. higher than Henegans, so he concluded he could "see" this little arrangement, make his blind good, and if the worst did happen, he could "call," and losing this amount wouldn't effect his pile very much anyway.

Mr. Dull advised General Wilson of his acceptance, and that he would be prepared to begin on the 1st of January, 1869.

The Government in the meantime pushed along the work until December 24th, 1868,

when they "shut down," handed Mr. Henegan back his tools, paid off the laborers, and on the 1st of January Mr. Dull pitched in and took hold of the work himself. He immediately sent East for some experienced foremen who have worked for him in the Hoosic tunnel on the Pennsylvania railroad and canals, in the Chicago lake tunnel and Cincinnati tunnels, of which works he has been the successful contractor, and from among those men he appointed Wm. Douglass superintendent of the work. Here we have "the right man in the right place," and for energy and economy in carrying on the work, thorough and workmanlike manner of doing it, there is not his equal in this western country—the evidences of which show for themselves in the advanced stage of the work at this time.

About one quarter of the work is done; at the present rate of expenditure for Mr. Dull's work, the appropriation will last about eighteen months. By that time, in all probability, about three-fourths of the work will be finished, and then our noble representatives in Congress assembled will have to appropriate another slice out of the treasury to finish up with.

Now, leaving the contract part of the work, we turn to the Engineering, or to that part of the work that pertains to the location and construction, as mention has already been made of the preliminary reconnoissance by Col. Uffers and E. F. Hoffman, civil engineers.

Gen. Wilson being a military engineer, and familiar only with that class of engineering requiring the rapid construction of passable roads through impassable places, the temporary bridging of unfordable streams, and the construction of such canals as our army essayed opposite Vickburg, felt the necessity of a little practical engineering experience. He didn't have to look long, for our country, fruitful in everything that man needs, is also fruitful in men for the people's need; and when a place is found for a man, there is always a man for that place. Gen. Wilson found his man in Albany, New York. A note to the Secretary of War was sufficient, and under the authority of a joint resolution of Congress, Gen. A. A. Humphreys, Chief of Engineer Corps, U. S. A., upon September 24th, 1867, appointed Daniel C. Jenne, Esq., as United States Civil Engineer, and ordered him to report in person to General Wilson here.

Immediately upon Mr. Jenne's arrival at this place, Gen. Wilson gave him full control of the work and with the usual orders left him to work out "his sum." Mr. Jenne, however, was at home in the field of location and construction of canals. He brought the thorough knowledge of a self made American, and the extensive experience of thirty years civil Engineering on the New York Canals, and the Wisconsin Canals and railroads, to bear upon this knotty problem of a seven and a half mile canal, with three locks and eighteen feet lockage, and strange as it may appear, by the 25th of October, 1867, he had the Canal and locks located and "staked out."

Such was the effect of good, clear headed common sense engineering, and all of the practical evidences of a thorough workmanlike manner of location in the alignment of the present Canal, and the advantageous position of the locks are due to Daniel C. Jenne. And the government loses its chief Engineering brain, as well as a high minded, honest Christian gentleman, when his resignation will be accepted to enable him to take charge of the Illinois River Improvement, under the auspices of the State of Illinois, as the following notice from the Chicago Tribune, of March 29th, would seem to indicate:

"The Board of Commissioners recently appointed by Governor Palmer, under the Canal and River Improvement Law, passed at the recent session of our General Assembly, consisting of J. G. Gindele, of this city, Joseph Utley, of Dixon, and Virgil Hickox, of Springfield, met at the Tremont House on Thursday last, and continued in session until Friday evening. J. G. Gindele was made President of the Board, and Joseph Utley, Secretary. After this organization, the commission proceeded to mature plans for future operations. The first work was to select a Chief Engineer, and Daniel C. Jenne, of New York received a unanimous appointment. Mr. Jenne has had thirty years experience as a civil Engineer, and no man in the country has a better reputation. For eight years he was Superintending Engineer on the east division of the New York canals, which embraced not only the Erie Canal, from

Utica to Albany, but the Champlain and Black River Canals, including the improvement of the Black River, which Mr. Jenne rendered navigable by the employment of wing dams. He was afterwards employed on the Fox and Wisconsin rivers in Wisconsin. Two years ago he was appointed United States Engineer by Secretary Stanton, and assigned to duty, under General Wilson, on the Des Moines Rapids Improvement, and is now engaged in that work. In securing the services of Mr. Jenne, the commission have assurance that the work will be well done."

The Engineering duties will now fall in all probability, upon Lewis C. Overman, Jr., Captain corps of Engineers, U. S. A., who was assigned to duty on this work as Inspector, &c., by orders of November 26th, 1867, and has had something over a year's experience in civil Engineering.

Such is the status of the personnel of the government employes for the improvement of the Des Moines Rapids of the Mississippi. And of the work itself about one-fourth of the section work is partially completed—neither the Guard Lock nor Middle Lock has been touched, and when the water in the river lets us see inside the Coffor Dam of the Lower Lock, it is a professional eye alone that can tell what work, if any, have been done.

By patience and persevering expenditure of Uncle Sam's money, however, the steamboat pilots over the lower rapids will most probably, in some dim futurity, have to confine their channel knowledge to the guiding of rafts and such noble crafts over the perilous "chains" of the Des Moines Rapids; and the traditionary terrors of "Mechanics' Rock," "Spanish Chain," "Studhorse Chute," "Gypsie Patch," "Montebello Crossing," and "Sucker Chute," will serve to while away the tedious hours of the "boys" in the pilot-house, as they quietly and safely pass through the great Government Canal which surmounts the first obstruction to the navigation of the Mississippi fourteen hundred miles from its mouth.

We spent the day along the line of the improvements yesterday in company with our friend Mr. E. H. Worrall, Engineer in charge of the section work.

Mr. Worrall is so thoroughly acquainted with all the details of this magnitudinous enterprise, and such an agreeable gentleman, that our trip was not only a source of much valuable and interesting information to us and our readers as well, but one from which we derived very great pleasure.

The want of time and space forbids us saying this morning a great deal that we have yet to say concerning this work, so we'll quit with a

[TO BE CONTINUED.]

THE GATE CITY

KEOKUK, IOWA

TUESDAY MORNING, APRIL 13.

The Rapids Improvement.

PLAN OF THE WORK,

THE ROCK EXCAVATION

Relics of Antiquity.

(Concluded.)

The Rapids Improvement might be made the subject of a small volume. We are not ambitious in that direction, however, and will conclude our previous notice of this magnitudinous enterprise with a few items of interest connected therewith, which we have taken the pains to collect. Of course we cannot go into detail, and particularize every branch of the improvement.

The Canal is to be seven and one-half miles long, extending from Nashville to Keokuk. Its width at the water's surface will be 300 feet in embankment, and 250 feet in rock excavation, and in low water, to be 5 feet deep. The embankment will be ten feet wide on top, and two feet above high water mark. The average thickness of the rip-rap protection will be two and one-half feet. The slope of the rapids from Nashville to Keokuk is two and four-tenths feet per mile, making a total fall in that distance of eighteen feet. From the guard lock to Judge Ballinger's residence, a distance of a little more than one mile, one hundred and forty thousand cubic yards of rock are to be excavated from the prism of the canal. The average depth will be about two feet. The rock which is now being taken out is called the Churty lime stone. When first exposed to the air it is of a flinty substance, and of almost adamantine impenetrableness, but after remaining in the open air for a time it crumbles. It is thereby rendered unserviceable in the construction of a very large portion of the wall. Here and there are patches of gray or Keokuk limestone, which is said to be equal in quality to any of that taken from the best quarries in this section. This is used for facing the embankment walls. Two coffer dams have been constructed, one at the head of the works and the other near Stotts' Mill.

Two rotary pumps similar to the one used at the lower lock, but of less capacity, are used at the dams.

The force at the present consists of three hundred and ten men, with a proportionate number of teams and tools, a large majority of which are employed in excavating rock in the prism of the canal, just below the guard lock, and in the construction of the embankment walls.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

"THE GREAT DUST HEAP CALLED HISTORY"
R. L. BICKEL KEOKUK, IOWA

THE GATE CITY.

KEOKUK, IOWA:

FRIDAY MORNING, NOV. 13.

THE DES MOINES RAPIDS IMPROVEMENT.

Introductory—The "Poets"—Canals in General, Ancient and Modern—Our Canal in Particular—General Curtis—The Des Moines Rapids—The Work Done—The Engineer Corps.

The observant reader will notice that we have laid ourself out for an exhaustive treatment of this subject. Having neglected it too long, we come to it now with the fellest of purposes prepossessed to so treat it as to make up for our dereliction on this score, and make our reader wish he had kept clear of it altogether.

In primis, then, preceding the mass of encyclopedic erudition which we have in mind to overwhelm everybody with, in the commencement of this disquisition, it will of course occur to you, as it occurred to us, that the poets should be laid under contribution, and be made to add their rhythmic embellishment to our theme. The difficulty here has been in aptness of quotation. If the danger of navigating the Rapids, with their rocks reaching with destructive intent up to cleave the boat's boards, is the suggestive stand point, then Salario may have spoken the very words we want—

—Should I go to church
And see the holy edifices of stone,
And not bethink me straight of dangerous rocks?
Which touching but my gentle steamboat's hull
Would scatter all her groceries on the stream;
Enrobe the roaring waters with my silks,
And, in a word, but even now worth this,
And now worth nothing.

That is Shakspeare with emendations and corrections.

If in didactic mood, the canal itself were thought of, what could be fitter than this from Byron's Ode on Venice?—

Better though each man's life blood were a river
That it should flow, and overflow, than creep
Through thousand lazy channels in our veins,
Damn'd like the dull canal, with locks and chains.

This part of the subject is an attractive one. We commend it as a matter for research to that highly literary and classical chap that writes the *New York World's* editorials.

And this whole subject which we now have in hand, and which we will only be able to give imperfect and partial treatment, is one in which that *World* chap would revel. He would illustrate it from all history, garnish it with rhetoric, take it through the devious channels of a world of learning, decorate it with graceful fancies, and crown it with the flowers of Poesy. He would show how that canals are for purposes of draining, of irri-

gation, of supplying towns with water, or of inland navigation. As to each point he would have an array of authorities. He would illustrate the first by citing the canal which extends from Lake Celano to the river Liri; the second by the canals of ancient Egypt; the third by the Roman, the Hertfordshire, or the Croton Aqueducts; and the fourth by citing all the rest of the canals in the world. Under this latter head we should expect to hear of those large canals—"fossæ Philistinæ"—referred to by Pliny, at the south of the Eridanus in Liguria, and the conjectured work of the ancient Canaanites. Also the account from Herodotus, of the grand designs of the Cnidians, a people of Asia Minor, who in the long dead centuries tried to dig a canal through the isthmus which joined their territory to the continent. And of the attempts of the ancient Egyptians, away back in the days when the Shepherd Kings were not myths, to complete that Suez Canal which it has been left to our own days to finish. Of the attempts of Greece in the palmy days of her commercial prosperity to open a way from the Ionian sea into the Archipelago, by a canal across the Isthmus of Corinth; of the canal from the Rhine to the Issel of the old Roman Drusus; of the Great Canal, and lesser canals of the pig-tailed Celestials; of the canals of Briare and Languedoc; of the manifold channels of this kind which now fret the Netherlands, and France, and England, and Russia, and nearly all the countries of Europe with the veins of commerce; of the glory of DeWit Clinton and of the Erie Canal—of all this and any conceivable and inconceivable amount more, should the delighted reader read if the *World* chap were running this machine. We abdicate without further contest to him, the realms he would here conquer by his pen and subject to his rhetoric.

The improvement of the Rapids of the Mississippi, have a history. We won't try to recite it here. Before the absolute anto-crazy of the railway was conjectured; when it was thought that all the products of the Northwest must get to market by water, or not get to market at all, then it was demanded that the Mississippi should be so improved that it should be navigable by boats from the Falls of St. Anthony to the Gulf. The shipper away up there to the Northward wanted to put his wheat, or other products upon a boat and not change bottoms until he was at New Orleans. And it was claimed that the tributary streams should be so improved, that the products of their shores could be floated upon their bosoms to market. The railway has changed the exclusiveness of the sway of this carrier of the trade and travel of the internal continent. Yet it is a commercial and a national necessity that the Mississippi river should be so improved as to be brought into the best possible competition with railroads. Then, if the railroads can still compete—it is well; if not, let them quit the field.

This present is not the first attempt to improve the Rapids between Keokuk and Montrose—called the Des Moines Rapids. The first was several years ago. The plan then tried was by blasting and removing the rocks from the bed of the river, and so open-

103
ing a channel that should be navigable at any stage of the water. That plan was a failure. One nearly similar is now being tested in the improvement of the Rock Island Rapids. Three years ago a Government survey was made by General Humphreys, preparatory to the work now being done. He recommended a canal through the Rapids at Rock Island and around the Rapids here.

This plan for improving the Des Moines Rapids, was that constantly maintained by that noble Roman General Curtis. An able engineer, a tried patriot, a clear-headed far-seeing statesman, the father of the Pacific Railway, with the quality of strong sense—to be nearly always right, the future will know and honor him, even more than his own times.

The Des Moines Rapids are a series of ledges of rocks extending with irregular continuity, across the bed of the Mississippi river, between Montrose and Keokuk—a distance of about thirteen miles. In that distance there is a fall of about twenty-two feet. These ledges are most numerous, and the Rapids greatest between Nashville and Keokuk, something less than eight miles. It is for this distance the Canal will be made. Above that to Montrose, the Canal will be made by clearing out the channel of the river.

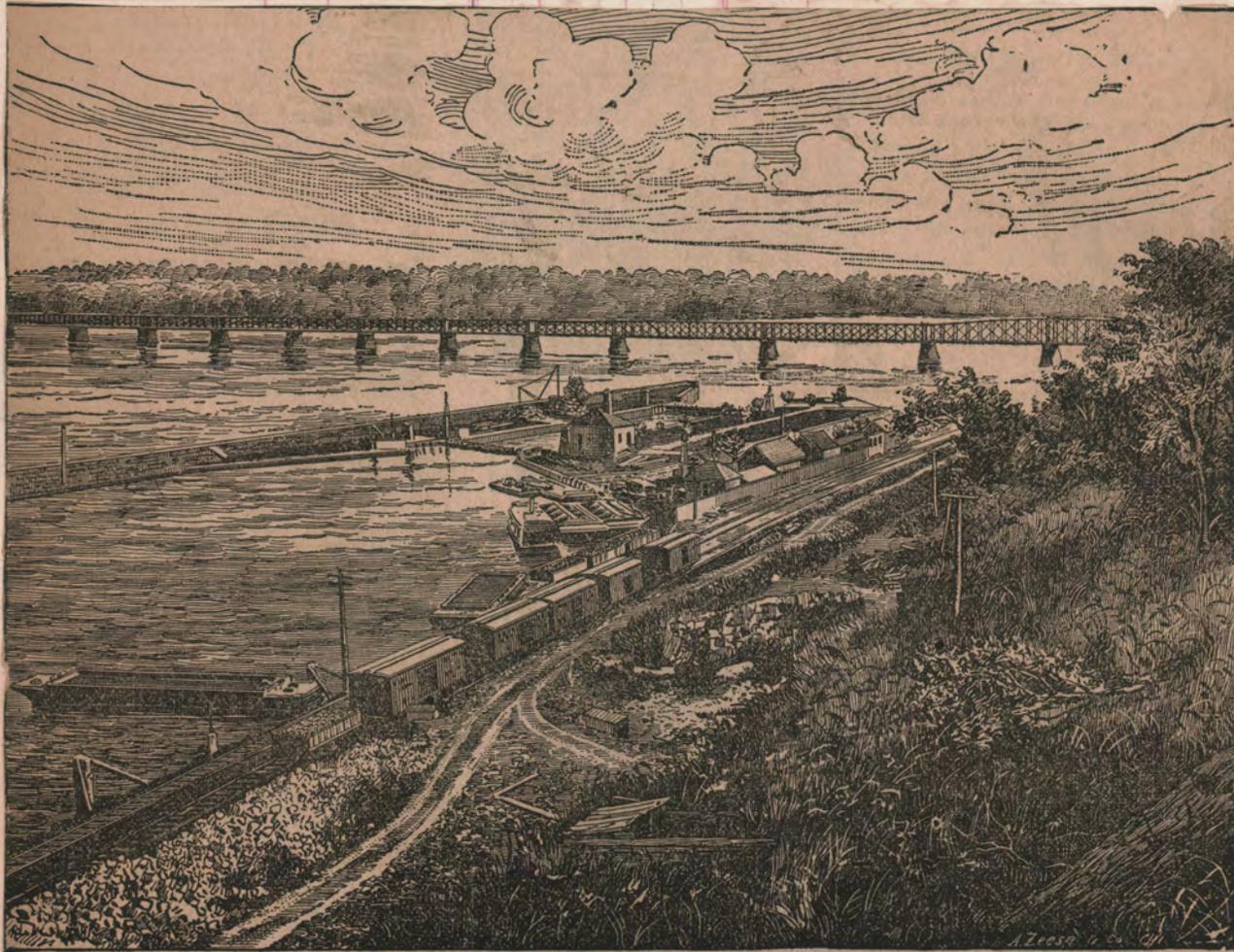
Something more than a year ago the contract for constructing the embankment wall, and excavating the prism of the Canal was let to Messrs. Hannigan & Co., of Ohio. The work which they thus took in hand, was this: The Canal is to be about 7½ miles long, extending from Nashville, Iowa, to Keokuk, Iowa. The width at the water surface inside of the Canal is to be from 300 to 400 feet in embankment and 250 feet in excavation, and in low water to be 5 feet deep. All the ma-

terial excavated from the Prism of the Canal to be used in building the embankment. The latter, throughout the greater part of the distance will be about 300 feet from the Iowa shore. Where rock excavation occurs the bottom of the Canal will have a slope of 1½ inches to the mile. The embankment to be built of earth, clay and rock; to be ten feet wide on top, including the rip-rap covering, and to be two feet above high water mark, with slopes of 1½ base to 1 vertical on the outside, and 1 base to 1 vertical on the inside. The average thickness of the rip-rap protection to be 2½ feet on the outside; 2 feet on the inside, and 1 foot on the top.

In this work the contractors, for more than a year, kept a force of from one hundred and fifty to three hundred and fifty men employed. Their bid was the prompting of a sanguine inexperience. It was ruinously low. A few weeks ago they threw up the contract, unable to go on with it. There is to be a new letting of it on the 18th inst. Meantime Government keeps the hands at work upon the Canal.

Messrs. Hannigan & Co. completed about one-ninth or more of the work. The work done, and how Canals are made, will be pen-tographed hereafter.

The Corps having the Improvement in charge are General J. H. Wilson, U. S. A., Chief Engineer in charge of the entire Improvement, here and at Rock Island; Captain L. Cooper Overman, of Engineers; D. G. Jeanne, Civil Engineer; Messrs, E. H. Worrall and O. L. Witmore, Assistant Engineers. These gentlemen, with their Clerks, are *pro tem.* residents of this city. And their social merits have won them hosts of friends, while their professional skill is the highest guarantee that the work they have in charge will be well done.



View of the Lower Lock of the Great Canal and the Railroad and Wagon Bridge at Keokuk.

THE CANAL AND ITS CAUSATIVE RELATIONS TO MALARIOUS FEVERS.

Facts in that Connection from Dr. Jenkins--The Remarkable Answer of Dr. Salisbury to the Question: "What is Malaria?"--Probable Identification by him of the Malarial Essence with the Spores of a Plant.

The present season is very favorable for the generation of malaria. "The chills" are said to prevail to an unusual extent from the Atlantic to the Pacific. They are certainly more frequent in this vicinity than usual. It appears to be a popular idea that the prevalence of ague hereabouts is referable to the canal. It is without doubt true that the conditions of soil incident to the construction of this improvement has done much to engender malarious diseases on its borders. But it is important that the relations of this great work, henceforth a permanent element in our hygienic surroundings, should be well understood, so that the reputation of Keokuk for salubrity, and general exemption from malarial influences shall not be damaged by an erroneous impression that the canal is to exert an influence prejudicial to health. The probabilities are that it, when completed, will in no wise prove a cause of disease, though in the process of its construction, conditions will arise in which, as at present, it will be found to be the seat of unhealthy emanations.

That the canal construction has been a cause of ague is clearly shown from the accompanying statements, kindly furnished by Dr. G. F. Jenkins, who has for some years done a very large practice among the canal laborers. It will be noted that the malarial fevers prevailed where the bottom of the canal was exposed to the drying influences of the weather; where the water filled the canal, they did not prevail; and along those sections where the desiccating bed had been recovered with water, the ague ceased to be frequent.

STATEMENT BY DR. G. F. JENKINS.

In the early part of June malarious fevers, of an intermittent and remittent character, began to make their appearance in a regular endemic form. Previous to this time there had been only a few cases, occurring in those persons who had suffered violently from malarious poisoning the preceding year.

From about June 15th to July 15th these fevers were almost wholly confined to those families living immediately adjacent to those portions of the canal continually drained at this time, by pumping. In families living in such localities, nearly every member was attacked, and in several instances four or five in a family were taken on the same day and at about the same hour--some with the intermittent, and some with the remittent form of malarious fevers.

During this month, or about that length of time, people living above, below and in between these portions of the canal that were drained, or in other words where the canal contained water, were comparatively very free from this fever.

Nashville, where the malarial disease has been so prevalent for the three summers past, while the water was kept pumped out and the work in progress, has this year, with the canal full of water, been singularly free from chill influence; and especially was this the case during the month of which I speak.

The whole of that portion of the canal above Sandusky, has contained water all summer. There are many families along it who can boast of not being visited by ague. This I am sorry to state very few families between here and there can say.

During the month of which I speak, men who lived on the high lands a quarter or a half-mile from the canal, but worked on it were very seldom attacked.

After about the middle of July, these fevers became so universal, that, of course, the above difference as to localities ceased to be so manifest. This general prevalence, however, as is indicated by the universally dry summer and fall, is assignable to the same cause, that I think has been proven satisfactorily, generated malaria in certain localities on the canal earlier in the season.

For a long period of time, the cause of diseases so well known as chill and fever, bilious fever, congestive fever, &c. has been sought for by physicians. Until very recently, the results of their investigations have been limited to the recognition of some of the laws governing the poisonous influence.

The conditions of locality, season, temperature, dryness and moisture of the atmosphere, altitude, time of day, &c., had been quite fully determined, but the subtle proximate cause remained undiscovered. Long experience has established that ague prevails almost exclusively in low, marshy districts, and far more generally in the fall and spring than at other seasons. A certain degree of temperature is necessary for its activity; moist atmospheres are more favorable for its action, and its virulence is greater near the surface of the earth. It is found to be more active in the night than during the day. It is capable of being carried by the wind. An intervening forest, or a sheet of water in some measure arrests its march. Its prevalence in the fall and spring has been found to be coincident with the evaporation of the water from the beds of streams and ponds, and with the turning up of the soil as in breaking prairie, digging trenches, &c.

Years ago it was suggested by physicians that the ague poison was of vegetable origin. It has of late years been fully established that certain vegetable growths may be developed within or upon the animal economy, and that they may there maintain an existence. Such growths have been identified on the skin on the mucous membrane of the mouth, within the stomach, and in the blood itself. Several of the diseases of the scalp are of this kind; a certain microscopic plant, when applied to the abraded surface of the skin, takes root and establishes a well known eruption.

It has long been understood that the exhalations from certain vegetable productions, were noxious to some individuals, for in-

stance, the volatile particles emitted from ipecac induce in some persons distressing asthmatic symptoms. Several growing plants are known to produce more or less of a poisonous effect upon persons within the reach of their emanations, as the ivy and the alanthus tree. Such facts render it probable "that the atmosphere may contain a great number of the subtle causes of disease, which have as yet escaped the long and patient investigation of observers.

THE SUPPOSED DISCOVERY OF THE PLANT PRODUCING AGUE.

One of the most remarkable medical papers of the century, is that of Dr. J. H. Salisbury, of Cleveland, Ohio, in which he claims to have discovered the true cause of malarial poison. This paper has attracted universal attention. It has been copied in full in the English, French, German and Italian journals and embodies what will be considered, if the doctor's statements are corroborated, the greatest medical discovery of the age.

Dr. Salisbury began his investigations by examining the mucus from the mouths of those suffering from ague. The most constant extraneous bodies discovered were, some very small cells, with distinctive characteristics. Upon pushing his examinations further, he discovered these microscopic bodies in the secretion of his ague patients, in their expectoration perspiration &c., whilst in the person of those unaffected by malaria, no such cells could be detected. In all persons living on low lands in malarial regions, the cells were discoverable; in those living on high lands, they were not to be found. These cells resembled the seed cells or spores of certain well known plants called palmellae. They are therefore designated as "palmelloid" cells.

Here then were bodies bearing a resemblance to the spores of a well known family of plants found associated with patients affected with malaria. The next step was to identify these cells as a growth in some way associated with the well known laws of malarial poison. Dr. Salisbury presumed that these bodies, if connected with the cause of malaria, would be found when and where this influence was most rife. Accordingly, he at night placed panes of glass with a moistened surface very near the ague-generating soil. In the morning the under surface of the glass was bedewed with moisture, the drops of which contained myriads of bodies identical with the previously discovered cells. Subsequent investigation showed that in districts where the chills were epidemic palmelloid cells were abundant, and contrariwise, where the malarious influence was absent, no palmellae could be detected. The spores were found to rest on the ground during the day and to ascend to a greater or less elevation into the air at night.

In regard to altitude, it was ascertained by placing panes of glass at different heights from the soil, that the quantity of

Canal

palmellae diminished as the distance from the ground increased, until in certain places at an elevation of thirty feet no cells were found. In some localities where the disease had not previously existed, but in which it had suddenly appeared, it was discovered upon examination that the palmelloid cells were growing near by upon some newly upturned, or recently deposited earth. In several instances sods of soil bearing the ague plant were transferred to localities where the malarial influence had never been experienced, and placed on the window sill of the sleeping apartment of persons in health. In twelve or fourteen days the victims of the experiment were taken with ague.

One of the most remarkable phenomena exhibited by ague is periodicity—a tendency to recur at regular intervals, as every day, every other day, &c. And this disposition is still further observed in relapses, thus the tendency to relapse, to the recurrence of a chill, is greater at weekly periods, as on the 7th, 14th or 21st day. Now, before the discovery of Dr. Salisbury it had been observed, that in the development of plants similar to his *gemiasma*, there was a remarkable element of periodicity. Thus certain forms of spores exist in a given infusion, they gradually diminish, and finally disappear. After an interval they re-appear in incredible numbers, soon to disappear, and to appear again as before.

So far as the observations of Dr. Salisbury extended the laws governing the growth of the ague plant and the diffusion of its spores in the air, were exactly concurrent with those of the malarial poison. There appears to be several varieties of the ague-producing plant. These are distinguishable by their color. They may tinge the soil upon which they are abundant, so that it appears to be covered with a mould of red, green or lead-colored hue. Any one familiar with these plants can recognize them at once, and thus give an opinion as to the existence of malaria in any locality. So also upon a microscopic examination of the secretions of a patient it might be determined whether malaria was an element in the diseased condition or not. The plants may be destroyed, or their poisonous emanations arrested by covering them with quick lime or wood ashes, or, where the use of these articles is objectionable by burrying them beneath a thick layer of straw.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

107



GUARD LOCK OF THE OLD DES MOINES RAPIDS CANAL was located near Nashville (now Galland) seven and a half miles north of Keokuk and was operated for many years from the completion of the canal in 1857 to the opening of the present lock in the midsummer of 1913. The

old fashioned rail fence can be noted in the foreground. Railroad tracks and a highway ran alongside of the canal. The little stone building housed the steam engine used in raising and lowering the gates.

—U. S. Engineers Corps Photo



AS IS THE CASE WITH ALL GOVERNMENT PROPERTY the grounds of the lower lock and Des Moines Rapids canal at Keokuk were kept in apple pie order as this old photograph of the stone office building and sluiceway shows. The sluiceway provided excellent fishing as did the

canal itself. The Keokuk bridge in the background was pictured in the days before the second deck had been added.

—U. S. Corps of Engineers Photo



THE KEOKUK, IA., GATE CITY AND CONSTITUTION FIRST DISTRICT OFFICE of the U. S. Engineers was established in Keokuk with headquarters on Third between Main and Blondeau. Personnel shown in this old Corps of Engineers photograph in front of that old office are, left to right, C. P. Comegys, chief clerk, Branch Railey, clerk, Peter Sullivan, custodian, Mr. Bayliss, O. S. Willey, draftsman, (unknown), Major J. B. Worrall and Theodore Holliday, teamster.

Engineers Established First District Offices in Keokuk

THURSDAY, MAY 28, 1953

While the Rock Island district does not appear to have been designated as such until the annual report of the chief of engineers of 1908, the upper Mississippi river and the Rock Island district have been synonymous terms probably since the beginning of the Major Warren survey of the Mississippi river and tributaries between the Falls of St. Anthony and the Des Moines rapids in 1866.

The first district office of the Corps of Engineers in what is now known as the Rock Island district was established at Keokuk, Iowa, on August 3, 1866, by Lt. Col. J. H. Wilson. The office was located on

Third street between Main and Blondeau.

In 1869, Colonel Wilson moved the office to Davenport, Iowa, and in the following year, 1870, to Rock Island, Ill., where it has remained ever since. As the district at that time extended from St. Paul, Minn., on the north to St. Louis, Mo., on the south, Rock Island was considered the ideal location as it was approximately midway between the northern and southern limits of the district.

Colonel Hugh Cooper's silver cup returns to Keokuk after 47 years

The beautiful silver cup given to Col. Hugh L. Cooper, builder of the Keokuk dam and powerhouse, by the citizens of Keokuk, has been presented to the Lee County Historical Society by the late Colonel Cooper's daughters.

In a recent letter from Mrs. John R. Hardin, nee Elizabeth Cooper, to Alois J. Weber of the Lee County Historical Society, Mrs. Hardin writes as follows: "My sister, Mrs. Ralph M. Sheldon, nee Agness Cooper, and I, nee Elizabeth Cooper are deeply pleased to offer this beautiful cup to the Museum of the Lee County Historical Society through you. This cup has been a treasure in our family these many years and bring some many happy memories of my childhood days in Keokuk and the charming people I met there."

Forty seven years ago on July 26, 1913, the citizens of Keokuk to honor Colonel Cooper upon completion of the great work, gave him this cup in appreciation of his vision and great skill in building what was at the time the greatest Water Power Plant in the world.

Gate City account

The Daily Gate City on Sunday, July 27, 1913 ran the following account of the presentation:

Before he left last night for Fort Madison by automobile where he took a train for Chicago, Hugh L. Cooper was presented with a beautiful loving cup at his residence, the gift of citizens of Keokuk.

The presentation was made by the survivors of the Keokuk and Hamilton Water Power company, with Judge William Logan making the presentation speech. With the men who blazed the way for the water power and who knew of his early struggles to finance the great undertaking grouped around him, Mr. Cooper was greatly affect-



BACK AT STARTING PLACE. This beautiful sterling silver cup, presented by the residents of Keokuk to Col. Hugh L. Cooper 47 years ago as a tribute to his completion of the dam and powerhouse, has been returned to Keokuk by his daughters as a gift to the Lee County Historical Society. It has been placed in the Museum room of the public library and is displayed here by Postmaster William Talbot, president of the Historical Society.

—Daily Gate City Photo

The Daily Gate City KEOKUK IOWA

TUESDAY, JULY 19, 1960

When Judge Logan had finished the presentation speech and J. J. Ayre had unveiled the loving cup, Mr. Cooper accepted it with thanks, but could not make a response. "I believe the photographer is waiting for us," he said, "I think I can talk a little better after a while."

When Judge Logan read the names of the departed members of the old water power company there were bowed heads in memory of them and their part in the work which they had not lived to see finished.

Judge Logan's tribute

Judge Logan's tribute when he presented the cup to Mr. Cooper was as follows:

Mr. Cooper; The gentlemen present are the Keokuk survivors of the Keokuk and Hamilton Water Power Company. We are here for a purpose.

We, with our fallen comrades, C. P. Birge, John N. Irwin, Sam'l M. Clark, Edmund Jaeger, George D. Rand, D. J. Ayres and James Cameron, were the Keokuk forerunners who blazed the way for the building of the greatest Water Power plant in the world.

We had spent nearly seven years struggling through the primary stages of our enter-

prise ere we found you.

Seized opportunity

You came in 1905. You saw the wonderful opportunity and seized it. From the hour you laid your iron hand, backed by your indomitable will, upon the helm of this great undertaking the end was known.

You met and overcame obstacles that would have disheartened the strongest of men. You never faltered. You gathered mighty money kings under your banner and built a power plant that is the wonder and admiration of the civilized world.

You have lived among us for more than three years. Your name has become a household word in every home in this community. You have endeared yourself to everyone who has been fortunate enough to know you.

You are soon to leave us, but you take with you the good wishes of a city whose citizens have chosen us to carry to you a message of good

will and appreciation, and to present to you this loving cup. It is a token of their love and esteem.

William Logan, chairman; A. E. Johnston, Wm. Ballinger, B. P. Taber, J. H. Cole, D. A. Collier, Wells M. Irwin, Frank W. Davis, J. B. Weil, H. W. Huiskamp, J. F. Daugherty, L. A. Hamill, C. R. Joy, W. B. Collins, T. F. Baldwin, W. J. Roberts, committee.

A beautiful cup

The cup, two feet high, of massive sterling silver with base of ebony is entirely hand made, manufactured under the direction of Brooks and Chapman.

The speech of Judge Logan containing names of the members of the company who made the presentation embossed on parchment, accompanies the cup. The inscription follows:

Presented to
HUGH L. COOPER

By his friends, the citizens of
KEOKUK, IOWA.

As a token of their appreciation of his great work and the eminent service rendered them and the people of the Mississippi Valley by the construction of the Largest Water Power Plant in the world.

Here he harnessed the Mighty Mississippi and made it do his will

Here he converted that which had been going to Waste for Centuries to the use of Man.

Keokuk, Iowa, July 26, 1913.

Company is photographed

After the presentation the party went out on the Cooper lawn overlooking the lake giant powerhouse and a picture of the members of the Keokuk and Hamilton Water Power company present together with Mr. Cooper was taken, with the cup in the center.

After the picture had been taken the party was seated in chairs on the lawn where the members could see the work

Some of these croakin' "Told-Yer-So's"

Get a pessimistic view
Of everything what's planned
And keep Creation in a stew,
Don't listen to their knockin'
Or your brain with dope the'll
cram,
Some day we'll drown the critters
In the Mississippi Dam.

THE KEOKUK, IA., GATE CITY AND CONSTITUTION-

How a Knocker of Keokuk

Dam Was Rapped in Poetry

FRIDAY, APR. 16, 1954

An instance in which a "knocker" in Keokuk really got rapped is revealed in a poem written years ago by a Keokuk poet, Robert Cary Hufstader. The son of Mr. Hufstader, R. R. Hufstader of Des Moines recently found the poetic slam of his father at the fellow who made fun of the Keokuk dam.

Of course, every community does have a "knocker" or so, and the knockers leave nothing undone to make certain that they let the community know that they think that improvements, large or small, are worth nothing absolutely. It is not often, though, that "knockers" are answered so well as did Poet R. C. Hufstader way back when the building of what then was the greatest hydro-electric project in the world was under construction.

Mr. Hufstader titled his poem, "Uncle Si on the Mississippi Dam," and here are his poetic sentiments:

You may talk about yer airships
Sailin' like the birds so free;
Search for Cook, the great explorer,
And his (?) wonderous Arctic sea.
But of all the marvelous fancies
That have tickled Uncle Sam,
No one has riz to beat it—
That Mississippi Dam.

Halley's comet, with a starry train,
Has switched its tail at us;
New York is reachin' fer the skies
With concrete and steel truss.
The Jews passed over Jordan,
Which then closed up like a clam;
But we'll divide our Jordan
With the Mississippi Dam.

Keokuk is like an engine
With her safety valve tied down:
She's makin' steam amazin' fast,
But without fuss or sound.
Purty soon hat safety valve'll bust
And go sky high—ker-slam,
When Keokuk expands her chest
With the Mississippi Dam.

110

ED LEAF
DITS

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL
KEOKUK, IOWA

THE GATE CITY:

1887

HOWELL & CLARK, Publishers.

DRY DOCKS.

Oct. 6, 1887

Congressman McCoid Inspects the Keokuk Harbor, the Canal, the Location for the Dry Docks and the Montrose Harbor Yesterday—The Dimensions of the Dry Docks to be Built.

Hon. Moses A. McCoid, member of Congress from this district was in the city yesterday and in company with Major Meigs, Hon. H. W. Rotherbert, S. M. Clark, C. P. Comegys and Col. R. Root inspected the Keokuk harbor, the canal, the location for the dry docks and the harbor at Montrose. The trip through the canal was made on the propeller Messenger. Messrs. Clark and Comegys returned after visiting the harbor and the location for the dry docks. Mr. McCoid took the train at Montrose for Fairfield and the other gentlemen composing the party returned home. The harbor here is filling up rapidly and it is with the utmost difficulty that boats can land opposite the Diamond Jo depot. Farther down the landing is made, tolerably easy. It is a question whether a special appropriation must be made for this specific purpose or whether the secretary of war will let money from the general appropriation fund be applied to removing this obstruction to navigation. The citizens of Keokuk desired that Mr. McCoid should inspect the harbor so as to have personal knowledge of its bad condition and in compliance to their wishes the trip was made. The channel at Montrose is filling up badly and much work is required there. The construction of the dry dock is of great importance to Keokuk. It means the expenditure of a considerable sum of money in Keokuk while the work is in progress and when completed workmen will be required for the repairing of boats whose homes will be in Keokuk. The government alone has a fleet of 80 barges and six steamers and a number of dredge boats constantly needing repairs. A great amount of this repairing will be done at the Keokuk dry docks, but the docks are intended for public use and the principal work will be that of the public. The docks will be under control of the general government and regulations will be prescribed by the secretary of war. The appropriation secured this year to start the construction by Congressman McCoid was \$30,000. This sum will build the embankments and further appropriations will be necessary to complete the docks. The greatest expense in the construction is the masonry and gates. The

location decided upon for the dry docks is at the middle lock. On the river side of the canal at this point there is a strip of natural ground that is favorably situated for this purpose. It lies high above the level of the river and except in the very highest stage of water will afford excellent natural drainage for the docks. The canal embankment just above the lock leaks badly in several places and would require a considerable outlay of money to repair it if done now. This will be done, however, in the construction of the docks and without additional expense. The river embankment will start several hundred feet above the middle lock. The basin will extend below the mouth of the lock. At the head of the basin there will be masonry piers and wing walls and a set of gates similar to the upper gates at each of the canal locks. In other words the entrance will be like the upper half of each of the locks now in use. There will be a sluice, the gates opening into the river, which in ordinary stages of water will drain the dry dock. At its high stages it will prevent water from the river from entering the dock. There will be an engine and pump so that at high water the basin can be drained by pumping. Possibly a second sluice may be built to drain into the level below the middle lock. The basin will be a parallelogram 420 feet in length and 100 feet wide. The embankment which will form the outside wall of the basin will be composed of earth faced with stone, similar to the canal embankment. The foundation for this embankment will be made by excavating the ground to a depth of two or three feet, removing all stumps and loose rock and then filling in with clay soil, so as to make good connection, water tight at the bottom. The embankments of the basin will be ten feet on the top, with a slope of one and a half feet to the foot and rip-rapped. The bottom of the basin will be paved with stone. Masonry walls for the timbers to rest upon used in supporting boats will be built and carriages on wheels for the same purpose.

As the work can best be done at low water, such as now prevails, it is to be hoped that the money appropriated at the last session of congress will be made available before this favorable opportunity passes.

THE GATE CITY.

KEOKUK, IOWA:

THURSDAY MORNING, JAN. 18, 1870.

IMPROVEMENT

—OF THE—

DES MOINES RAPIDS

Of the Mississippi River.

NOTICE TO CONTRACTORS.

UNITED STATES ENGINEER'S OFFICE,
KEOKUK, IOWA, Dec 24 1869.

SEALED PROPOSALS in duplicate will
be received at this office until 12 m.

Thursday, January 27, 1870.

FOR COMPLETING the excavation of the Prism, and the
construction of the Embankment Wall of the Canal for
the Improvement of the Des Moines Rapids of the Mis-
sissippi River.

The Canal is to be about 7 1/2 miles long, extending
from Nashville, Iowa, to Keokuk, Iowa. The width at
the water surface inside the canal is to be from 200 to
400 feet in the bankment and 200 feet in excavation, and
the water to be five feet deep. All the material excavated
from the Prism of the Canal to be used in building
the Embankment. The latter, throughout the
greater part of the length will be about 200 feet from
the low water. When a rock excavation occurs from
the bottom of the Canal, it will have a slope of 1 1/2 to 1
on the outside. The embankment to be built of earth, clay
and rock; to be ten feet wide on top, including the rip-
rap covering, and to be two feet above high water mark,
with a slope of 1 1/2 to 1 on the outside, and
one foot to one vertical on the inside. The average thick-
ness of the rip-rap protection to be 2 1/2 feet on the out-
side, 1 1/2 feet on the inside, and 1 foot on top.

A portion of the above has already been constructed
—say three fifths. As much of the remainder as can be
paid for by \$20,000, just appropriated, is to be re-let;
but the Government reserves the privilege of not let-
ting the contract, which may be awarded under this adver-
tisement, to include such other appropriations or allot-
ments as may be made for the work, during the present
session of Congress.

There shall be no interregnum between the comple-
tion of the present contract and the commencement of
work under the new letting.

All propositions must state the price at which each
and every kind of work specified in the proposals is to
be done, and no bid will be considered that is not definite
in this respect.

A printed copy of the advertisement must be attached
to each proposal.

Each bid must contain a written or printed guaranty,
signed by two responsible persons.

Plans for proposals of the form required, with form
of guaranty and exhibits of labor, will be furnished
upon application at this office.

The price or prices in the contract will be considered
as including the expense of furnishing all the material,
excepting the right of way and borrow pits, imple-
ments and machinery, and performing the work accord-
ing to the plans and specifications exhibited at the
letting.

The Government reserves the right to reject any and
all bids not considered satisfactory.

Fifteen per cent. of the amount of any work done or
materials furnished, at the contract price thereon, will
be reserved until the whole work, which is the subject
of contract, shall be entirely completed.

The names or names of the persons proposing must be
written out in full, with their place of residence and
Post Office address.

Plans, maps, specifications and all other necessary
papers will be ready for examination at this office fifteen
days prior to the date of the letting.

Persons proposing to contract are requested to visit and
examine the location of the work before sending in their
bids. Non-compliance with this request may cause re-
jection.

Proposals should be addressed to the undersigned at
Keokuk, Iowa, and should be endorsed: "Proposals for
work on the Improvement of the Des Moines Rapids."

J. H. WILSON,

Lieut. Col. and Brevet Major General, U. S. A.

OFFICIAL:

JOHN B. GRIFFITH,

Lieut. U. S. Corps Engineer.

Jan 18-70

KEOKUK CONSTITUTION.

KEOKUK, SATURDAY, AUGUST 18, 1877

The Canal Celebration.

The Council, the Citizens' Association and the citizens generally are expected to participate without further invitation. The Committee and the Packet Company have tried to secure the presence of boats enough to enable all our citizens who desire, and all who attend from abroad to pass up through the canal and return. The low water has so hindered the boats that some may fail to arrive in time. If we cannot secure boats enough for all who desire to go on the trip, we ask our citizens to exercise patient and hospitable forbearance and give precedence to our visitors. One thousand invitations have been issued to persons living elsewhere. The steamer Montana will be in charge of the government officials, and over that the committee has no control. One steamer will be placed by the packet company at the exclusive use of the committee. To this visitors from abroad, to whom tickets will be issued, will be first admitted and then citizens to the extent of safety. Citizens will need no ticket; none will be issued for them. Visitors to the celebration can secure tickets giving them precedence to admission to the boat by reporting to the committees from 10 to 11:30, Wednesday morning at the Packet depot or the upper C., B. & Q. depot, or by application at any time to the chairman of the Executive Committee, or the chairman of the Committee of Invitation. It is expected that the steamers Cricket, Dan Hine, Keokuk and others will join in the trip. The committee hopes to arrange for an excursion train to run by the C. B. & Q. Road along the line of the canal during the passage of the boats, and this will give as good facilities for seeing the working of the locks, etc., as from the boats. The Gem City band of Quincy, one of the finest in the west, has been secured for the celebration. Only adults will be taken on the excursion. Both for room and safety the children must be left out. The addresses will be made from one of the packets immediately on the return from the excursion. Reception to invited guests will take place on the packets in the evening. Citizens having carriages and buggies are asked to use them on the return from the excursion and in the evening for showing visitors about the city.

By order of the Executive Committee.

112

Notice of Incorporation.

NOTICE is hereby given that Charles Mason, Hiram Barney, David W. Kilbourne, Henry K. Love, Edward Kilbourne, Hugh W. Sample, Guy Wells, J. H. Barker, Peter W. Potter, George E. Kilbourne and William Leighton, have organized themselves into an incorporated company, under the name of "The Navigation and Hydraulic Company of the Mississippi Rapids."

And its principal place of transacting business is the city of Keokuk, in the State of Iowa.

The general nature of the business to be transacted is the improving the navigation of the Mississippi River where it passes over the Iowa or Des Moines Rapids, and all other purposes incident to such improvement.

The capital stock authorized is ONE MILLION DOLLARS, which may be increased to any amount not exceeding two million dollars, in shares of one hundred dollars each, instalments upon which may be called for by the Board of Directors at pleasure, not exceeding five per cent in any one month, and the penalty for not paying in accordance with the call, or within thirty days thereafter, may be a forfeiture of all installments previously paid.

The incorporation commenced on the 30th day of December, 1865, and is to continue for the longest period allowed by law.

The affairs of the company are to be conducted by seven Directors, to be elected annually on such day as shall be fixed by the by-laws.

The amount of indebtedness of the Company shall never exceed two-thirds of the capital stock which has been actually subscribed for.

The private property of the stockholders shall be exempt from the corporate debts.

DIRECTORS:

D. W. KILBOURNE, H. W. SAMPLE,
CHAS. MASON, GUY WELLS,
HIRAM BARNEY, P. W. POTTER,
EDWARD KILBOURNE.

D. W. KILBOURNE, President.

H. K. LOVE, Treasurer.

J. H. BARKER, Secretary.

GUY WELLS, Engineer.

Keokuk, Jan. 16, 1865.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

SUNDAY MORNING, SEPTEMBER 5, 1875.

THE RAPIDS IMPROVEMENT.

**Active Operations All Along the Line--
Over 1,100 Men at Work.**

The work on the Rapids Improvement is being pushed vigorously forward and active operations are in progress all along the line. The coffer dam at Montrose is one of the most stupendous enterprises of the kind ever undertaken in this country, covering an area of one hundred and twenty-five acres. Before it was flooded, on Friday night, a force of between 500 and 600 men was employed there and the work was progressing rapidly and satisfactorily. The break will occasion a delay of about a week, when operations will be resumed with the same force. The amount of rock to be excavated here is estimated at thirty thousand cubic yards. The rock is a semi-crystallized lime stone, the same that has been taken from the bed of the river at other points along the line of the improvement. Three chisel boats are at present employed in removing obstructions of a minor character from the bed of the river between Montrose and Nashville. Just above Nashville another cofferdam is being constructed, covering an area of about ten acres. The cribs for protecting the dam have been erected, but nothing has been done as yet on the dam itself.

The Guard Lock at Nashville is about four-fifths completed. This is under the supervision of S. L. Bayless, and like the Middle Lock, is a substantial piece of masonry—a credit to his engineering skill. A force of one hundred and thirty-one men is employed here, and it is expected that the lock will be finished in about a month. Machinery for operating the gates of all the locks is now being made at the Buckeye Foundry and Machine Shops of Sample, McElroy & Co. in this city.

A force of four hundred and fifty men is employed at different points along the line under the supervision of E. H. Worrall, engineer in charge of the section work. This force is engaged in cleaning out the prism of the canal and building rip rap wall, and is distributed along the entire work.

This makes an aggregate force of over eleven hundred men now at work upon the improvement.

It is estimated that the canal will be so far completed as to admit of the passage of boats early the coming season. The present appropriation of \$480,000 will accomplish this, but it will require an additional appropriation of about \$30,000 to finish up, which amount will be asked for at the forthcoming session of Congress.

Major Stickney, who has local charge of the improvement, deserves much praise for the energetic manner in which he is prosecuting the work.

FLOODED.

A Break in the Cofferdam at Montrose.

About half past 8 o'clock Friday night a break occurred in the coffer dam at Montrose. The water poured in in a perfect torrent, and in about ten minutes the entire dam was filled. The break occurred at the lower end about one hundred feet from the outside corner, and about thirty feet of the dam was carried away. The structure would have resisted a pressure of at least four feet more of water, so the only plausible theory as to the cause is that there was a crevice in the bed of the river through which the water worked its way in a sufficient quantity to undermine the dam. After it once got started, it of course, went very rapidly, and nothing could have stopped it.

The greatest damage that will result from the break will be the delay of five or six days in pumping out the dam during which time the force of five or six hundred men which is employed there will necessarily have to remain idle. The break was repaired yesterday, and pumping will be commenced at once.

Quite a number of tools are in the pit, but none that will be injured by the water. The powder house inside the dam was flooded, but as the powder had been placed on the upper shelves, none of it was lost.

THE GATE CITY:

TUESDAY MORNING, JULY 21.

THE CANAL.

The First Boat Will Pass Through it in About Two Weeks--Do Our Citizens Propose to Celebrate the Event?

From the authorities in charge of the Rapids Improvement we learn that the canal will be so far completed as to admit of the passage of boats in about two weeks.

The Government steamer Montana will be brought down here from Rock Island and will be the first boat through the canal. The Engineer Corps will probably have some sort of a demonstration in connection therewith.

It seems to us that it would be eminently proper for our citizens to unite with them in celebrating the event, in fact, it would show a deplorable lack of interest on their part to neglect to do so. The work has been going on now about nine years, and the eyes of the people of the entire Mississippi valley have been turned upon it. Millions of dollars have been spent upon it, and when completed it will be the most important improvement of the kind in the United States. The canal is located at Keokuk, the money has been spent here, and it occurs to us that our citizens should unite with the Engineer

Corps in celebrating so important an event as its completion. The time is short, and whatever is done in the matter must be done at once. We suggest, therefore, that our citizens get together and arrange for a suitable demonstration on the occasion of the passage of the first boat.

THE GATE CITY:

THURSDAY MORNING AUGUST 23.

CONSUMMATED.

FORMAL OPENING OF THE CANAL TO NAVIGATION.

The Montana, Northwestern and Louisa Pass Through the Canal and Locks--
Over Five Thousand People Present--The Affair a Success After All.

From the appearance of things upon the streets at an early hour yesterday morning, it was easy to discover that something of more than ordinary importance was about to transpire. The streets were alive with people, and flags were fluttering from a large number of public and private buildings. The day was the one fixed for the formal opening of the canal around the Des Moines Rapids of the Mississippi river, and the celebration of the event by our citizens.

The invitations which were sent out in every direction were liberally responded to, and the morning trains which arrived on the different roads brought hosts of EXCURSIONISTS.

The regular train on the Keokuk Route came in at 9:50 with three coaches and a baggage car and a big delegation of visitors from Louisiana, Hannibal, Quincy, La Grange, Canton and other points along the road, and the Gem City Band, of Quincy, which had been engaged for the occasion.

The C. B. & Q. train arrived on time with four coaches all of which were well filled with delegations from Burlington, Ft. Madison and elsewhere.

Other neighboring cities and towns in Iowa, Illinois and Missouri were well represented, the people from the adjacent country turned out in force and before noon the town was full of strangers.

The banks and other public institutions were closed and Keokuk had evidently made up its mind to shut up shop and devote the day to entertaining its guests and making the celebration a success.

Circumstances transpired, however, which had a tendency to put

A DAMPER

on the demonstration. Early in the day a telegram was received from Commodore Davidson stating that the Golden Eagle which had on board the delegation from St. Louis and other points along

the river, would not arrive until 6 o'clock p. m. The cause of the delay was not stated but the conclusion was at once reached that she had been roosting on a sand bar a part of the night.

To add to this unwelcome intelligence it soon became generally known that the lower gates, at the lower lock had got stuck and refused to move.

The committees got together, talked over the situation and after consultation with Major Stickney it was decided to go on with the celebration, provided the Northwestern could get through the lower lock in time, and an extra programme was issued announcing this fact. At 2 o'clock a

STREAM OF PEOPLE

extended along Main street down the hill and along the levee to the lower lock. Business had been generally suspended and our citizens joined the crowd which wended its way to the scene of the celebration. People thronged the shore and congregated in groups all over the bluff within sight of the lock. It is estimated that over five thousand persons were assembled to witness and take part in the proceedings.

Meantime a force of men was engaged in getting the lock-gates in working order. This necessarily occupied considerable time, but the crowd waited patiently, everybody seeming to be eager to witness the novel and interesting spectacle. At half past two the Montana came sailing down the canal with flying colors, having passed through from the upper end. She was received with cheers and her presence helped to divert attention for the time being. Shortly after 3 o'clock the Louisa also put in an appearance having brought down a delegation of Fort Madison people and come through the canal. Through the persevering efforts of Major Stickney and his corps of assistants, the difficulties which had been encountered with the lock-gates were finally overcome and it was announced that everything was

IN READINESS

to proceed. The lower gates were swung open, and at ten minutes to 5 o'clock the steamer Northwestern, of the Keokuk Northern Line, came through the bridge, flying the "Union Jack," with her lower deck, guards and hurricane roof thronged with people and entered the lower lock.

Still further trouble was experienced with the lower gates and it was some little time before they could be closed. After this was done, however, and the wickets were opened the lock was filled in a little over ten minutes, the Northwestern coming up evenly and steadily. At 5:45 the upper gates swung open and the gallant steamer passed out into the canal amidst music by the band, cheers

and waving of handkerchieves on the part of those on the boats and on the shore and a prolonged and deafening tooting on the part of the whistles. The Northwestern was

THE FIRST BOAT

through the lower lock and as she is an old favorite in the Keokuk trade the achievement naturally aroused considerable enthusiasm. She landed just above the Montana and took on an additional number of excursionists, making several hundred in all including visitors and citizens. About this time an excursion train of three cars, which was kindly furnished for the occasion by Superintendent Potter, left on the C. B. & Q. and ran along the canal as far as the middle lock.

At precisely 6 o'clock

THE MONTANA

with a party of several hundred of our citizens, who were the invited guests of the government officials, backed out and steamed up the canal followed by the Northwestern. The bluff was lined all the way along with vehicles and people and numerous handkerchief salutes were exchanged as the boats passed up. Large numbers of vehicles followed the steamers to the middle lock where a large crowd was in waiting. The run from the lower to the middle lock was made in precisely twenty minutes. The lower gates were open and the Montana passed right in. The gates were then closed, the wickets opened and the lock filled in just seven minutes. In eighteen minutes from the time the Montana entered the lock she was out through the upper gates and steaming up the canal.

While she was in the lock Mr. Henry Wey and presented her with a handsome WREATH OF FLOWERS.

This was taken up on the hurricane deck and thrown over Major Stickney and afterwards hung on the bell of the boat.

The Montana is commanded by Capt. C. W. Durham a very gentlemanly and capable officer. In addition to the officers of the rapids improvement and the invited guests there were Col. J. N. Macomb, who has general charge of all the improvements on the upper Mississippi, Mr. M. Meigs, his assistant, and others.

The Northwestern followed the Montana through the middle lock and both went to the head of the canal. The guard lock was reached at 7:30, and the round trip made in three hours and a half, the boats arriving on their return at half past nine. The canal and the opening were voted

A SUCCESS

The delay in getting the gates to work was occasioned by an accumulation of mud in the lock and not as many supposed from any defect in the machinery. After the obstacle was removed every-

thing worked smoothly. The gates and wickets were all opened and closed entirely by machinery and the officers express themselves wholly satisfied with the manner in which it operated. In view of the fact that this was the first time it has ever been used, they are certainly to be congratulated upon getting along so well with it.

In our report of the canal in yesterday morning's paper we inadvertently omitted to mention that Col. J. N. Macomb has general charge of this as well as all other improvements on the upper Mississippi.

THE PRESS

was well represented. Among those present from abroad were Frank Hatton and Frank Phelps, of the Burlington Hawkeye; Hon. John Mahin, of the Muscatine Journal; Paul Selby, Springfield Journal; Jim. Wallin, Quincy Herald; J. C. Hollman, Whig, and Add. L. Langdon, of the Commercial Review; Judge Sharp Carthage Gazette and J. M. Davidson of the Republican; Cy W. Jamieson, Memphis Reveille; J. W. Barrett, Canton Press; H. W. Dodd, Fort Madison Plaindealer; James F. Downing, Louisiana Journal; Mr. Wilson, Hannibal Courier; and others.

THE GOLDEN EAGLE

arrived last evening at 9:15 with about three hundred excursionists accompanied by the Arsenal band of St. Louis. About one half the number are from that city, and the remainder from points along the river. Commodore Davidson is one of the party. On her way up Tuesday night the Golden Eagle encountered the Rob Roy at Slim Island Chute. She was aground on a sand bar and completely blocked the channel so that it was impossible for the Eagle to get by. The latter worked away for nine hours trying to get her off and then had to give it up. At 6 o'clock yesterday morning she left the Rob and came up through Carroll Chute. This is fifteen miles in length and no boat has ever attempted to pass through it before.

RECEPTION.

After the Northwestern landed above the lower lock last evening, the Golden Eagle went up on the outside of the canal and landed opposite her. The two boats were connected by stage planks and a reception given by the citizens of Keokuk to the party on the Golden Eagle and other invited guests. Sam. M. Clark, Chairman of the Executive Committee, presented Judge Johnstone, as Chairman of the meeting.

Mayor Irwin made the address of welcome which was responded to by ex-Mayor Joseph Brown, Chairman of the St. Louis delegation. Speeches were then made by Gen. Bussey, of New Orleans; Hon. H. W. Rothert, of this city; Hon. Nathan Cole, M. C., Second District Missouri;

Supper was served on the Northwestern and dancing was had on both boats. The Golden Eagle left for St. Louis this morning at 3 o'clock, and with this the celebration closes.

Hon. L. S. Metcalf, M. C., Third District Missouri; Hon. Anthony Utner, M. C., First District Missouri; R. S. Elliott, Secretary Jetty Company; Hon. Chauncey I. Filley and Adolphus Meier, of St. Louis.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL, KEOKUK, IOWA

THE GATE CITY.

FRIDAY MORNING AUGUST 24.

The Opening of the Canal.

After ten years of time and four million dollars worth of labor, boats have passed over the Keokuk rapids in an hour and a half and with five feet of water in the shallowest part. This has been done by means of the Government canal, which was formally opened and navigated on Wednesday. He who makes two blades of grass grow where one had grown before has been called a benefactor. The world is made rich and life more comfortable by ameliorations of this kind. Every farm in the Mississippi Valley was made more valuable, and life there was made more comfortable by the removal of the hindrance to navigation which was celebrated when the first boats passed the length of the canal Wednesday evening.

Colonel Macomb, Major Stickney and their assistants have been hard at work to open the canal to freight and travel at the earliest possible hour. The river was getting very low; outside, on the rapids, boats were sticking or sinking and finding it impossible to pass. So the government officials were properly determined to give boats and business use of the canal just so soon as they could. Celebration of that event was no affair of theirs. If Keokuk people or others wanted to celebrate the importance of the achievement and were ready to do so when the officials are ready to throw the locks and the canal open, all well and good. The officials were ready to render any and all courteous assistance that might not interfere with going on with their official business. A week ago last Tuesday Major Stickney hoped to be able to put the boats through. From day to day after that he hoped to be able to do so. Last Wednesday evening after days and nights of unflagging and toilsome work he accomplished his end and boats went through the canal and returned, the first of the expedition sticking its head well through the upper gate to see its task achieved. The public-spirited citizens of Keokuk could not afford to let the event pass without celebrating it. The time to do that was the hour of the canal's first opening whenever that might be. The Packet Company wanted to participate in that, and so did business men of St. Louis, Quincy and other places. Of course the hour of such celebration, involving the moving of great and complex machineries, was necessarily involved in some uncertainties. Sometimes it is two hours after the time before a Fourth of July celebration can be started, involving no hindrance more serious than

getting a decorated wagon, a drummer and two fifers, in the right position. In this canal case the programme had to cover the uncertainties of hundreds of miles of river navigation so difficult that the boats might stick anywhere and the working of a government canal, necessarily controlled by its own officials, and involving the satisfactory working in all its parts of a grand machinery that had been ten years building and cost four millions of dollars. Now that in a little more than three hours after the hour anticipated the canal was opened and navigated is a success so substantial and great as to more than compensate for any personal disappointments, and inconveniences experienced, either by the committees, by our citizens or by our visitors. The committees had worked hard, so had the canal officials, so the Packet officials to have everything satisfactory. The unexpected hindrance to opening the locks by the wash and deposit of dirt from the bed of the new canal against the lower lock gates, and the detention of the Golden Eagle disarranged all the committees' plans and left them subject only to uncertain contingencies beyond their control. From morning till night of Wednesday there was no time when the committees could know for a half hour consecutively what part of their own or any programme they could be able to carry out. This compelled them to wait some careful punctuality of detail in the invitations to the reception and in the reception of guests which they regret, ~~but they had no time for these details~~ that late hour when they had to confront the greater perplexity of the possible entire failure of the celebration. As it was the canal was opened. The three locks were passed. Four steamers passed through different parts of the canal, making a splendid spectacle and demonstrating the successful achievement of a great and valuable enterprise. The Packet excursion, embracing three hundred of the leading business citizens of St. Louis, Quincy, Hannibal, Alton, &c., participated in the reception in the evening as Keokuk's guests for the hour. The importance of the enterprise, the work of a generation of expectancy and a decade of toil, was talked over. The prominent business men voted the opening a success, expressed themselves delighted with their trip, and declared that they were vastly more than compensated for any personal disappointment in their not getting here in time to get into the canal, in their delight at the successful completion of an enterprise of such great importance to the commercial and agricultural interests of the Mississippi Valley. The whole West is the richer for it. Each farmer hereabouts is the richer for it, and he should be greatly

more pleased by the fact that it is opened than chagrined because he lost a day in coming here to see it open and was possibly compelled to return before the event occurred.

To Major Stickney and every person associated with him in the work great praise is due for their painstaking efforts and courteous co-operation to put the boats through on the day announced, prevent failure and make the affair a success.

Commodore Davidson and Captain Hutchinson were at great expense and worked indefatigably to carry the affair through. Their efforts and assistance were invaluable. The officers of the Northwestern and Golden Eagle co-operated with painstaking care, and to Capt. Durham and Mr. Meigs of the Montana, guests were debtors for gracious and courteous attention. Col. Macomb was present and watched with quiet pleasure the success of this part of the Mississippi improvement. He thought the opening a great success, and he speaks from the standpoint of forty years of experience in engineering and public works.

THE GATE CITY:

FRIDAY MORNING, AUGUST 17.

CANAL OPENING.

It Will Take Place Next Wednesday at Noon--List of Committees Appointed--Programme of the Celebration.

Next Wednesday, the 22d, has been definitely fixed as the time for opening the canal around the Rapids to navigation. This date was decided upon in accordance with a telegram which Maj. Stickney received last evening from Col. Macomb.

The committees are hard at work perfecting plans and there is every prospect that the celebration will be a grand affair—something that will be a credit to our city and give Keokuk a name far and near. The following is a complete list of the various

COMMITTEES

so far as they have been appointed:

EXECUTIVE COMMITTEE.

Sam M. Clark, Chairman,	Gen. A. Bridgman,
C. P. Birge,	Wm. Timberman,
John N. Irwin.	

COMMITTEE OF COUNCIL.

Mayor Irwin, Chairman,	Alderman Paul,
Alderman Timberman,	Alderman Higham.

INVITATION COMMITTEE.

Hon. John N. Irwin, Ch'n	Hon. H. W. Rotherf,
Judge Johnstone,	Sam. M. Clark,
Capt. Hutchinson,	H. W. Clendenin,
Col. Wm. Leighton,	

WAYS AND MEANS COMMITTEE.

C. B. Birge, Chairman,	Hamden Buel,
J. H. Anderson,	B. B. Jewell,
Sam. S. Sample,	Judge Jaeger.

COMMITTEE ON TRANSPORTATION.

J. B. Paul,	J. H. Anderson.
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RECEPTION COMMITTEE.

- | | |
|--------------------------|----------------------|
| Gen. A. Bridgman, Ch'n., | W. A. Brownell, |
| Geo. Williams, | Col. J. M. Shelley, |
| Col. Wm. Patterson, | J. H. Greene, |
| R. F. Bower, | Samuel Klein, |
| Col. F. K. Hain, | O. C. Hale, |
| E. H. Harrison, | Smith Mamill, |
| B. P. Taber, | Hon. John Gibbons, |
| J. O. Voorhies, | Alex. Collier, |
| James Hagerman, | Hon. R. H. Gillmore, |
| Dr. J. C. Hughes, | Guy Wells, |
| Geo. B. Smyth, | A. L. Connable, |
| D. G. Lowry, | C. P. Comegys, |
| Sandie Stone, | T. W. Eichelberger, |
| C. F. Davis, | Wm. Blom, |
| Col. C. K. Peck, | J. F. Daugherty, |
| Wm. Burkitt, | E. H. Worrall, |
| H. N. Bostwick, | D. J. Ayres, |
| S. S. Vail, | W. A. Patterson, |
| W. S. Ivins, | John H. Craig, |
| J. W. Bishop, | E. Hardin, |
| A. J. Wilkinson, | W. H. Dunlap. |

All the other committees are ex-officio members of the Reception Committee.

The programme of the celebration is not yet complete, but this much is known, that at noon on the day in question a fleet of boats headed by the Government steamer Montana will pass through the canal and locks and return. On their return there will be addresses, music, &c.

Captain Hutchinson, of the K. N. Line is corresponding with the Arsenal Band of St. Louis, and will no doubt succeed in securing it.

Invitations will be sent to the Mayors and City Councils of St. Louis, Quincy and Burlington, and to the Mayors of all the cities on the river from New Orleans to St. Paul. The Merchants' Exchange of St. Louis will send a delegation, and Commodore Davidson will bring a big party of prominent citizens from that place. There will no doubt be a large attendance from abroad.

The Alex. Mitchell was at La Crosse yesterday on her way down the river. On her arrival at Montrose, she will lie up there to await the celebration. The Golden Eagle will be sent out from St. Louis with the delegation from that city earlier than usual on Tuesday so as to reach here in time to take part. Either the Northwestern or Rob Roy will also be sent through so that the fleet of steamers will number four and possibly more.

COMMITTEE MEETING.

The various committees held a meeting at the GATE CITY office yesterday morning, at which the following proceedings were had.

A meeting of the various committees appointed to take charge of the canal celebration was held at the office of S. M. Clark, Esq., Thursday morning, the committees assembling as a committee of the whole.

The chairman, Mr. Clark, called the meeting to order, H. Buel being appointed secretary. Present were: S. M. Clark, William Leighton, Alderman Paul, Gen. A. Bridgman, Hon. John N. Irwin, Hon. H. W. Rothert, J. H. Anderson, Esq., S. S. Sample, H. Buel and Alderman Highman.

On motion of Mr. Leighton the Committee on Invitations was instructed to provide one thousand printed invitations,

at an expense of not over \$20.

Mr. Rothert moved that the Committee on Resolutions be instructed to extend an invitation to the following persons: The Secretary of War, Gen. Humphrey, Col. Macomb and Major Stickney, of the Engineer Corps, the Governors, members of Congress, Mayors and Councils, and members of the press connected with leading papers in the States of the Mississippi Valley. Carried.

The Executive Committee was instructed to provide music.

The whole matter of the programme for the celebration was discussed and referred to the Executive Committee.

On motion, Alderman Paul and J. H. Anderson, Esq., were appointed a committee to see the various railway and transportation companies, to ascertain what arrangements can be made for reduced fare to parties wishing to attend the celebration.

General Bridgman stated that the K. & D. M. R. R. would make arrangements to carry the excursionists to the celebration at half fare.

On motion, adjourned.

H. BUEL, Secretary.

THE GATE CITY.

KEOKUK, IOWA:

SATURDAY MORNING, FEB. 19, 1870.

FRIGHTFUL ACCIDENT.

Fearful Results of a Powder Explosion at the Lower Lock.

One of those fearful accidents which seem to be the almost inevitable result of blasting rock, occurred at the lower lock yesterday afternoon, resulting in the severe if not fatal injury of two men, one of whom is Mr. Nash, the contractor for the excavation of the rock in the prism of the lock, and the other a Swede laborer, whose name we were unable to ascertain. The accident was occasioned by the premature discharge of a blast, and occurred something after this manner:

The powder and a part of the tamping had been placed in the hole, but as they were not in the right place, an effort was made by these two men to raise them a little. From some unknown cause the powder became ignited and the blast went off in the men's faces. The fearful results of such an explosion can in a measure be imagined. Both were badly mangled. The extent of their injuries has not fully been ascertained, but Mr. Nash, if he recovers at all, will suffer the loss of both eyes, and a sad disfiguring of the face. His skull is badly fractured. He was taken to the Laclède House and surgical aid rendered by Dr. Wyman.

The Swede, although not so badly hurt as Mr. Nash, was nevertheless very severely injured. His skull was fractured over the right eye, his left eye completely destroyed,

and his face otherwise mangled. He was taken to his residence, corner of Second and Johnson streets, and was attended by Dr. Hughes.

It is a matter of surprise that more were not injured, as several others were standing in the immediate vicinity of the blast when it exploded. The fact that the blast was a shallow one accounts perhaps for the absence of further accidents. As yet we have had but comparatively few accidents of this kind to chronicle in connection with the work on the Rapids Improvement, but such things are the almost infallible results of blasting rock, and we must, of course, expect some of them to occur.

THE GATE CITY.

KEOKUK, IOWA:

TUESDAY MORNING, FEB. 22, 1870.

DEATH OF MR. NASH.—Mr. L. S. Nash, who was so severely injured and so frightfully mangled at the powder explosion last Friday afternoon, died yesterday morning at 8 o'clock. His funeral will take place from the Laclède House this afternoon at 3 o'clock. As he was a member of the Masonic fraternity, the members of the Order are invited to attend his funeral, not in a body but merely as individual members of the organization.

THE GATE CITY.

KEOKUK, IOWA:

WEDNESDAY MORNING, MAR. 2, 1870.

BOILER EXPLOSION.

Steam Drill at the Lock Blown Up.

The boiler of the steam drill engine at the canal lock exploded yesterday morning. It was between 8 and 9 o'clock, shortly after work began. The engine had got fairly to work; workmen were scattered everywhere about the excavation; the foreman and the engineer had stepped away together temporarily from the engine, when there was a crash and a roar, and things went flying generally. The boiler was defective, which is the usual way of putting it. Just as though a boiler ever was blown up that wasn't defective. This one was carried about seventy-five yards by the explosion. The fly-wheel about two hundred and fifty yards. Fragments and missiles went everywhere. Strange to say nobody was killed or even seriously hurt. Several men were struck by parcels of the flying materials and bruised somewhat, but in a few minutes everybody was at work as though nothing had happened.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

Old Canal Opened to Navigation in 1877

The Daily Gate City Keokuk, Iowa
SATURDAY, AUG. 17, 1957

From the earliest times, the Mississippi river has played an important part in the economic development of its valley. The Indians used the stream for travel and transport purposes and within a short period of time its discovery by the white man, it became an important artery for passengers and freight.

Even after the inception of the railroads in the central part of the country the use of the river continued and the existence of many river cities, such as Keokuk, can be traced to their connection with the development of transportation by water.

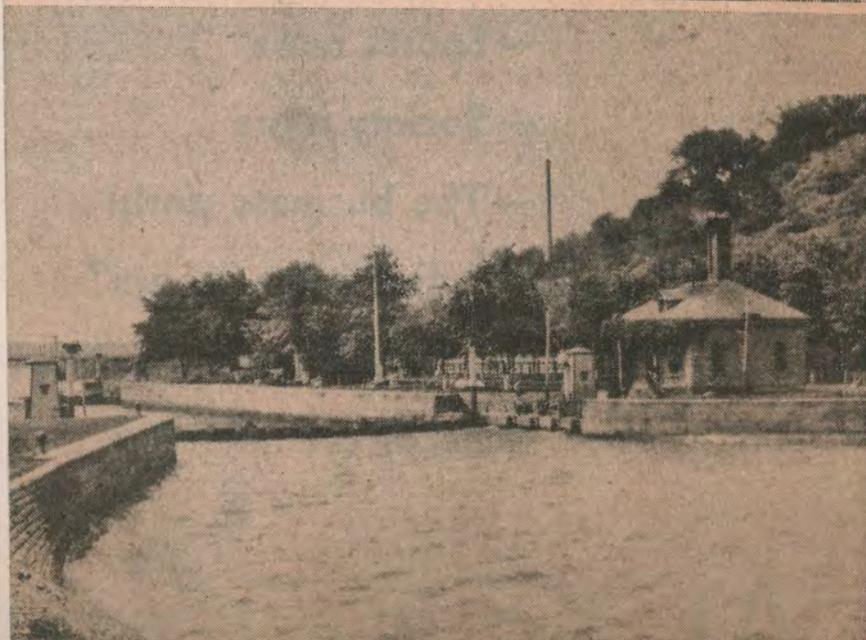
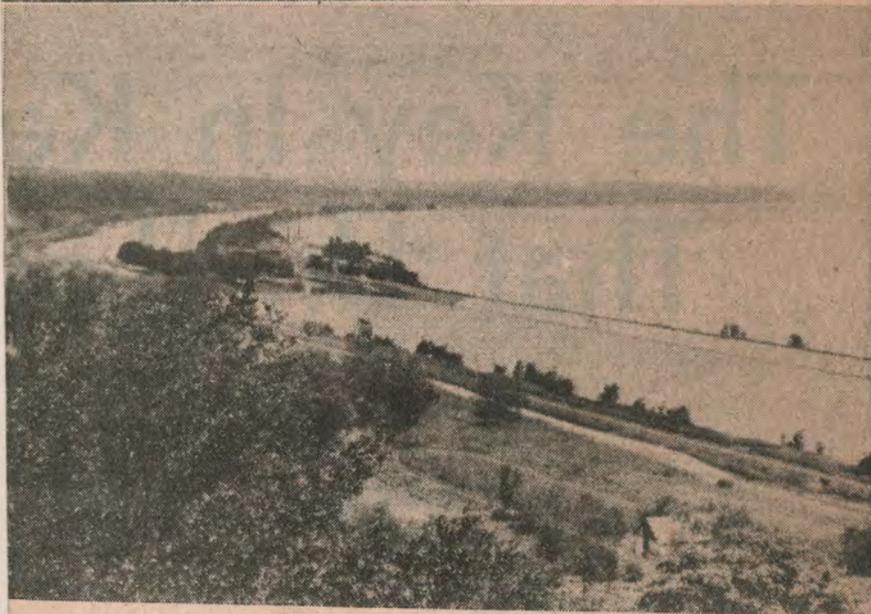
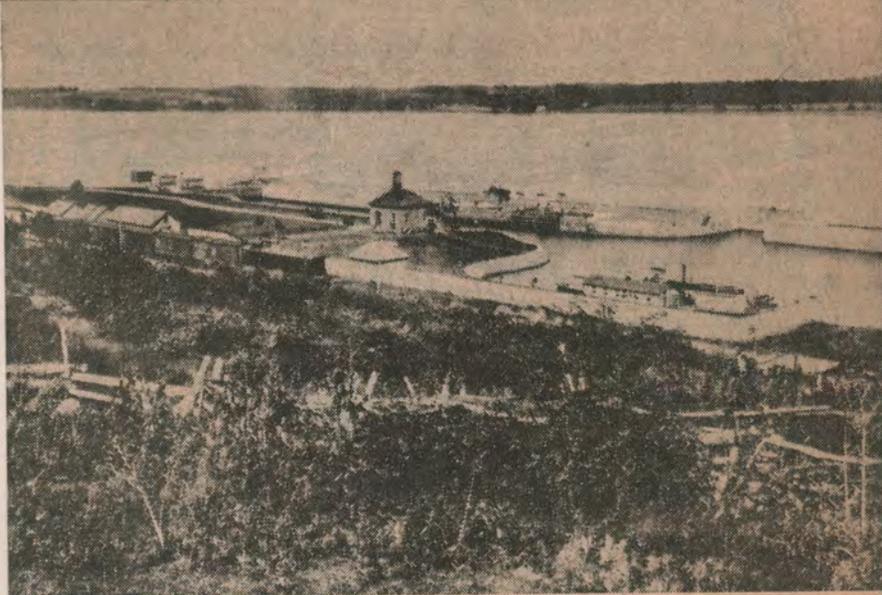
Transfer Points

Transfer or concentration points were established where freight and passengers were transferred from boat to railroad and vice versa. These transfer points became large and important wharves. With the development of terminal facilities came improvements in the crafts themselves, including, progressively, canoes, bateaux, keel boats, flat boats, rafts, packet boats and finally barges pushed by steam or diesel-powered towboats.

In its original condition the Mississippi river was navigable for light-draft river boats up as far as the Twin Cities; however, shoal reaches and rapids in the vicinity of Rock Island and Keokuk formed virtual obstructions during periods of low stages. Common practice was the employing of special pilots for navigating the rapids. Other impediments in the form of sand bars, snags, and narrow reaches gave trouble to the river pilots of those days.

Robert E. Lee

Although a definite project for the Upper Mississippi was not authorized until the passage of the River and Harbor Act of 18 June 1878, various sums of money were appropriated by River and Harbor Acts passed between 1852 and 1878. These appropriations covered work in a number of localities, but were in general confined to the improvement of the conditions at the Des Moines (near Keokuk) and Rock Island Rapids, and to the oper-



ation of dredges and snag boats.

It was in 1832 that Lt. Robert E. Lee (later the famous Confederate General) accompanied by 2nd Lt. Montgomery C. Meigs, made surveys of the Des Moines and Rock Island Rapids. In September and October 1838, Lt. Lee personally directed the excavation of some rock from the Des Moines near Keokuk.

In the River and Harbor Act approved 23 June 1866, Congress authorized the construction of the Des Moines Rapids Canal to by-pass these rapids and thus eliminate one of the worst obstacles to navigation on the Upper Mississippi river. The bid opening for the construction of this canal was held in Davenport in September 1867. Messrs Henegan and Sons of Mt. Vernon, Ohio, was the lowest of 28 construction firms bidding for the project, was awarded the contract and work was started in October 1867.

Dedicated 80 Years Ago

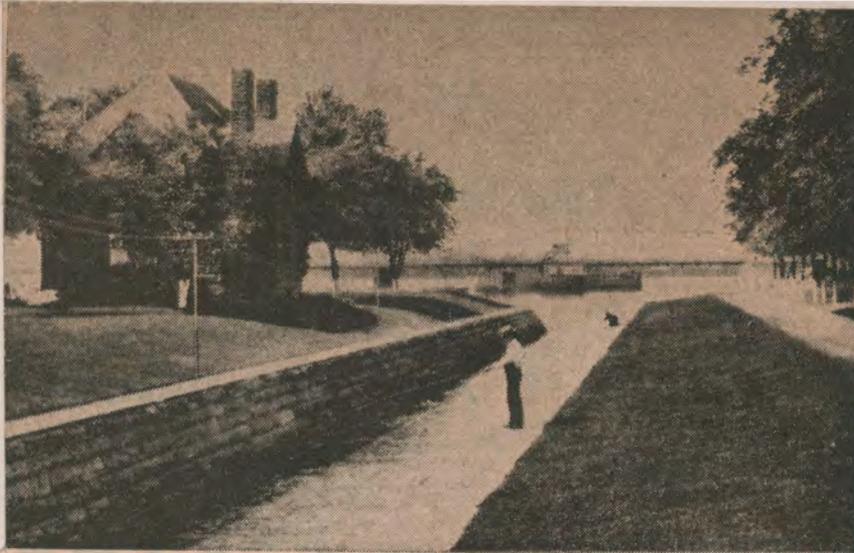
The canal was seven and six-tenths miles in length and extended along the Iowa shore from Keokuk to Nashville. The width varied from 250 to 300 feet, and the maximum depth the largest boat that plied the

river in those days. The fall in the entire distance which the canal extended was 18 and was eight feet while the minimum depth was five feet, which was sufficient to float three-quarter feet. There were two lift locks and one guard lock in the length of the canal, each lock being 350 feet long and 80 feet wide. The first or lower lock was located at Keo-

kuk, the middle lock two and one-half miles above and the guard lock five miles above that.

The construction of the project was carried on under the direction of Colonel J. N. Macomb, Corps of Engineers, U. S. Army.

The canal was formally opened to navigation on 22 August 1877.



EXTENDING 7 6/10 MILES between Keokuk and Galland, the old government canal which was drowned out by the water power development in 1913, was opened to navigation August 22, 1877. These U. S. Engineers show various aspects of the canal — top the upper locks at Nashville, now Galland, the Middle Locks, the Lower Locks at Keokuk and, bottom, the grounds and canal in Keokuk with a hopeful fisherman on the bank.

Hamilton Also Had Dreams Of Water Power For Years

By Pearl Gordon Vestal

Keokuk was not the only city using and talking about the great Mississippi river, its present service for navigation and its possible future service for development of power. Through more than half a century, the latter half of the 1800's, Keokuk's opposite number, Hamilton, Illinois, had up-and-coming pioneers who talked and wrote and 'everlastingly ding-donged' the idea of developing water power on the Des Moines Rapids of the river, which separated the two ambitious cities.

Hamilton men strove through many decades to get the rapids developed for power, to get the river bridged, to have the earlier and later canals constructed. Dr. Wm. Harrison Githens had even advocated that a tunnel be constructed beneath the bed of the river and connecting the two states as to transportation!

Boast of Spring

On our side of the river we talked about water and more water, a deep artesian well,

with a liquid that looked like water and tasted like, — you name it. It was supposed that drinking the mineral water and bathing in it would cure disease and lengthen life. We also boosted, and with good reason, the water of a flowing spring, coming out of the limestone cliff on the south side of Cheney creek, and called the Wild Cat Spring.

For a number of decades in the last century and into the current century the Brown family owned and managed, for modest fees, a lovely picnic and camping ground there. It was easily accessible to Hamilton, even in the horse and buggy years.

May Meetings

Camp meetings, patriotic and political rallies, church and Sunday School and Lodge group meetings and festivities of sports nature were among the gatherings centering at Wild Cat Springs. The Old Settlers' Association and the Old Soldier's Reunions were often there. The Hamilton Chautauqua had its tents and many

famous speakers and entertainers came from away. A Carthage lady and a Hamilton man brought their pastor and their families and were married there. A Negro church from Keokuk held a revival under a tent. People came from as far as Quincy to enjoy the beauty, the shade, the never-failing water. In Hamilton, in summer drought, empty cisterns were filled by sending the "tank wagon" to Wild Cat.

Back In The 1880's

Some enterprising booster of the young city of Hamilton printed up a batch of yellow envelopes and sold them to the citizens for use in sending out business letters. My grandfather, Samuel Gordon, had and preserved some of them, as did David Pagett, nurseryman. With the three noted references to water, they read:

"HAMILTON is a city of 1200 inhabitants, situated on the bluffs of the Mississippi River opposite Keokuk, Iowa, and possessed with almost every possible advantage, surrounded by splendid building material

and as fine an undeveloped water power as can be found in any country and not subject to flood and draught and no limit to supply, and at a point easily accessible to all the great wheat, wool and cotton growing districts in the country." Whew! What a long sentence! It reads on:

Good College Site

"School and church facilities splendid, and a first-class place for a good college. There is also located here the celebrated Riverside Sanitarium Magnetic Water Cure, and Wild Cat Springs Park, one of the finest locations in the county for a summer resort. We also have two of the largest nurseries in the states, also one of the largest Apiarian establishments in the world. Society good and no saloons. Crude material of all kinds abundant and skilled labor wanted to utilize it. Two railroads and river supply ample transportation. It is also one of the healthiest places in the country. Correspondence solicited with all kinds of manufacturing enterprises." END

118
"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL
KEOKUK, IOWA

THE GATE CITY:

SUNDAY MORNING, FEB. 1, 1880

THE CANAL.

Annual Report of Major Stickney for the Last Fiscal Year.

What Has Been Done in Improving and Operating the Canal.

The Total Amount Appropriated up to the Present Time \$4,448,500.

The annual report of Major Stickney in charge of the Rapids Improvement at this place for the last fiscal year has been issued in pamphlet form and a copy of it has been received at this office. It contains much valuable information concerning the work on the improvement and the operation of the canal. The work performed was as follows:

Completing the construction, and placing of the machinery for operating the guard-lock.

Constructing and placing the machinery for operating the sluice-gates at middle and lower locks.

Grading and completing lock grounds at middle and lower locks and inclosing them.

Laying riprap face wall.

Dredging chiseled rock from channel between Montrose and Nashville.

Dredging in front of city of Montrose, deposit caused by coffer-dam.

Dredging sediment from canal and approaches.

Arranging and equipping scow for operating steam-drills in channel.

Constructing telephone line along canal.

Making repairs to machinery, dredge-scows, &c.

Operating the canal for navigation.

All work on this improvement during the year has been done by hiring the labor and purchasing the necessary material in open market, a system which has given most satisfactory results as compared with that of contracts.

MACHINERY.

The machinery for operating the guard lock by hydraulic pressure is now completed. This lock has heretofore been operated by hand, the completion of the machinery having been delayed on account of making some changes in the construction of the pump.

At the guard and middle locks the engines have been supplied with No. 15 Hancock inspirators, to supply the boilers with water independent of the main pump.

These inspirators have worked most admirably, do not require to be fed from a tank, but draw directly from the

cisterns, and feed the boiler without the necessity of running the engine.

At the middle and lower locks the machinery for operating the sluice-gates has been completed and is in use.

GRADING AND COMPLETING LOCK GROUNDS.

At the lower lock the lock grounds have been graded and part covered with macadam and part with good soil, which was sowed with grass seed. At the middle lock the grading of the grounds has been completed. At the guard lock the grading and macadamizing of the ground between the lock and river embankment was completed, and a slope wall was built along the inside fence of river embankment. One hundred and eighteen and five-tenths cubic yards of wall were laid at this point. At all the locks small ice houses were built, which were filled with ice from the canal by the regular lock hands, at a time when severe weather prevented repair work from going on.

LAYING RIP RAP FACE WALL.

Four thousand seven hundred and fifty-two and seven-tenths cubic yards of new wall were laid during the year. A mile or more of the river embankment has been dressed ready for wall laying, and portions of the bank, where from long exposure the unprotected earth at the top had been washed out in gullies, were filled out to the true section.

DRILLING SCOW.

A flatboat 80 feet by 16 feet, was converted into a drilling boat from which to operate two steam drills, for use in blasting the channel in the river, between Montrose and Nashville.

TELEPHONE LINE.

The telephone line has worked very well in every way and has proved of great utility in operating the canal and superintending the work generally. The passage of steamboats through the canal is greatly facilitated by its use, as lock masters are kept informed of a steamer's progress from the time it enters until it leaves the canal.

DREDGE.

The dredge was kept at work during the greater portion of the year, removing bars from the canal and the approaches to the canal at the guard and lower locks; in dredging the remains of coffer-dams at Montrose and Nashville and below the lower lock; in removing rock which had been chiseled in the channel between Montrose and Nashville, and in dredging out material alleged to have been deposited as a consequence of the construction of the Montrose dam in front of George Anderson's boat yard and the steam saw-mill of Wells, Felt & Spaulding, Montrose.

From the canal about 8,700 cubic yards of sand and mud were removed, and the dredged material towed out in the river and dumped in deep holes. From the approaches to canal at both ends about 6,300 cubic yards were removed and dumped in the river. From the channel between Montrose and Nashville 3,645 cubic yards of loose chiseled rock was

removed and placed in piles along the Iowa side of the channel and 50 feet from it.

From the river front of George Anderson's boat-yard and the steam saw-mill of Wells, Felt & Spaulding, Montrose, about 5,400 cubic yards were removed and dumped in the river inside the spoil bank of the Montrose dam.

OPERATING THE CANAL.

The operating of the canal has been without accidents or delays, and the increase of business over that of last year shows that the public are rapidly learning to appreciate and take advantage of its facilities. A new line of steamers has been placed on this part of the river during the year, and the larger class of boats which before the opening of the canal had to withdraw at the approach of the low-water season, now continue without interruption. The benefit to the lumber interests is as great as to the steamboat lines.

Considerable difficulty has been experienced at times by the large steamers and tows in entering the guard-lock from the river when the lock was used as a lift-lock, owing to the current which sweeps around the lock and tends to draw a boat out into the river while she is attempting to enter under slow headway. As the river rises the current becomes stronger and the difficulty increases. This could be remedied by placing a heavy boom or timber fenders along the outside line of the channel and resting them against crib piers filled with stone. The structure should extend about 300 feet up stream, and permit the water to flow freely under it, so as to prevent as much as possible the deposit of sediment at the entrance to the lock. The cost would be about \$6,000.

At the middle and lower locks experience has shown that the walls should be built about three feet higher on the up-stream half of the length of the lock.

The walls are now 2 feet above the high-water level of the canal. During the spring months when the water is high, strong northerly winds prevail, and boats entering the locks from the upper levels are sometimes unavoidably blown against the walls, and if light their guards ride over the walls, striking the snubbing-posts and the suspension-rods of the gates, which might sometimes cause a serious accident. The cost of building up the walls at the two locks would be about \$16,000.

Considering these improvements of importance, I have included them in my estimate.

THE COST.

The estimated complete cost of the work as now being carried on as given in my annual report ending June 30, 1878, was.....	\$4,388,000 00
For additional work recommended.....	22,000 00
Total cost of construction.....	4,410,000 00
Cost of operating and maintenance of canal from August 22, 1877, to June 30, 1880.....	127,565 00
Estimated cost of operating and maintenance for fiscal year ending June 30, 1881.....	40,000 00
	4,576,565 00
Total amount appropriated up to June 30, 1879.....	4,448,600 00
Amount required yet to be appropriated for finishing improvement and operating canal.....	129,065 00

CANAL STATISTICS.

Figures Showing the Business Done During the Past Year.

Heavy Increase in River Traffic.—Grain and Merchandise Carried During the Months of the Present Year Largely in Excess of Those of Last

The passage of the Inter-State Commerce Bill had a decidedly beneficial effect upon river traffic, which owing to the vigorous competition of the railroads has reached a very low ebb. The records kept at the government canal are correct and reliable and show the business done during every day of the year, when the canal is in operation. It is seldom the case now that a freight or passenger boat makes the trip over the rapids outside the canal and this is done only at times of exceptional high water. Raft boats with their tows of lumber, use the channel as long as the stage of the water will permit and it is only during the seasons of low water that they resort to the canal and it is only then that a record of their business can be secured. Through the courtesy of the government officials we are enabled to present to our readers the following

STATEMENT.

Months.	1887.		1888.	
	July	1887.	July	1888.
Boats Up	99	4	69	4
Boats Down	73	7	61	23
Barges up and down	55	4	37	24
Passengers	7,489	4,607	8,109	1,001
Merchandise	9,569	1,001	1,001	1,001
Grain, Bushels	31,285	30,994	10,520	70,289
Lumber, Feet	15,518,933	23,850,091	48,922,371	30,103,882
Logs, Feet	2,171,000	1,870,000	1,917,000	10,260,000
Shingles, M	10,622,000	22,114,000	22,114,000	13,318,000
Lath, M	6,070,020	9,077,200	12,480,200	9,752,350
Lockages	231	18	232	123
	232	123	237	867
	133	133	133	1,717

THE WEEKLY GATE CITY.

HOWELL & CLARK, Publishers.

DECEMBER 18, 1879

CANAL.

THE AMOUNT OF BUSINESS DONE THROUGH IT THE PAST SEASON.

A Large Increase Over Last Year—Interesting Report by Major Stickney.

The average stage of water in the Mississippi river during the past season has probably been lower than during any previous one for years and the practical importance and value to navigation of the canal around the Des Moines Rapids at this place has been fully shown.

While the stage of water has been unusually low, the amount of business has been extremely large—far exceeding that of former years. River men inform us that it would have been

UTTERLY IMPOSSIBLE to transact this immense business in the absence of the canal. The freights that have been moved down the river could not have been transferred around the rapids, as was done before the canal was in operation. Nor could rates have been kept down to the low figures that have prevailed throughout the season. It will be seen, therefore, that the people of the Mississippi Valley have not only been able to transport a larger portion of their products to market by water than they would had the canal not been completed, but have had the benefit of much lower rates of freight than they otherwise would.

INTERESTING REPORT.

Major Stickney, the officer in charge, has, at our request, very kindly furnished us with the following report of the business through the canal during the season:

(To the Editor Gate City.)

UNITED STATES ENGINEER OFFICE, DES MOINES RAPIDS CANAL, KEOKUK, IOWA, December 12, 1879.

SIR:—In accordance with your request I have prepared the following summary of the business of the Des Moines Rapids Canal, for the past season of navigation. The water was let into the canal March 15, 1879. The first boat to pass through was the steamer Annie, of the Keokuk Northern Line, March 22d. The last boats were the steamers Victory and Tidal Wave, of the same line, December 9th, 1879.

The canal was closed December 1st, and the machinery connections for operating the gates disconnected. As an accommodation to one of the Packet Lines having boats up the river the water was not drawn off from the levels until the 9th inst.

PASSED THROUGH THE CANAL.	
Steamers	327
Barges and flats	632
Rafts	104
CARRYING.	
Passengers	14,511
Tons of general merchandise	79,392
Bushels of grain	2,566,047
Feet of lumber	132,634,127
Feet of logs	16,061,960
Shingles	33,196,650
Lath	31,191,200
Lockages at one Lock	2,118
Average lockages in 24 hours	8

Very respectfully your ob't servant,
AMOS STICKNEY,
Capt. of Engineers, Bvt. Maj. U. S. A.,
in charge Des Moines Rapids Canal
and Improvement.

COMPARISON.

By way of comparison we give the following statement of the amount of business through the canal during the preceding year:

Number of steamers	1,224
Number of barges and flats	765
Number of Rafts	29
Tons of general merchandise	82,374
Bushels of grain	1,528,426
Feet of lumber	21,795,963
Feet of logs	5,185,000
Lath	5,394,146
Shingles	10,514,000

From this it will be seen that while the number of steamboats passing through the canal has been less and the tons of general merchandise about the same, the quantities of grain and lumber are very much larger, the number of bushels of grain exceeding last year's figures by over one million bushels; the quantity of lumber more than six times greater; the quantity of logs more than three times greater and other things in proportion.

The canal has, under the able management of Major Stickney and his efficient corps of assistants, been successfully and satisfactorily operated. Everything has worked smoothly and there has not been the slightest delay or accident of any kind.

THE GATE CITY.

KEOKUK, IOWA:

THURSDAY MORNING, MAR. 3, 1870.

ACCIDENTS.—When near a thousand men are at work at an enterprise involving gunpowder explosions and much steam machinery, and laden trains passing unceasingly over a network of railroads; amid tons of stone and ponderous timbers, and men new many of them to the labor and machinery in use, then it isn't strange that accidents happen. The wonder is that more do not occur on the canal and lock. Like Mercutio's wound, however, 'tis enough, especially for the poor victims.

Our good friend Worrall hands us the list for a few days past.

Day before yesterday they buried that poor Swede that on the 26th was so crushed and mashed out of all identity by the cars

Day before yesterday, too, John Nolen, a laborer, had his leg broken and was crushed and bruised so that he died. The cars did that. He leaves a wife and two children.

And yesterday Dan. Fletcher, thirty-three or thirty-four years old, known to all upon the works. For two years he had driven his car daily back and forwards over the works, and never a mishap. Well, yesterday, Dan. stooped down to unhitch his horse for the thousandth time, while the car was yet slightly moving. His foot slipped, he fell, his neck fell on the track and the car struck it, breaking it instantly, and Dan lay dead.

And the men and the works go on as before.

120

THE GREAT EASTERN CANAL HISTORY
BY F. BUCKEL KEOKUK, IOWA

sider the demands of the workmen unreasonable and positively refuse to yield to them. They say that they have been paying the men twenty-five cents per day more than laborers on similar enterprises at Rock Island, Sny Island Levee, Chicago, St. Louis and elsewhere are receiving. On the 17th of last month they voluntarily advanced the wages from \$1.35 to \$1.50 per day on account of the hard work they were doing in the pit, and during the winter kept them at work at a loss at the upper end of the canal in order to have them here to do the work they are now engaged in.

They have advertised for 500 men at \$1.50 per day, and expect to organize a new force and resume operations in a very short time.

The strikers give no reason for their action that we have heard of except that they want more pay. Some of them are willing to work at the old price, but through fear of violence submit to the demands of the majority.

We understand that the strikers have reported that if they hold out the Government will be obliged to take charge of and carry on the work, and that they will then get the advance. This, we are informed, is erroneous—that the Government cannot annul a contract as long as the contractors use all reasonable means within their power to fulfill it.

The strikers number about two hundred and fifty men.

THE GATE CITY.

KEOKUK, IOWA.

WEDNESDAY, MARCH 30, 1870.

Riot on the Rapids Improvement!

Three Hundred Armed Strikers make a Raid on the Laborers and compel them to abandon the Work!

TEMPORARY SUSPENSION OF OPERATIONS!

ROUGH TREATMENT BY THE STRIKERS!

NINE MEN ARRESTED!

THE AFFAIR IN DETAIL!

About eleven o'clock yesterday, intelligence reached the city, of a very extensive riot on the Rapids Improvement, caused by a raid of about three hundred armed strikers, on a few of the men who had seen fit to resume work. Immediately upon receipt of the news, we put our repertorial machinery into active operation, made a thorough research after the facts in the case, and give below the true status of affairs up to last evening as near as it could possibly be ascertained from a well authenticated source.

In order that our readers may understand the character of the riot and what produced it, we will go back to the 15th of March. On that day the number of hours constituting a day's work was changed by the contractors from nine to ten. During the winter season the laborers were required to work but nine hours, owing to the shortness of the days. For this they were paid one dollar and eighty cents. The increase of time was made without any increase of pay. The laborers demanded two dollars per day, and the contractors stoutly refused to pay it. The result was a general strike of the entire force, on the day above mentioned. The force consisted of about a thousand men. It is not at all surprising that this number, thrown together in idleness, should concoct some mischief. Matters remained quiet until within the past two or three days, when they began to shape themselves for a disturbance.

While the strike was general, every single man having deserted his post, a large number opposed it and were willing to continue work on the terms proposed by the contractors, but a majority were boisterous and clamored for more wages. The few who were disposed to work were kept from it through fear.

After a time the mouths of hungry wives and children began to cry for bread, and the necessities of the case demanded that something be done. Many of the men have families depending on them for their daily sustenance, and striking brought in no money. So the few who wanted to go to work expressed their willingness to the contractors and arrangements were subsequently made for resuming at three or four different places along the line yesterday morning. The whistle was blown at the accustomed time and the men went to work. This seemed to have been the signal for an outbreak by the majority who were still adhering to belligerency with a determination to fight it out to the bitter end. They marshalled their forces and made preparations for a general cleaning out of the resumeres all along the line. The first indications of an outbreak were discoverable at the Nashville pit. A motley crowd of about one hundred and fifty men, consisting of Swedes and Irishmen, something of an equal portion of each, armed with pistols, knives, clubs and stones, came down upon the workmen (about 75 in number), bearing at the front a red flag, brandishing their knives, shooting their pistols, and threatening in vehement terms, vengeance upon and violence to the men unless the work should be immediately abandoned. Considerable resistance was offered at first, but the rioters surrounded them, and by a vigorous use of their weapons, compelled the workmen to desist. Several hand-to-hand conflicts took place, in which a number were severely injured but none fatally, that we could hear of.

The attack was obviously a premeditated one, as the rioters were thoroughly organized and officered. From the Nashville pit they went to the stone quarry of Case and Van Wagener, where about fifty men were at work. Here several men were badly bruised and one had his skull fractured. The next point of attack was at Rickey's Point, where a small force was engaged. This was soon scattered. The rioters constantly gained strength and numbers, and it is estimated that before they had completed their undertaking the company comprised something over three hundred armed men. From Rickey's Point they went to Stotts Mill, where Mr. McDonald, the Superintendent of the works, was overseeing a few men. These fled at the sight of the approaching army. Mr. McDonald, with two others, got into a skiff, and it was with considerable difficulty that they made their escape.

This completed the job. The rioters were the victors, and the work were in their hands. Benjamin Trimble, a train-man, in attempting to get to the city, was stopped a short

DAILY GATE CITY.

WEDNESDAY MORNING, MARCH 4, 1874.

THE STRIKE.—A small force of men, numbering eight or ten, went to work on the Rapids Improvement at the old price yesterday morning. Quite a number of strikers assembled on the bridge and did some loud talking and tall swearing, but with one exception, no demonstrations were made. One striker armed himself with stones and undertook to instigate a riot, but he was immediately arrested by the police and hustled off to jail. He will be prosecuted and punished to the full extent of the law. The men continued to work during the day without further disturbance. It is thought that others will go to work this morning. There is doubtless a large number who are willing to work at the old price, but are holding off from fear of being mobbed.

The following notice was posted at different places yesterday:

\$50 REWARD

Will be paid to the man who will furnish the name and identify the person, to an officer, who put up the inflammatory notices to stop work on the Coffer Dam in this city or any person or persons who have made threats to prevent persons from working.

KITTLE & Co.

THE GREAT DUSTY & CALLED HISTORY
 BUCKET KEOKUK, IOWA

distance out, and ordered to retrace his steps. He promptly drew a revolver and declared his intention to pass, dead or alive. The men stepped back and allowed him to go on. We understand that these same men designed attacking Mr. Geo. Williams, one of the contractors, as he passed up the line, but their plan was frustrated.

After a time the crowd commenced to retreat, a majority retiring to the shanties along the works, and quiet again reigned.

In the afternoon Sheriff Bishop, accompanied by four or five men, went up the line a distance of about two and one half miles and succeeded in arresting six of the men who were implicated in the riot at this end of the route. Three others were afterward arrested here in the city, making nine in all. The following are their names: Gus Peterson, Otto Nelson, C. F. Bergham, John Burk, C. S. Wanson, Sand Berg, Andrew Peterson, Andrew Oren and A. Hagley. These are all Swedes and mostly young men. They are now lodged in the calaboose.

The affair has created considerable excitement here in the city, and last evening was the theme of conversation and subject of much inquiry.

It is surprising that in a riot of the magnitude and character of this one, so few were seriously injured. There are many conflicting rumors in relation to the affair, which we do not credit. We have stated nothing except on good authority. Neither have we attempted to magnify the matter in any way. We have given the plain unvarnished facts, as near as 'tis possible to ascertain then during the excitement, consequent upon a disturbance of this kind. The proper effort will be made to restore peace and quiet and to prevent any further demonstrations. We shall endeavor to give to our readers everything that may transpire in connection with the affair.

THE GATE CITY.

WEDNESDAY MORNING, MAR. 30, 1870

THE CANAL DISTURBANCE.

About Thirty of the Rioters in Limbo.

QUIET RESTORED AND WORK RESUMED.

Our city was the scene of considerable activity yesterday, occasioned by the canal riot of the day previous. The first war-like movement was the summoning by Sheriff Bishop of a *posse comitatus* consisting of about thirty five of our citizens to aid him in arresting the ring leaders of the riot. The company congregated on Main street and at ten o'clock was ready to move. About twenty

stand of Government arms were furnished by Mr. Sam. G. Bridges. These were carried by the same number of men, who went in wagons. About fifteen others were mounted on horses and armed with revolvers.

During the day everybody was eager to ascertain the result of the movement against the rioters, and the aforetime oft-repeated inquiry, of "What's the news from the seat of war," was revived and generally circulated. Meantime the squad proceeded up along the line. At its approach the men who were implicated in the riot fell like sheep. The posse, however, succeeded in arresting twenty of them, in addition to the nine captured the day before. No resistance was offered in any instance. The only difficulty experienced in arresting them was in overtaking them. They went through the brush like steers through a cornfield. The chase is described to us as interesting and exciting in the extreme. The following are the names of those who were arrested yesterday: Mike Shaughnessy, C. Spear, David Roch, Andy Moffet, N. F. Charlson, Gus Lyon, Thos. Finegan, Andrew Wychrist, August Noline, Henry Welsh, Wm. Bradshaw, Fredrick Fitzgerald, N. Johnson, W. Armstrong, John Nolen, John Silver, August Enders, Wm. Sacks, John McGrim and Dan. Connell.

John McGrim was sent to Fort Madison, in irons. The balance were lodged in the Calaboose, with those arrested the day previous. Those captured yesterday participated in the riot, but the prime instigators of the movement made their escape.

The squad returned to the city with the prisoners about four o'clock yesterday afternoon. Main street was decidedly lively for a time after their arrival.

Work was resumed at the lower end of the line yesterday afternoon. No further difficulty is apprehended, and it is expected that operations will be resumed all along the works in a short time. How many more will be arrested and what will be done with those who are already in limbo, remains to be seen.

THE GATE CITY.

FRIGHTFUL ACCIDENT.

Fearful Results of a Powder Explosion at the Lower Lock.

One of those fearful accidents which seem to be the almost inevitable result of blasting rock, occurred at the lower lock yesterday afternoon, resulting in the severe if not fatal injury of two men, one of whom is Mr. Nash, the contractor for the excavation of the rock in the prism of the lock, and the other a Swede laborer, whose name we were unable to ascertain. The accident was occasioned by the premature discharge of a

blast, and occurred something after this manner:

The powder and a part of the tamping had been placed in the hole, but as they were not in the right place, an effort was made by these two men to raise them a little. From some unknown cause the powder became ignited and the blast went off in the men's faces. The fearful results of such an explosion can in a measure be imagined. Both were badly mangled. The extent of their injuries has not fully been ascertained, but Mr. Nash, if he recovers at all, will suffer the loss of both eyes, and a sad disfiguring of the face. His skull is badly fractured. He was taken to the Laclede House and surgical aid rendered by Dr. Wyman.

The Swede, although not so badly hurt as Mr. Nash, was nevertheless very severely injured. His skull was fractured over the right eye, his left eye completely destroyed, and his face otherwise mangled. He was taken to his residence, corner of Second and Johnson streets, and was attended by Dr. Hughes.

It is a matter of surprise that more were not injured, as several others were standing in the immediate vicinity of the blast when it exploded. The fact that the blast was a shallow one accounts perhaps for the absence of further accidents. As yet we have had but comparatively few accidents of this kind to chronicle in connection with the work on the Rapids Improvement, but such things are the almost infallible results of blasting rock, and we must, of course, expect some of them to occur. FEB. 22. 1870

DEATH OF MR. NASH.—Mr. L. S. Nash, who was so severely injured and so frightfully mangled at the powder explosion last Friday afternoon, died yesterday morning at 8 o'clock. His funeral will take place from the Laclede House this afternoon at 8 o'clock. As he was a member of the Masonic fraternity, the members of the Order are invited to attend his funeral, not in a body but merely as individual members of the organization.

THE GATE CITY.

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Editors and Proprietors. 1870

THE RAPIDS IMPROVEMENT

What has been Done and what Remains to be Done.

Hon. Geo. W. McCrary, our Representative in Congress, visited yesterday in company with Mr. E. H. Worrall, the Engineer in charge of the section work, the canal for the improvement of the Des Moines Rapids of the Mississippi river, and gave the work a thorough inspection, both as regards its character and the progress which has been made.

The work of building this canal was commenced about two and a half years ago. The enterprise has been pushed forward with the greatest possible amount of speed of which the circumstances of the case would permit.

The following table will show the original estimate of the amount of work to be performed in connection with the improvement, the amount that was performed up to the 24th of January 1870, and the amount which remains yet to be done:

ORIGINAL ESTIMATE.

CUBIC YARDS.	CUBIC YARDS.
Earth.....625,000	Slope wall..... 500
Rock.....257,000	Vertical wall..... 1,300
Embankment...164,000	Concrete wall... 200
Lining..... 10,000	Railroad, 1 1/2 miles
Pudding..... 25,000	Public road, 935 rods
Rip Rap wall...149,000	

AMOUNT OF WORK PERFORMED UP TO JANUARY 24TH, 1870.

CUBIC YARDS.	CUBIC YARDS.
Earth.....386,750	Slope wall..... 500
Rock.....137,800	Vertical wall..... 200
Embankment... 35,600	Concrete wall.....
Lining..... 2,700	Railroad, 1 1/2 miles
Pudding..... 2,600	Public road, 335 rods
Rip Rap wall... 71,500	

REMAINING TO BE PERFORMED.

CUBIC YARDS.	CUBIC YARDS.
Earth.....238,300	Slope wall..... 500
Rock.....119,200	Vertical wall..... 1,100
Embankment...128,500	Concrete wall... 200
Lining..... 7,300	Railroad, finished
Pudding..... 22,400	Public road, 600 rods.
Rip Rap wall... 77,500	

By the above it will be seen that about one half of the section work has been performed. The Government has appropriated in all \$1,185,000. Of this amount \$700,000 were for the section work exclusively, and \$485,000 for the lock work. About \$235,000 of the latter sum have already been expended on the lower lock, leaving about \$250,000 still available for that portion of the Improvement.

The appropriation of \$700,000 for the section work was exhausted on the 24th of January, 1870. In order that the work might be carried on uninterruptedly, Congress made a temporary appropriation of \$200,000 in December last, but this sum was not available until some time during the present month. In the meantime the Government ordered a re letting of the section work, which took place January 27th, 1870. Messrs. Dull & Williams, having made the lowest bid, the contract was awarded to them and they are now carrying on the work. This firm, during a portion of the month of January and all of the month of February, pushed things vigorously and succeeded in performing, during that brief period, about \$70,000 worth work. This comes out of the \$200,000 appropriation which, at that rate, will soon be exhausted.

Messrs. Dull & Williams are very efficient contractors. They have had employed four locomotives, 320 cars, 1100 men, and a large number of teams and horses. The work which is now being performed is below the surface, and necessitates the use of six centrifugal pumps running day and night, in order to keep the encroaching waters of the Mississippi outside the excavation and allow the men to work.

The foregoing table shows only the status of the section work. The original estimate on the lock work was \$860,000. The amount which has already been expended on that portion of the work was, as we have already stated used, on the lower lock, for which Mr. E. Owen has the contract; nothing has as yet been done on the guard and middle lock. Although it has required two years and a half to perform one half of the work, the balance of it can be done in much less time than that, provided the necessary appropriations are made.

There is one fact worthy of note in connection with the progress of the improvement thus far, and that is that the work has sustained no damage by accident or otherwise, which has been any expense to the Government to repair. Everything has been conducted systematically methodically, and economically.

General Wilson, the Chief Engineer in charge of the work, is a very capable and efficient officer, is emphatically the right man in the proper place, and is assisted by thoroughly competent engineers.

It is universally conceded that no public works in the United States, either in progress or contemplation, exceed in importance the removal of these obstructions to the navigation of the Mississippi river. It is impossible to calculate with any degree of precision the very large benefit which will be derived therefrom. It has been estimated that the detriment to commercial progress resulting from these obstructions, and the expense of transferring freights, amount to a million of dollars annually.

The distance from New Orleans to Keokuk is about fifteen hundred miles, and from Keokuk to the Falls of St. Anthony eight hundred miles. Complete the Rapids Improvements here and at Rock Island, and eight hundred miles will be added to the uninterrupted navigation of the Father of Waters—making in all something over two thousand miles unimpeded.

In view of the benefits which will ensue to the commercial interest of this great valley, and of the importance to the Government of finishing a work in which so much progress has already been made, and upon which so much money has been expended, it is to be profoundly hoped that provision will be made for carrying on the improvement to a speedy completion.

The Daily Gate City.

TUESDAY MORNING, AUGUST 12, 1873.

THE RAPIDS IMPROVEMENT.

Completion of the Middle Lock.

The work of laying the stone which completes the Middle Lock of the Rapids Improvement, was performed last evening between five and six o'clock. The ceremony was witnessed by a number of our citizens, who went up in buggies and carriages for

that purpose. All the necessary preparations having been made, Mayor Miller was chosen boss mason and with the aid of some indispensable assistants conducted the ceremonies. After the stone had been placed in position, he made a few remarks apropos to the occasion, alluding to the substantial manner in which the work had been done, and speaking in complimentary terms of the efficiency of Mr. S. L. Bayless, who has had immediate supervision of it, and then declared, in the name of the city of Keokuk, the finishing stone of the Middle Lock laid.

This is the first portion of the Rapids Improvement that is entirely completed and indicates in a measure, the character and magnitude of the whole work. It is a superb piece of masonry and reflects the highest credit upon all parties concerned. It contains 9,400 cubic yards of cut stone masonry, 940 cubic yards of rubble stone masonry and 1,520 cubic yards of concrete masonry. It is 489 feet long, and 80 feet wide. Its capacity for vessels is 350x80 feet. It has eight feet lift, and vessels drawing five feet can pass through it in low water. The work was commenced May 17th, 1871, and completed on yesterday. The total cost has been about \$260,000. Mr. S. L. Bayless, Civil Engineer, has had direct supervision of the lock from the start, and has conducted it in the ablest manner. A large part of the work has been performed by Mr. George Williams of this city, which is a sufficient guarantee that it has been well done.

The Daily Gate City.

FRIDAY MORNING, JULY 4, 1873

Improvement of the Des Moines Rapids of the Mississippi River.

U. S. ENGINEER'S OFFICE, KEOKUK, IOWA, May 8th, 1873.

SEALED PROPOSALS, in duplicate, will be received at the United States Engineer's Office, in the city of Keokuk, Iowa, until 11 a. m., July 21st, 1873, for labor required for the excavation and embankment and construction of the embankment wall of the Guard Lock and Canal, and the channel at the entrances to the canal, now in process of construction around the Des Moines Rapids of the Mississippi River.

The usual conditions will be observed. The right is reserved to reject any and all bids. Copies of specifications, blank forms for proposals and guaranty, and all information can be obtained by personal application at this office, and all persons are requested to visit the work before bidding.

Proposals must be made on the blank forms furnished from this office, and must be accompanied by satisfactory evidence that the parties have the means and are ready to begin and finish the work without unnecessary delay.

Proposals with a copy of the specifications and a printed guarantee, signed by at least two responsible persons, must be enclosed in sealed envelopes, endorsed "Proposals for labor on Guard Lock, Section Work and Channel Excavations."

(Signed) J. N. MACOMBE, Colonel of Engineers, U. S. Army, Gen'l Sup't U. S. Imp't Des Moines Rapids.

1c23-d6t

THE GREAT DRY WHEEL RIGID ROLLER KEOKUK, IOWA R. J. BICKEL

Hugh Cooper fountain is unveiled Thursday

A number of top Union Electric Company officials from St. Louis, including President J. W. McAfee, were in Keokuk Thursday for the unveiling of the handsome limestone drinking fountain donated by the company to Keokuk.

The unveiling ceremony was held at 4 p. m. on the riverfront adjacent the River Museum, George M. Verity, with Rep. Fred Schwengel as the principal speaker. Formal presentation of the fountain to Mayor James F. O'Brien on behalf of the city was made by G. P. Gamble, executive vice president of the company.

50th anniversary

The fountain commemorates the 50th anniversary of the completion of the dam and powerhouse May 31, 1913 and honors its builder, Col. Hugh L. Cooper whose likeness is carried on a bronze plaque at the front of the fountain shaft.

Afterwards Union Electric

was host to a group of Keokuk people at a dinner in the Keokuk Country Club with Robert H. Walker serving as master of ceremonies, as he did at the fountain unveiling.

St. Louis executives

Here from St. Louis for the occasion were President and Mrs. J. W. McAfee, Mr. and Mrs. Gamble, W. H. Penney, vice president, transmission-distribution and his wife; H. R. Scott, vice president, regional, and Mrs. Scott; M. D. Dawson, superintendent of generating plants and Mrs. Dawson; R. L. Buchan, assistant to the vice president, regional and former superintendent of the Keokuk hydroelectric plant, and Mrs. Buchan, and R. L. Reid, project administration, advertising and public relations.

In brief remarks President McAfee praised the vision of Colonel Cooper and the extremely cordial relations which have always existed between Keokuk and the company. *MAY 30, 1963*

COL. HUGH L. COOPER DRINKING FOUNTAIN, commemorating the 50th anniversary of the Keokuk dam and powerhouse, was unveiled on the riverfront near the George M. Verity Thursday afternoon. Standing at the right are Mayor James F. O'Brien, who ac-

cepted the fountain for the city, and George P. Gamble, executive vice president of Union Electric, who made the presentation. Rep. Fred Schwengel was the guest speaker. Policemen Ramon Weldon, left, and Kenneth Beaird unveiled the fountain. —Gate City.



Keokuk dam and power plant is celebrating 50th birthday

126

MADE BY BAKER-VAWTER CO. →

KER-VAWTER CRIMPED LEAF

DATE



CHURNING OUT MORE POWER THAN EVER, the massive Keokuk power plant and dam has been doing so for 50 years this month and stands as a monument to the vision and engineering ability of Col.

Hugh L. Cooper as well as a group of Keokuk and Hamilton men who formed the original water power company in 1899.

—Leo Gredell

117TH YEAR NO. 126

KEOKUK, IOWA

TUESDAY, MAY 28, 1963

14 PAGES

TEN CENTS

Greatest engineering feat of the age was consummated in Keokuk fifty years ago — on May 31, 1913 — when the last batch of concrete was poured on the Keokuk dam, thus harnessing the mighty Mississippi for the production of hydroelectric power.

First power was delivered to St. Louis on July 1 and the formal dedication of the power house and dam was held in August with officials from Iowa, Illinois, Missouri, Wisconsin, Minnesota, Nebraska and Kansas here for the ceremonies.

An entertainment highlight was a regatta with nationally recognized power boat drivers competing, and Keokuk itself took a week's holiday to celebrate the culmination of a dream dating back to Robert E. Lee and Joseph Smith, the Mormon Prophet.

Changed Keokuk

Completion of the power plant changed the complexion of Keokuk by inducing such industries as Keokuk Electro-Metals, Keokuk Steel Casting and the two carbide plants, Midwest and Air Reduction, to take advantage of its abundant energy for their electric furnaces.

It may or may not be significant that now, after the wheel has made a cycle of 50 years, Keokuk is engaged on another tremendous undertaking with far-ranging implications — the redevelopment of its central business district in an effort to retain and attract retail business.

Unveil fountain

Union Electric Company, present owner of the power facilities, will commemorate the 50th anniversary of the plant and honor the memory of Col. Hugh Lincoln Cooper who designed and engineered the dam which many had deemed impossible.

It is donating a large, limestone drinking fountain to Keokuk, and will unveil it on the river front adjacent to the River Museum George M. Verity at 4 p.m. Memorial Day,

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

SATURDAY, JULY 3, 1937

Genuine Modesty of Cooper Is Revealed by Dr. Barr

Man Who Daily Saw Evidences of This Unusual Trait in Engineer Breaks Silence After Colonel's Death.

(By G. Walter Barr)

When The Gate City, the other day, said that probably I had written more about Hugh L. Cooper than anybody else, its expansion was correct, but its direction was wrong. I may have written more about the Keokuk water-power than any other man, but—

All I ever wrote about Col. Cooper was that he was born in Minnesota, went from high school into engineering, had built big water-powers in Jamaica, Brazil, at Niagara, and was building the Keokuk greatest water-power in the world then, at Keokuk, while still in his forties.

That paraphrased, and sometimes abbreviated, but never expanded, was all I was allowed to write about Col. Cooper, after I was employed on his staff.

The formula was dictated to me by Col. Cooper himself, and I was told I might omit any part of it, but I might never give more information about the man than that. I had gumption enough never to omit the clause about his age.

Genuinely Modest.

The genuine modesty of that great man is one of the most remarkable observations in psychology—and because it was entirely genuine, it left no chance for violating that formula given me, with an after alibi for my lapse. Sometimes it was more than inconvenient to me and to greater newspaper men.

Before I was employed by Col. Cooper, for the water-power company, I had an article accepted by The Review of Reviews on the Keokuk work. After I was installed in a company office, I received one morning a telegram from that famous magazine ordering certain pictures, including a portrait of Hugh L. Cooper. It put me on a hot spot.

After carefully planning my argument and persuasion, I went down on the job and hunted up the chief engineer and author. I talked as I never had talked before and kept him from coming in with a refusal, until I was done. Then he said he would ask his wife at luncheon and answer me immediately afterward.

Gets Away With It.

As soon as he went to his office, after the luncheon hour, I went up for my answer, loaded with more argument. But Mrs. Cooper had not been home for luncheon! I talked some more. Finally he picked up the telephone with one hand and pushed a button with the other. The button

brought an office boy who was told to go to his house and bring back a package. The telephone told somebody at his house to take a certain picture off a certain wall and give it to the boy.

I craftily suggested that time was short, and why not let the boy bring the picture direct to my office, and I got away with that. Meantime, I had secured the other photographs from Anchutz, and when the Cooper portrait arrived, I packaged them all, and at once took them to the postoffice myself, within five minutes. I wanted to get that portrait for the magazine away from Keokuk quickly. Then I held my breath, but nothing came from Col. Cooper, as I really expected.

In the hall, late that afternoon, I met J. P. Allen, who said in passing::

"You'd better keep away from Mr. Cooper, or he's likely to make you telegraph for the return of that photograph, and forbid its use."

Operation and Picture.

I did not see Col. Cooper again—rather, he did not see me for the next ten days. The key to all this was in what Col. Cooper said to me, just after the office boy had started to his house for his portrait. There was really deep feeling in the man's voice, as he looked at me squarely and said:

"Dr. Barr, if a doctor told me I'd have to go on the operating table this afternoon for a major operation, it wouldn't make me feel as badly as it does for you to tell me I must have my picture published in a magazine."

One, especially an experienced newspaper man—could not help respecting that real modesty of Hugh

L. Cooper, and I never felt irritated when it spoiled some fine plans.

Apropos of the same modesty, there was the incident of the New York World reporter. That great paper sent its star reporter—the one who scooped the world on the Titanic disaster—from New York to Keokuk, to make a feature story, not about the great work being done there, but about Hugh L. Cooper, "out of whose mind came this great work in the Mississippi River," as Schumann Heinck wrote on her own photograph which I obtained for Mr. Cooper, when she sang in Keokuk.

"Scooper" is Silenced.

The World reporter came to my office and told me his mission. I chanted to him that sentence from "He was born— to . . . 'in the forties" which I could recite as glibly as I once could the Lord's prayer, and told him that was all the information he could get. I told him my entire sympathy and good wishes were for him, but to tell him more would cost me my job, and it was a good job.

I told him that I would take him to Col. Cooper, introduce him with recommendation, and help him all I could while he tried to pump

more personal information about the man out of Col. Cooper. He was optimistic as we walked down to the works, and I introduced him to Col. Cooper in terms appreciative of his rank as a journalist, and then took one step to the right.

The reporter spoke of the work being done, and its author talked candidly, fully and very lucidly, about what was being done there in the big cofferdam. The reporter very casually slipped in a personal question, and the answer was some more information about the spillways.

To condense an hour's talk and most skillful repertorial digging, into a sentence, that most important and skillful reporter got not one single iota more of information about Hugh L. Cooper than I had told him in advance, in my office. Twice, under rather strong prodding for some personal fact, Colonel Cooper terminated the conversation. Each time, after a little, I took the New York World man back to him, for another trial. After three unsuccessful attacks on that modesty of Hugh L. Cooper, the reporter gave it up. And that was after Col. Cooper had told him, with somewhat of a disciplinary tone in his voice:

The Cooper Philosophy.

"This job is really worth while and I'm glad to tell you anything about it. But only the job counts, and anything about me is a mere triviality not worth bothering with a minute."

That was his philosophy always, with all his jobs, which constantly grew in size and importance. He dodged the big formal opening celebration by going on a tour to Europe, as soon as he had turned the water-power over to the operating company. Several very significant incidents there he never would tell, but I dug them out and verified them.

At Alexandria, or Cairo, or wherever the British government resided, he telephoned the office of the governor-general to say that he wanted to see the Assuan dam, and would a pass be necessary, and could he get one. His opening words were:

"My name's Cooper; I'm an American engineer." The slightly delayed reply of a secretary was:

"The governor-general wants to know whether you're Cooper of Keokuk." To that height he had risen in world history, already. After he had replied that he was Cooper of Keokuk, the next words to him were:

"The governor-general regrets that it is impossible for him to leave here just now, and asks whether you will kindly come to see him at once, if he sends for you."

Carriage and Soldiers.

And the governor-general of Egypt sent a carriage and a company of soldiers as escort much to the Keokuk engineer's surprise, with some little dismay. Next day he was sent to Assuan on a special train by the Egyptian government—and a year later he showed them how to fix their leaking big dam cheaply.

And after the American ambassador told him it was utterly impossible to get him a chance to see the big German works at Essen, Cooper of Keokuk merely went direct to the head of that gigantic

127

concern, introduced himself, and at once was given a big testimonial dinner with all the bigwigs of the imperial German government doing him honor.

These last things—and there are many more similar ones—seem proper to tell here, because of their contrast of the actual position of that great man, with his innate, genuine, dominating modesty, which caused him to prefer a dangerous surgical operation in a hospital to having his portrait printed in a very high class magazine.

Would Call Lake Cooper.

I have written here for The Gate City more than I ever wrote before about Hugh L. Cooper—he is dead, to the sincere grief of every man who ever worked under him, and has gone where such personalities can no longer give him pain.

I hope the proper United States government department will, now that he is dead, restore the name Lake Cooper to the pool above the dam he designed and built. Keokuk named it Lake Cooper, but the government officially made it Lake Keokuk after a year or so, because it will not name any geographical feature for a living man.

But now the name should be changed back to what the city of Keokuk always wanted it called on the map—Lake Cooper.



COL. HUGH L. COOPER.

Only a temporary resident of Keokuk, Colonel Hugh L. Cooper nevertheless placed an indelible mark upon this community and can never be forgotten as long as his work endures. And inasmuch as that is the huge Mississippi River Power Company plant and dam across the Mississippi river it may well be forever, although another of his gigantic undertakings, the world famous Dnieprostroi hydroelectric plant in Russia, has possibly been destroyed by now in the battle between the Nazis and Reds.

* * *

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

PRESENTED LOVING CUP, COOPER LEAVES THE CITY

Surviving Keokuk Members of
Old Water Power Company
Present Cup at His
Residence.

JUDGE LOGAN'S ADDRESS

Mr. Cooper Left Last Night for
Fort Madison in Automobile
Where He Took Train
for Chicago.

Before he left last night for Ft. Madison by automobile where he took a train for Chicago, Hugh L. Cooper was presented with a beautiful loving cup at his residence, the gift of citizens of Keokuk.

The presentation was made by the Keokuk survivors of the Keokuk and Hamilton Water Power company, with Judge William Logan making the presentation speech. With the men who blazed the way for the water power and who knew of his early struggles to finance the great undertaking grouped around him, Mr. Cooper was greatly affected.

When Judge Logan had finished the presentation speech and J. J. Ayers had unveiled the loving cup, Mr. Cooper accepted it with thanks but could not make a response. "I believe the photographer is waiting for us," he said, "I think I can talk a little better after a while."

When Judge Logan read the names of the departed members of the old water power company there were bowed heads in memory of them and their part in the work which they have not lived to see finished.

Judge Logan's Tribute.

Judge Logan's tribute when he presented the cup to Mr. Cooper was as follows:

Mr. Cooper:

The gentlemen present are the Keokuk survivors of The Keokuk and Hamilton Water Power Company. We are here for a purpose.

We, with our fallen comrades, C. P. Birge, John N. Irwin, Sam'l M. Clark, Edmund Jaeger, George D. Rand, D. J. Ayres and James Cameron, were the Keokuk forerunners who blazed the

way for the building of the greatest Water Power plant in the world.

We had spent nearly seven years struggling through the primary stages of our enterprise ere we found you.

You came in 1905. You saw the wonderful opportunity and seized it. From the hour you laid your iron hand, backed by your indomitable will, upon the helm of this great undertaking, the end was known.

You met and overcame obstacles that would have disheartened the strongest of men. You never faltered. You gathered mighty money kings under your banner and built a power plant that is the wonder and admiration of the civilized world.

You have lived among us for more than three years. Your name has become a household word in every home in this community. You have endeared yourself to everyone who has been fortunate enough to know you.

You are soon to leave us, but you take with you the good wishes of a city whose citizens have chosen us to carry to you a message of good will and appreciation, and to present to you this loving cup. It is a token of their love and esteem.

WILLIAM LOGAN, Chm.

A. E. JOHNSTONE

WM. BALLINGER,

B. P. TABER

J. H. COLE

D. A. COLLIER

WELLS M. IRWIN

FRANK W. DAVIS

J. B. WEL

H. W. HUISKAMP

J. F. DAUGHERTY

L. A. HAMILL

C. R. JOY

W. B. COLLINS

T. F. BALDWIN

W. J. ROBERTS

Committee.

A Beautiful Cup.

The cup, two feet high, of massive sterling silver with base of ebony, is entirely hand made, manufactured under the direction of Brooks and Chapman.

The speech of Judge Logan containing names of the members of the company who made the presentation embossed on parchment, accompanied the cup. The inscription follows:

Presented to

HUGH L. COOPER

By his friends, the citizens of
KEOKUK, IOWA.

As a token of their appreciation of his great work and the eminent service rendered them and the people of the

Mississippi Valley by the construction of the largest water power plant in the world. Here he harnessed the mighty Mississippi and made it to do his will. Here he converted that which had been going to waste for centuries to the use of man.

Keokuk, Iowa, July 26, 1913.

Company is Photographed.

After the presentation the party went out on the Cooper lawn overlooking the lake and giant power house and a picture of the members of the Keokuk and Hamilton Water Power company present together with Mr. Cooper was taken, with the cup in the center.

After the picture had been taken the party was seated in chairs on the lawn where the members could see the work that fulfilled their dreams of years ago and Mr. Cooper could view for the last time in months the wonder work his brain had wrought.

Here the talk naturally drifted to the struggles of years previous to Mr. Cooper's coming in 1905 when the task which the Keokuk men had set before them seemed so far from fulfillment, and then the brighter days after he took hold of the work and the beginning of the actual construction. They soon turned to talk of the completion of the power plant and the future it puts before Keokuk. Here Mr. Cooper, better than he could in any speech, thanked the forerunners for the trust they put in him and the beautiful presentation and farewell accorded him.

Mr. Cooper left last night for the east where he will join his family and sail for Europe on the Emperor Aug. 8, for a six months tour of Europe.

THE DAILY GATE CITY

CITY NEWS.

—For the first time since it was built, the Keokuk and Hamilton dam was lighted from the power house to the Illinois shore last night and the brilliant illumination could be seen for miles. Electricians made a search for transformers and turned the lights on before Chief Engineer Cooper left the city, making a beautiful display and adding another handsome tribute to the many which have been paid the noted head of the water power construction in the last forty-eight hours. Steamboat men far down and up the river, stated that they could see the dam illumination for miles. The white way on the lock was lighted up as was the power house and the display of lights was a grand sight for the many who saw it.

SUNDAY, JULY 27, 1913

EMPLOYEES PRESENT A DIAMOND PIN

Hugh L. Cooper Receives Beautiful
Token of Regard From Em-
ployees of the Com-
pany.

SUNDAY, JULY 27, 1913
WAS DEEPLY AFFECTED

Employees Show Their Extreme Loyalty to Chief With Whom They
Have Fought Na-
ture's Forces.

One of the most prized gifts Hugh L. Cooper will take away from Keokuk is a beautiful diamond scarf pin presented him yesterday morning by employees of the company who have been through the entire work with him here.

There was no ceremony for the presentation; when Mr. Cooper went to his desk yesterday he found the pin and an accompanying letter. The pin, which Frank LeBron made a special trip to Chicago to get, is pear-shaped, with a one-carat diamond at the top and three smaller colored diamonds, one brilliant lavender, one bright green and another of fine canary color in a row. The stones are mounted on platinum.

Mr. Cooper was deeply affected at the manifestation of deep regard by his employees.

The letter which accompanied the pin was as follows:

Your employees during the construction of the works in the Mississippi river ask you to accept the accompanying scarf pin as a natural, logical and spontaneous expression of their sincere regard for you.

For months running into years we have all worked together molding in to concrete and steel the structures formed in the mind of our chief. We have seen him almost every day from the first morning whistle sharing with us the winter blasts and summer heat down there in the Mississippi, or working at his desk in the office building. We have learned to know him well; and the more we know him, the more we admire and love him. He has led us through the building of a great engineering achievement which has excited the admiration of the world; and we feel that we have been honored in being allowed to follow him from the first skirmish, through the battles of that spring fortnight we can never forget, to the final great victory over the mighty river, in an

engineering campaign our chief engineer planned and managed without a mistake. What the old guard felt toward Napoleon, we feel toward Hugh L. Cooper. We have tried to express this best in that same loyalty displayed by the Legions of the Little Conqueror; we offer this scarf pin only as a little token of that regard which is too heartfelt to be expressed in either diamonds, gold or words.

- | | |
|-------------------|--------------------|
| J. N. Keenan. | Bert Schneider. |
| R. E. Kingston. | Robert Schroeder. |
| J. McCarthy. | H. S. Faulkner. |
| H. G. Frederick. | H. J. Askey. |
| H. Dawson. | F. A. Nolan. |
| E. P. Baum. | T. F. Devaney. |
| Joe Perry. | C. Krummenacker. |
| P. Kautz. | H. H. Smith. |
| J. M. Birely. | W. E. Flanagan. |
| J. W. Hall. | E. A. Kane. |
| L. R. Talbot. | W. T. Gamble. |
| N. E. Craig. | F. Battrell. |
| E. H. Keator. | H. D. Cook. |
| E. H. Baker. | Sam M. Lloyd. |
| Dr. O. T. Clark. | J. B. Davis. |
| C. Christensen. | D. P. Cooper. |
| Harry Kornfeld. | John Denholm. |
| J. P. Allen. | S. Harding. |
| J. C. Crowe, Jr. | E. F. Shaw. |
| C. C. Califf. | John Wright. |
| R. D. Edsell. | James Guiles. |
| S. A. Gibson. | John Wright. |
| L. A. Boquet. | P. J. Poug. |
| William Ingram. | Camille De Santis. |
| F. F. Vaughn. | H. F. Anthony. |
| J. O. Boyd. | H. T. Brown. |
| William Cook. | H. K. Dimelow. |
| J. A. Califf, Jr. | C. E. Smith. |
| L. E. Wells. | John A. Wiener. |
| Leo McKinley. | E. A. Short. |
| B. H. Parsons. | T. J. Manley. |
| John Kalix. | Alex McKenzie. |
| D. R. Palmer. | V. O. Ketcham. |
| | R. M. Mills. |

—The "white way" lights which have been completed on the south side of Main street were tested out yesterday afternoon. The test was satisfactory. A few of them did not burn, however, and the lights will not be turned on at night until the few changes are made and everything is in good shape. *Aug. 10, 1913*

Hugh L. Cooper Expresses Gratitude to the People

SUNDAY, JULY 27, 1913

To the Dear Citizens of Keokuk:

The last few days have been filled with so much that has been unexpected that I find myself faced with the necessity of using the valued columns of The Gate City for an expression of gratitude for the wonderful evidences I have received of your good will.

We have lived together in an atmosphere of happy contentment for about three years. I never expect to find again such a universal spirit of cooperation and splendid citizenship as I have enjoyed here during these last thirty-six months or thereabouts when the main daily endeavor was to advance the completion of our power plant.

As many of you know, I have in my office a stock certificate dated 1848, showing a time long ago when men were trying to avail themselves of the power possibilities existing in the Des Moines rapids of the Mississippi river. From this time long ago until now there has been a more or less constant endeavor on the part of you all to speed the time when the Mississippi might be successfully har-

nessed for the uses of mankind. The early attempts were doomed to failure principally because the time was not yet ripe for the successful consummation of your desires. It is a rare privilege indeed that it should have been my good fortune to have had the actual experience of building the work which is now just completed. It is even a more rare experience that when my principal labors were completed I should have been presented as I have been in the last few days, with two beautiful evidences of your good wishes, and I thank you one and all from the bottom of my heart for the medallion and the loving cup. The written and spoken messages conveying them together with the presents themselves, will ever be a grand memory and nothing could have happened to give me greater pleasure. It is unnecessary for me to confess that when these presentations were made I experienced so much emotion as to prevent any adequate response and this message can only partially represent my great gratitude to you one and all.

HUGH L. COOPER.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL
KEOKUK, IOWA

131

Half Million Tons of Concrete in New Lock

Towering 72 feet, 60 above the loor and 12 below, the massive walls of the 1,200 foot Keokuk lock with the guide walls below and above, contain nearly a half million tons of reinforced concrete.

The McCarthy Improvement Company, builders of the approach walls in Phase I of the project, used 25,000 barrels of Portland cement and the remainder was used by the J. A. Jones Construction Co., of Charlotte, N C., which completed the project this spring.

Cofferdam Broke

Despite the loss of some three weeks of working time due to minor strikes and time loss as a result of a premature filling of the lock when a cofferdam broke last spring, the work was kept up to schedule.

At the peak of the work last fall, the Jones company had some 400 men working around

the lock, most of them skilled workmen such as carpenters, cement finishers, and machinery operators with Richard Wells of Philadelphia as chief engineer.

One Fatality

Work started on the lock in November of 1952 and during that long period there was only one one fatality.

Pertinent data on the new lock as supplied by the U. S. Engineers follows below.

Lock Data

Usable length of chamber 1,200 ft.
Width of chamber, 110 ft.
Lift, normal, 38.2 ft.
Upper pool, El. 518.2 m.s.l.
Lower pool (project el.) El. 480.0 m.s.l.
Lower pool, high water (1851) El. 498.8 m.s.l.
Lower pool, low water (1934 navigation season) El. 475.0 m.s.l.

Top of lock walls El. 532.2 m.s.l.

Top of lower guide wall and draw span rest El. 500.0 m.s.l.

Top of upper sill, El. 503.2 m.s.l.

Top of lower sill El. 467.0 m.s.l.

Floor of lock chamber El. 466.5 m.s.l.

Existing channel below proposed lock, min. depth 10.0 ft.

Machinery — Electrical — 440 V. 3-phase, air lift or electrical for lift gate.

Gates:

Upper guard gate; submergible vertical lift, single leaf.

Upper service, submergible Tainter gate, chain lift.

Lower service; mitring, horizontal framed.

Tainter valves; 5 strut-operated, 14'-6" x 14'-6", reversed.

Intake ports:

Filling; 8 openings 9'6" x 15'0" in upper gate sill, streamlined.

Discharge system No. 2; 4

openings 9'6" x 14'6", streamlined.

Laterals:

Lock chamber; 20, interlaced and tapered, 6'0" high x 6'0" wide at entrance and 3'5/4" wide at last port, 11 ports each side 1'1" high x 1'5" wide.

Discharge systems Nos. 1 and 3: 4, 8'5" wide x 7'6" high; 9 ports each side, variable spacing, 1'1" wide x 5'3" high.

Discharge system No. 2: 4, 8'5" wide x 7'6" high, 9 ports each side, variable spacing 1'1" wide x 3'9" high.

Discharge manifolds:

Streamlined, varying from 14'6" x 14'6" at valves to 4 ports 8'5" x 7'6" at entrances to discharge laterals.

Operating data:

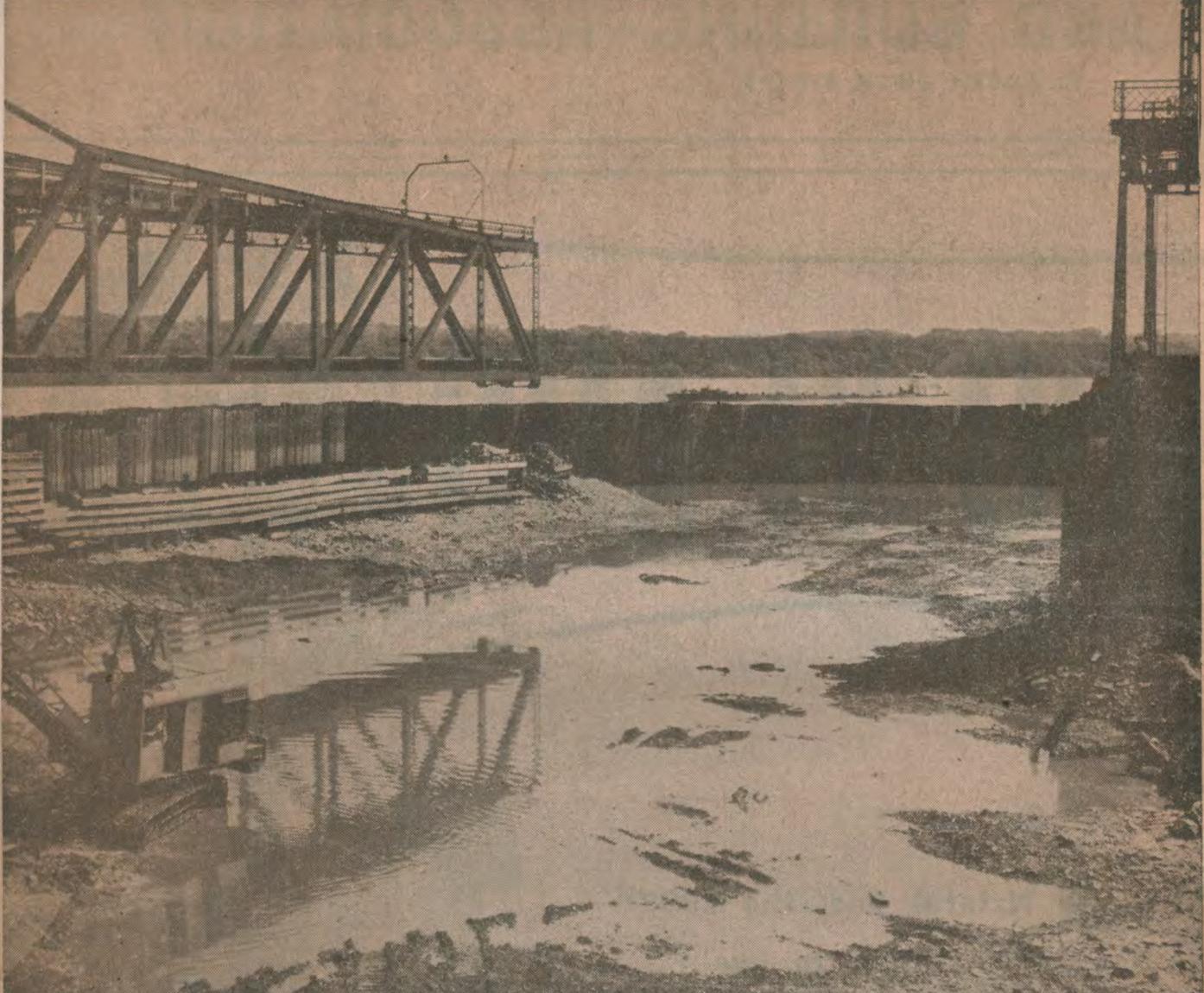
Filling time: About 9.4 min., 2 upper Tainter valves open in 4 minutes, remain open 2 1/2 minutes, and close in 4 min. Tainter gate begins to lower below upper pool 1 min. after Tainter valves begin to open aid lowers at 0.8'/min. until the Tainter service gate is submerged.

Emptying time: About 8.3 min., 3 Tainter valves open in 1 1/2 minutes, and remain open until lock chamber is emptied.



COLONEL HUGH L. COOPER, chief engineer of the Keokuk dam, is shown at the left on top of the structure January 6, 1913. Governor Dunne of Illinois is in the center and Governor Clarke of Iowa on the right.

The Daily Gate City Keokuk, Iowa
SATURDAY, AUG. 17, 1957



EXCAVATION WORK by the McCarthy Improvement Company of Davenport, contractor for Stage I was in progress within a coffer-damed enclosure below the municipal bridge when these pictures were taken.

THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

KEOKUK CITIZENS BID HUGH L. COOPER FAREWELL

Guest of Honor of One Hundred Citizens at Farewell Banquet at the Elks Club.

MEDALLION PRESENTED

Speakers Praise Wonderful Work of Mr. Cooper Who Calls it "Little Job on the River."

SUNDAY, JULY 27, 1913

Farewell was said to Hugh L. Cooper Friday night by one hundred Keokuk citizens at a banquet at the Elks club and Mr. Cooper was presented with a bronze medallion, with fitting inscription to the builder of the world's greatest water power, as a memorial and testimonial of the deep regard in which he is held by the people of the city.

The presentation speech was made by Theodore A. Craig and the sentiments of regret at the departure of Mr. Cooper and of triumph at the successful completion of the great work expressed by the speaker were reiterated by every man at the banquet.

There was nothing conventional at this banquet; Keokuk citizens were merely saying good-bye to a foremost citizen, and neighbor. The big dam at times became almost a secondary thought. Mr. Cooper seemed almost to forget that he was chief engineer of the largest water power, a thing he has not had a chance to do for several years, and he seemed most to enjoy the jokes told about him and the dam at the beginning of the work. The farewell was to Hugh L. Cooper, the man, as well as the engineer.

Introducing the Speakers.

Wells M. Irwin, who is out of place at a Keokuk banquet except as toastmaster, introduced the speakers and his jibes and gentle raillery at the speakers added zest to the evening's ceremonies. He paid a fine tribute to Mr. Cooper in his opening remarks, saying, "I almost quaked in my shoes when I was told what I was to do tonight. Then I began to feel the power and activity instilled in me and which we have assimilated from this human dynamo during the last two years.

"Mr. Cooper came among us a few years ago unheralded, unattended, unsung. During those few years he has created and built one of the great wonders of the age. Mr. Cooper has not only constructed a wonderful piece of work by the exhibition of his engineering ability but he has, to my mind, created a much greater work in the minds and hearts of the people of Keokuk. He came among us a stranger a few years ago. In a few days he goes hence and twenty thousand people of the best city of its size in the world will say, 'God bless you, Hugh L. Cooper.'"

Theodore A. Craig, who made the presentation speech was then introduced by Mr. Irwin. He said:

Presenting the Medallion.

"For several years past, Keokuk has been undergoing a new experience and today we trust that it has fully entered upon a new era. Opportunity has come to us. You know what Mr. Dooley said about opportunity. 'Opportunity, Hennessey, knocks wanst on iviry man's dure. On th' dure av wan man it knocks and thin runs away. On the dure av another man it knocks and whin he opens it hits him in th' head wit an axe. And on th' dure av another, it knocks and thin opens th' dure itself an' goes in and wurks fur him as a night-watchman.' As it is with men, so it is with cities, and I may fairly say that in these latter days opportunity has been keeping watch for Keokuk.

"Where once we felt despondency, we now have confidence. Where once there was faltering, there now is aggressiveness. Where once there was indifference there now is action. Industry has driven out idleness, improvement has commenced to obliterate decay, and depression has given way to prosperity.

"We have shaken off the sleep that once held us in its thrall and have opened our eyes. As we speak of our native city, there is no longer an apologetic tone, but there is a certain chestiness in our voice that was a stranger in the old days. As the word Keokuk is beginning to be a synonym for power, so we ardently hope to make a synonym for progressiveness and prosperity.

"What was it that wrought this change? What was it that so ruthlessly disturbed our slumber? We have the guilty man, and tonight we hope to mete out to him a small portion of the punishment he so richly deserves. He has been adjudged guilty and he has failed to show cause why he should not be sentenced."

Cooper Brought Change.

"The change began on that day when Hugh L. Cooper first came among us. As he has lived with us and wrought, we have seen our hopes of bygone years turned to realities through his handiwork. Here he has battled with nature and won. Here within our borders his master mind and skilful hand have reared a work that shall endure as a splendid monument to man's genius. Here he has tamed the spirit of earth's greatest river and turned its mighty strength to the useful arts of peace. The power that dwelt in its swift currents, he has here gathered to send it forth to bestow the blessings of industry for ages to come. 'Peace hath its victories no less renowned than war,' and here has Hugh L. Cooper won a victory of peace, most magnificent in its conception, most benign in its far-reaching results.

"As the man who has done this has dwelled in our midst, we have come to know him as a man, and today we esteem him, not alone for his splendid achievement, but for his sterling worth and qualities of manhood. Modest and unassuming, kindly and human, straightforward and manly, we respect him not only because he is Hugh L. Cooper, the creative engineer, but because he is also Hugh L. Cooper, the man.

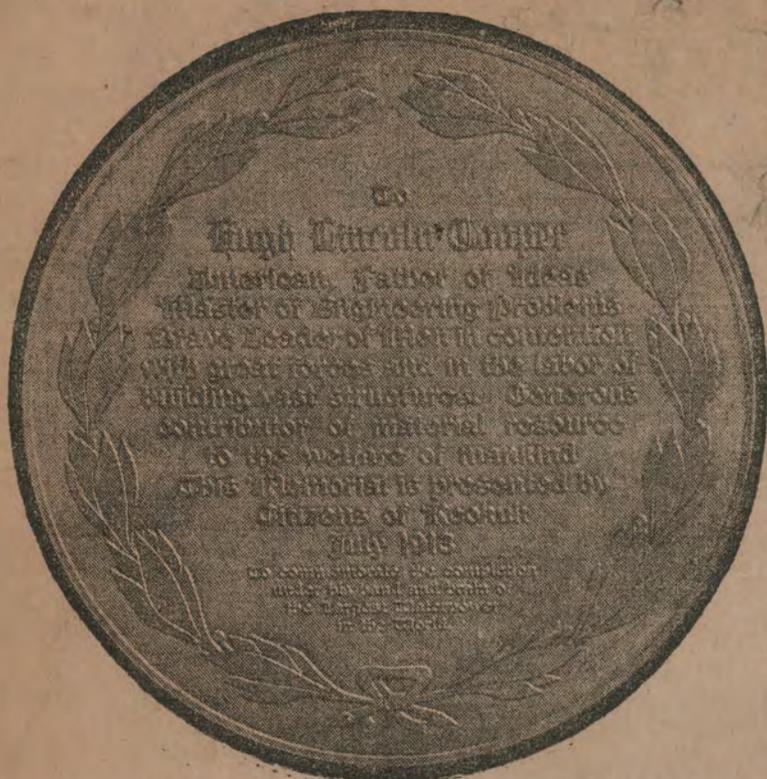
"Today his work in Keokuk is done, and we are near the parting of the ways. We cannot let him depart without something to mark the hour as one which means much to us. With the sense of gratification which comes to us in seeing the fruition of our hopes, there also comes the keen regret that we are about to lose one who has endeared himself to us.

Deep Affection of People.

"And so we have gathered here tonight, Mr. Cooper, to show you that we are not unmindful of the season that has come; to voice the regret that is in our hearts; and, to show you our deep appreciation of the service which you have done for us and for the city that we love.

"We congratulate you upon the accomplishment of your great work. As you view the finished structure, we know that there must come to you thoughts of the many and bitter disappointments that attended the early phases of the project, of the unceasing toil, and anxiety, which have been your portion as each step was taken, and we remind you that you have surmounted all obstacles which have opposed you, where a man of less indomitable will would have failed. We know that the completion of such an achievement as this must bring to you the liveliest satisfaction, the most pardonable pride. The work which you have builded is not for a day, nor for a year, but it will endure, that it will bestow its blessings upon generations that are yet to come, and that through the years, the mighty forces which you have shackled will continue to serve man until that day when labor shall lay down its ham-

BRONZE MEDALLION FROM KEOKUK CITIZENS TO HUGH L. COOPER.



The medallion is of heavy bronze of a soft, silvery tint, and is on a wood base in a velvet casket. The inscription was composed by Richard Washburn Child. It was made by the art bronze company which makes most of the medals for presentation to notables of national fame.

mer, and industry shall cease its striving.

"It is hard to put into words the emotions which crowd upon us at such a time as this. After all that you have done for Keokuk, we stand confused and ashamed when we realize how little we can do for you. Yet this reassuring thought comes to us, that when the Almighty stored the hills with treasures of silver and gold, in His infinite wisdom He so ordered the universe that man prizes more highly than these the gratitude and esteem of his fellows. And of our gratitude and esteem we give you the fullest measure.

Reads the Inscription.

"We are loathe to let this hour pass without testifying in some more substantial manner than by word of mouth our appreciation of the splendid qualities of mind and heart which you possess, our admiration for your great work, and our gratitude for the service you have done us. And so we ask you to accept from us this medallion, on which are cast, in words of enduring bronze, our thoughts of you as we say farewell:

To Hugh L. Cooper.

"American. Father of Ideas. Master of engineering problems. Brave leader of men in contention with great forces and in the labor of building vast structures. Generous contributor of material recourse to the welfare of mankind.

"This memorial is presented by the citizens of Keokuk, July, 1913.

"To commemorate to completion under his hand and brain of the largest water power in the world.

"While the words that are written here are cast in bronze, in symbol that they shall endure, the sentiments of admiration, respect, and, may I even say, affection which go with them are golden.

"And let me say that wherever you may be, Keokuk will always claim you as her own. Where you shall now rest from your arduous labors, or whether your fortune shall lead you to new fields and even greater achievement, the ties which bind you to us shall not be severed, and you shall belong to us.

"Tonight Keokuk bids you god-speed. It is the earnest hope of every citizen of Keokuk that wherever you and those you love may go, may happiness, with her handmaidens, health and prosperity, attend your steps."

Mr. Cooper's Response.

After two other speakers had added words of praise for Mr. Cooper, he responded to the presentation, saying:

"This is an occasion when I almost feel that I would give half the cost of the dam, if I had it to give, to be able to suitably express my appreciation of the beautiful gift you have presented to me this evening. I doubt, however, if there are very many men, even though they are gifted in the art of public speaking, who

would be able on an occasion like this to adequately speak to you free from emotion and with a clear voice.

"It is indeed a rare event in the life of any man when he finds himself so honored by his fellow citizens as to become possessed of such a beautiful present, at a time when he is leaving the community. I well remember once leaving Keokuk in a way that was very different from the present. I refer to the occasion when Sheriff Crimmins was seeking to spoil a trip of mine with a subpoena. He finally found me in the Congregational church, and while he was sitting on the front steps waiting for the conclusion of my devotions an angel advised me of the front door predicament and to skip by the back door, which I successfully did.

"I had supposed that the amount of noise we have been making around here for the last two or three years might have produced a nervous condition in the minds of the people, totally prohibiting a demonstration such as you have made this evening. I can truly tell you the gift is most welcome and I feel highly honored in its possession, and it will always be with me wherever I go. Welcome surprises, so far as I have been able to observe, are few and far between in the lives of most people, and especially in the lives of engineers, because in quite a general sense engineering work until recent times, has not been a subject of much interest to the public. To have lived amongst you for three years and to go away feeling as I can now surely feel; that my leaving is a matter of genuine regret to all of you, is a jewel of high degree and I am indeed proud of its possession.

"The Little Job on the River."

"The little job down on the river is practically completed, and is in successful commercial commission, and in this success the first step in the campaign inaugurated here so many years ago is finished. If I am any judge of the future, as time goes on many changes of a beneficial kind will come, not only to Keokuk, but to adjoining communities, and be fathered by the water power on the Father of Waters. In other words, I believe the starting of the work is the first step in a rising campaign of progress, and whereas this campaign of growth will be intermittent, the growth will be always in a forward direction and I am sure eventually there will be a multitude of blessings come into your lives which will date back to July first, 1913, the day the plant was started. The ultimate aggregate of these blessings will, in my judgment, depend largely upon how closely the power company and the people follow the Golden Rule, and as far as the dear people of Keokuk are concerned I am sure they will always follow the Golden Rule, and I am equally certain that the power company under its present management will do likewise.

"I feel certain there are many men here tonight who have in mind things they wish to speak about and I do not propose to take any more of your

134

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

COOPER KAREDEL

time. I wish you could really see my way, inside my heart and see how happy and grateful I am to you for this singular expression of good will, and on behalf of my family and for myself I profoundly thank you with all the meaning there ever was in this blessed word."

Geo. Fitch Speaks.

George Fitch, the humorist, who was visiting in the city, was called upon for a talk. Mr. Fitch could not help being funny and his remarks kept the banqueters in a merry mood for several minutes. "I have long known Keokuk and liked it," said Mr. Fitch. "In fact, I wanted to come from Des Moines to Keokuk so badly a short time ago that I came all the way on the Des Moines valley railroad."

The humorist paid his respects to the Mississippi which he has cruised upon so many times and spoke of the wonderful change the dam has made in the river above where he formerly hanged on sandbars several times and the magnificent spectacle of the great white power house which stand out on the river. Mr. Fitch paid a tribute to the civil engineer and declared that the Keokuk dam will grow as one of the world's wonders and will be a houseword in every part of the United States. He, however, expressed the hope that Mr. Cooper would confine his activities to building dams and not try anything on the moon, for what Mr. Cooper starts he always finishes.

Heroism of Mrs. Cooper.

Judge Logan told of the first time Mr. Cooper came to the city to see the officials of the Keokuk and Hamilton Water Power company. Judge Logan, who had been bothered with many engineers with much talk and little to show for it, asked Mr. Cooper if he ever built a dam. Mr. Cooper took him to Niagara Falls and was convinced.

He also told of the heroism of Mrs. Cooper who when her husband was almost ready to give up the fight to finance the company and had spent about all his fortune, told him to mortgage the house and sell everything rather than give up the fight. Then, if they failed, she said, they would start life over again in a cottage.

C. M. Rich told of a conversation he had with two men and when he told them that Keokuk was proud to call Cooper a resident of her city they answered that when the work was over and the country realized what a great thing it was Mr. Cooper would cease to be a resident of Keokuk and would become a resident of the United States.

Sorrow and Pleasure Mingle.

E. W. McManus said: "It occurs to me that the sentiment here tonight is one of mingled sorrow and pleasure, sorrow in seeing Mr. Cooper go and pleasure in knowing that he can not take the dam with him."

Dr. G. Walter Barr said there were three things most striking in his mind with the thought of the departure of Mr. Cooper, first how representative of Keokuk was the body at the banquet and how general the regret at Mr. Cooper's leaving as well as the pride in his triumph; second, the renown given Keokuk by Hugh L. Cooper; and third, in contravention to so many great men, how Mr. Cooper was loved and admired most by the men closest to him. Dr. Barr said that all Europe had sent engineers here to study the water power, that the story of it has been printed in the language of every great nation but the Chinese.

J. O. Boyd said that Mr. Cooper has been an inspiration to all of us, that a certain magnetism and enthusiasm that he had installed in to so many of us has been no less wonderful than the completion of a work that will do a great service to humanity. He also said that Mr. Cooper has established a new era in the dealings of corporations. He said he could recount many instances where Mr. Cooper has served the humblest employe of the company in time of need.

Wm. Ballinger declared that he could easily express his sentiments by saying that he is now and always will be a Cooper man.

The banquet was managed successfully by John Nagel, J. Albert Kiedaisch and Frank LeBron.

THE GATE CITY:

SATURDAY MORNING, OCT. 6, 1877.

THE CANAL.

The Mitre Sill at the Middle Lock Again Out of Place--The Canal Closed Until the Repairs are Made.

It was discovered yesterday that the mitre sill at the middle lock, which was recently taken out and rebuilt, had again been sprung by the pressure of water. It is only slightly out of place and it is thought that it can be bolted down securely without taking it out. The water will not be drawn out of the upper level if it can be avoided. Major Stickney thinks the cement had not had time to harden sufficiently before the water was let in the last time. The repairs will be made at the same time the mitre sill at the lower lock is being rebuilt, and Major S. expects to have them both ready within a week.

Meantime navigation through the canal will be entirely suspended, and the plan of transferring over the embankment will have to be abandoned. Captain Hutchinson has notified Commodore Davidson of the facts in the case but has not been advised yet what will be done about the running of boats on the upper river.

KEOKUK MUCH IN THE SPOT LIGHT

Newspapers All Over the Country Mention the Building of the Great Power Dam Here as Chief Event.

PRODIGIOUS BENEFITS

The Whole Country Recognized as Beneficiary of the Colossal Achievement of Hugh L. Cooper in the River.

The newspapers of the United States in their New Year review of the events of 1912, generally mention the building of the Keokuk dam and water power as one of the important occurrences of the past year. One sample of many is the following from the Troy, N. Y. Times. The Times article devotes the first paragraph of its review of the events to the Panama canal, and then gives more space in the column to the Keokuk undertaking which it speaks of as follows:

Another American undertaking from which prodigious benefits are anticipated will receive the final touches next year. This is the great dam erected across the Mississippi near Keokuk, Iowa. At that point the river passes down a series of rapids, the stream having a fall of about twenty-one feet in eleven miles. The rapids of course interfere seriously with navigation, and to overcome the difficulty the federal government has constructed a channel for the safe and easy passage of vessels around the obstruction. The conditions, however, are ideal for the generation of water power, and these conditions have been turned to account through the construction of the tremendous dam in question, costing \$25,000,000. The power will be used in generating electricity, which in turn will be transmitted over a wide area. Electricity for power purposes, for street and domestic lighting and for other uses will be supplied, and a great industrial boom is anticipated as one result. Many important towns are within easy reach from Keokuk, the largest being St. Louis, which expects to utilize a big proportion of the electricity generated, and the project promises immeasurable benefits to the locality.

AUTOMOBILISTS DRIVE OVER ROAD

Forty-six Owners of Motor Cars Ac-
cept Invitation to J. P. Allen
and go to Montrose This
Morning.

BIG PICTURE IS TAKEN

Nearly Two Hundred Persons Make
the Trip Over the New Lake
Shore Drive in Auto-
mobiles.

In response to the invitation issued
by J. P. Allen of the Mississippi River
Power company to Keokuk automob-
ilists, forty-six cars reported at Hub-
inger park this morning for the trip
to Montrose over the newly built
drive.

The cars were arranged in a circle
around the park and a panoramic
picture was made of the machines and
occupants. At 10:55 the start was
made, the car of Mr. Allen leading
the way at a speed of fifteen miles
per hour. The car containing the
representatives of the press ended
the long line.

The new drive which will be com-
pleted early next summer is one of
the most beautiful in the middle west,
following the edge of the bluff and
overlooking the river at every point
with the exception of a short distance
about half way between Keokuk and
Montrose. Early next summer the
lake formed by the big dam will be
up close to the railroad tracks and
the new road will skirt this lake prac-
tically all the way.

Wonderful views are obtained at
every point in the road, across the
river, into Illinois, and at various
places the whole city of Keokuk is
visible.

The party who made the trip feel
amply repaid for their participation
and are unanimous in their opinion
that when the macadam is laid of
top of the dirt it will make the best
drive in this part of the country.

Until one has been over the road it
is impossible to estimate the work
that has been done in order to build
it. Immense amounts of dirt and
rock have had to be moved in order
to make the big fills and cuts neces-
sary to build the road and the ab-
sence of any hills of any consequence
make it an ideal one for driving pur-
poses.

Those on the Trip.

Among the persons making the trip
were:

J. P. Allen and party.
Major M. Meigs, Misses Cornelia
Meigs and Anne Davis.
Smith Hamill, Miss Alice Noble.
Mr. and Mrs. E. S. Baker, Miss
Drummond.

Joe Carwallo, E. E. Bulman, N. H.
Pyle, G. W. Smith, Dr. Crestensen.

Mr. and Mrs. Myrle F. Baker, Mr.
and Mrs. Frank LeBron.

Leonard Matless, Dr. G. W. Holmes,
F. L. Griffey, Wm. Woolley, C. S. Pond,
George Hassell, L. A. Hamill, J. C.
Kritchell, F. G. Glaser, I. C. Williams.
T. F. McManus and family.

D. A. Young, Wm. Young, J. A. Rob-
erts and wife.

H. M. Anschutz and family, Miss
Mayme Smith.

Mr. and Mrs. H. E. Bishshop, Mr. and
Mrs. J. R. Roberts, Miss Kate Hil-
bert.

S. E. Milspaugh, James Fulton, G.
C. Tucker, Gavin Herbert, J. I. Anna-
bel.

Wm. Holland and wife, E. Vanatta
and wife.

O. W. Sandberg, Palmer Trimble,
D. W. Gray and F. G. Klepper, Musca-
tine.

C. M. Rich, Misses Lenore and Mar-
ian Lydia Rich, Miss Marie Weber,
Miss Elizabeth Fanning.

G. W. Rutledge, Frank Lowenstein.
Mr. and Mrs. A. C. Decker, Miss
Maude Marshall, Jack Weiss.

J. O. Boyd John P. Hornish, Rev.
J. W. Anderson.

Mr. and Mrs. Geo. A. Demple, Miss
Vivian Demple, F. A. Wilmering, Miss
Edna McKenzie.

C. P. Corey and family, W. J. Har-
ter and family.

G. E. Locke and daughter.

Chas. Breiner, Wm. Kellogg, W. B.
Daniel Miss Edith Meeks.

Mr. and Mrs. J. F. Elder, Mr. and
Mrs. T. P. Gray.

B. B. Hobbs, J. D. Ecker, L. F. Rol-
lins, Roy King, J. A. Kaldalsch.

Dr. G. Walter Barr, E. W. McManus
and representatives of the press.

WEDNESDAY, JAN. 1, 1913

THE NEW YEAR IN KEOKUK

JAN. 1, 1913

New Year Will See Greatest Period
of Building in the His-
tory of the
City.

A BUSY YEAR AHEAD

With the Dam Celebration and the
Numerous Conventions City Will

Be Host to
Many.

1913 opens auspiciously for Keokuk.

The year just closed witnessed pro-
gress all along the line. The year
just begun contains promise of being
the best in the history of the city.
This year will witness the completion
of the great hydro-electric water
power dam which has been in course
of construction for the past three
years and the wheels of commerce
will turn from electricity drawn from
the Mississippi river. The building
of the \$25,000,000 dam has been an in-
spiration and encouragement to all
lines of business and as a result of
this stimulus Keokuk has taken ad-
vanced steps. Just now there is in
course of construction the fine \$300,-
000 hotel at the corner of Fourth and
Main streets, the Masonic fraternity
during the year will spend from \$40,-
000 to \$50,000 for a new home, the
Y. W. C. A. building now being erect-
ed will cost approximately \$50,000,
the Winger Brothers will spend ap-
proximately \$35,000 for their new de-
partment store, the Security State
Bank with a capital stock of \$100,000
will be ready for business about the
first of February and the building at
the corner of Eighth and Main is
being made ready and handsomely so
for the occupancy of this financial
institution. The new factory building
of the Mills Ellsworth Co will be in
use within the next few months, the
C. P. Cory garage building between
Tenth and Eleventh is about complete,
hundreds of fine new modern homes
will be erected during the year 1913
as they were during 1912, and the pub-
lic work will go forward to keep pace
with the growing demands of the city.
While 1912 was a most pleasant and
profitable one, 1913 promises to
eclipse any of its predecessors and
there is no citizen but who faces the
coming year with the best hopes and
assurances that it will witness great
advancement. Sufficient improvements
are already under way to make the
year a busy one, but it is certain
other improvements will develop dur-
ing the year to add to the general
prosperity of the city.

Later in the year a number of con-
ventions will be held in the city and
the new hotel will be headquarters for
these gatherings. The entertainment
will start off with the big dam cele-
bration and this is going to be one
of the busiest years this city ever
witnessed.

This is the year to give your en-
thusiasm and enterprise full swing.

136

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

DAILY GATE CITY.

SUNDAY MORNING, SEPTEMBER 12, 1875.

RIOTOUS LABORERS.

The Idle Canal Hands Kick Up a Disturbance.

The suspension of operations on the coffer dam, at Montrose, threw over five hundred laborers out of employment. During the time that has followed they have become uneasy and dissatisfied, and have been playing the mischief that is begotten of idleness. While they are not at work the government could not of course guarantee their board, and as the boarding house keepers up there refused to feed them unless it did, and as they would have no money until the 15th, the usual time for paying off, this made them all the more discontented. In view of this it was decided to anticipate the regular pay day and give them their money on the 10th, which was five days in advance of the usual time. In order to accomplish this the clerical force in the office put in extra time making out the pay rolls. They were got in readiness and on Friday Mr. Comegys, the chief clerk, went up to Montrose to pay off, taking with him between \$8,000 and \$9,000 in money. Some of the men had been drinking and were disposed to be riotous. Mr. Comegys opened out his pay rolls and money and commenced paying off, but the men crowded in upon him so fast and made such threatening demonstrations that he became convinced that there was a scheme on the part of a few of them to rush in and gobble the whole pile. So he quietly got his money back into the boxes, took them under his arm, slipped out at a back window, got on a locomotive and came to the city, thus preventing any such result as was feared. He did it so quietly and yet so hastily that the laborers did not know what had transpired until he was out of sight. When they learned the situation the boisterous ones became more boisterous than ever, and threatened the lives of some of the foremen of the works. The authorities of Montrose were called on for a posse of men to suppress the disturbance. They responded with a considerable force, and the leading rioters were arrested and lodged in the calaboose at that place. There were enough of them to fill the structure to overflowing.

A large number of the laborers came down to this city that night, indulged in frequent potations of benzine, and became very drunk and noisy. They were lying about promiscuously on the sidewalks, and it kept the police busy to take care of them.

Yesterday a number of the workmen were paid off at the Engineer's office, and last evening the attaches of the office went up to Montrose and paid the entire force their wages for August—the money they would have received the day before had they remained quiet and behaved themselves. No further trouble is anticipated now.

The Daily Gate City.

WEDNESDAY MORNING, JULY 26, 1871.

ACCIDENT AT THE LOWER LOCK.

A Man Horribly Mangled.

A horrible accident occurred at the Lower Lock yesterday afternoon, resulting in the serious and probable fatal injury of a stone cutter named James Stack. The unfortunate man was engaged in receiving instructions from the foreman near one of the derricks. As the men were swinging it around the rope which supports the boom gave way. Unluckily for him, Stack was in a stooping posture directly beneath it. The derrick was loaded with a huge piece of rock. The boom, which is a piece of timber about 12 or 14 inches square, fell with terrific force upon the man, mangling his body in a most horrible manner and producing injuries from which it is scarcely possible for him to recover. Four of his ribs were fractured, his hip dislocated, hip bone fractured, and a very severe compound comminuted fracture of the leg below the knee. He was extricated from his perilous condition and conveyed to the College Hospital. Here Doctors Hughes and Sanford were engaged from three o'clock until half past six rendering the necessary surgical aid in dressing the wounds. Although they have done everything within the range of human skill for the man, they say there is little possibility of saving his life.

Stack is a single man, is from Chicago, and has been employed upon the work only about a week.

Mr. Wm. Gabriel, the foreman, who was giving Stack his instructions at the time, barely escaped a similar fate. He had also been stooping over and had just straightened up. The boom struck him on top of the head and knocked him senseless. Had he been occupying the same position as a moment previous he would undoubtedly have lost his life.

Workmen engaged upon the public works here cannot be too cautious, not only in guarding against accidents to themselves, but in preventing accidents to others as well.

THE GATE CITY.

KEOKUK, IOWA: 1865

FRIDAY MORNING OCT. 23.

IMPROVEMENT

OF THE

DES MOINES RAPIDS

OF THE

Mississippi River.

Notice to Contractors.

UNITED STATES ENGINEER'S OFFICE,
KEOKUK, IOWA, Oct. 21, 1868. }

SEALED PROPOSALS in duplicate will be received at this office until 12 m.

Wednesday, of November 18th, 1868,

for COMPLETING the excavation of the Prism, and the construction of the Embankment Wall of the Canal for the Improvement of the Des Moines Rapids of the Mississippi River.

The Canal is to be about 7½ miles long, extending from Nashville, Iowa, to Keokuk, Iowa. The width at the water surface inside of the Canal is to be from 300 to 400 feet in embankment and 250 feet in excavation, and in low water to be 5 feet deep. All the material excavated from the Prism of the Canal to be used in building the Embankment. The latter, throughout the greater part of the distance will be about 300 feet from the Iowa shore. Where rock excavation occurs the bottom of the canal will have a slope of 1½ inches to the mile. The embankment to be built of earth, clay and rock; to be ten feet wide on top, including the rip-rap covering, and to be two feet above high water mark, with slopes of 1½ base to 1 vertical on the outside, and 1½ base to 1 vertical on the inside. The average thickness of the rip-rap protection to be 2½ feet on the outside; 2 feet on the inside, and 1 foot on the top.

A portion of the above has already been constructed—say one-ninth, the balance, or so much thereof as the remainder of the funds appropriated—about \$600,000—will pay for, is to be re-let.

All propositions must state the price at which each and every kind of work specified in the proposal is to be done, and no bid will be considered that is not definite in this respect.

A printed copy of this advertisement must be attached to each proposal.

The Government reserves the right to reject any and all bids.

Each bid must contain a written or printed guaranty signed by two responsible persons.

Blanks for proposals of the form required, with form of guaranty, will be furnished upon application at this office.

The price or prices in the contract will be considered as including the expense of furnishing all the material, [excepting the right of way and land for borrow-pits,] implements and machinery and performing all the work according to the plans and specifications exhibited at the letting.

Fifteen per cent. of the amount of any work done, or materials furnished, at the contract price thereof, will be reserved until the whole work, which is the subject of contract, shall be entirely completed.

The name or names of the persons proposing must be written out in full, with their place of residence and post office address.

Plans, maps, specifications and all necessary papers will be ready for examination at this office fifteen days prior to the date of the letting.

Persons proposing to contract are requested to visit and examine the location of the work before sending in their bids.

Proposals should be addressed to the undersigned at Keokuk, Iowa, and should be endorsed: "Proposals for work on the Improvement of the Des Moines Rapids."

J. H. WILSON,

Lieut. Col. 35th Infantry, Brevet Major Gen., U. S. A.

Official:

L. COOPER OVERMAN,

Capt. Corps of Engineers.

oct23-d6t

The Gate City.

PUBLISHED BY
THE GATE CITY COMPANY,
KEOKUK, IOWA.

MAY 19, 1899.

HISTORY REPEATS.

The First Company Formed
to Dam the River.

CERTIFICATES JUST FOUND HERE

It Was Organized in New York and
Killed Off by the Famous
Panic.

Right now when the conversion of the flow of the Mississippi river into whirling shafting seems nearer realization than ever, it was most opportune to find a relic of the first company ever formed for the same purpose a half century ago.

In Stearne's junk house yesterday there was discovered among some old paper and rags sold them, a lot of blank stock certificates of this first company. W. S. Sample got hold of them and distributed them among the archaeologists of the city, but no one could be found who knew what they really represented. Old settlers said they must date back before 1850 because they came here then and never heard of the company; that they were later than 1846 is shown by the fact that they were to be under the laws of the state of Iowa. Further than that nobody that Mr. Sample could find knew anything about the matter. The certificates are finely engraved, bear the imprint of a New York firm, and read as follows:

The State of Iowa.
No. Shares.
Incorporated By
Mississippi Rapids Improvement.
Capital, \$1,000,000.
This certifies that.....
entitled to.....shares of One
Hundred Dollars each, in the Capital
Stock of the Navigation and Hydraulic
Company, of the Mississippi Rapids,
which are transferable only on the
books of the Company by the stock-
holder or representative, on the
surrender of this Certificate.
Dated at Keokuk, Iowa, this.....day
of 18.....
.....
President.
.....
Secretary.

THE FIRST LEVEE.

In the middle of the top is a vignette as finely engraved as a banknote of a seated figure with a shield, scroll and cornucopiae; on her right are bales and a railroad train wonderful to behold now; on her left is the river with steamboats and a landing and warehouse which is said to be a picture of the landing here a half century ago, the first warehouse built on the Keokuk levee. In the lower left hand corner is an Indian who is not Keokuk, and across the right end is the statement that the capital stock is a million dollars.

The Gate City started out to solve the mystery and met with success with circumstantial evidence throughout, but evidence that seems conclusive. At the time of Mrs. Kilbourne's fire, many papers were thrown into the street and gathered up by boys; tracing back this find indicates that it came through this channel to the junkshop. Old settlers could not give any information about the certificates, until Wiley Ray was seen, and then he had a story that accounts for them perfectly. It was this:

D. W. Kilbourne, brother of George E. Kilbourne, mayor in 1855, president of the railroad from here to Des Moines, sole agent for the claimants of the halfbreed tract, and very prominent citizen, had close connections with New York financiers. Indeed when he ran for mayor on the whig ticket, the democrats made the argument that he was not a citizen of Keokuk but had all his interests in New York.

THE EXPLANATION.

Wiley Ray was engaged in towing from here to Montrose and in close contact with steamboat men; the fact that all boats had to transfer here was the cause of much complaint among them, and when the news came from the east that D. W. Kilbourne was organizing a company in New York to build a canal along the Des Moines rapids, it was of great interest to them. It was talked of on the boats, but not much was said about it uptown, and perhaps few except those immediately concerned knew of it.

The certificates were engraved and printed in New York, and putting all the facts together, it looks like they belonged to the projected company being promoted by D. W. Kilbourne. The date can not be exactly fixed. It was later than 1846, when Iowa was admitted into the union, and Mr. Ray says it might have been as late as 1856; that it must have been earlier than the latter date because people here then remember nothing about it, he thinks negatived by the fact that the whole matter was talked about only on the levee at the time. He is not sure but he has an idea that the panic of 1856 and 1857 is what stopped the active operations of the company.

What the company intended to do, was to build a canal much like the one afterward constructed by the government and put in power wheels at the foot of the canal, the latter really being the headrace of the waterpower.

138

THE GREAT DUST HEAP CALLED HISTORY
R. I. BIGGEL
KEOKUK, IOWA

Old, Outmoded Lock a Work Of Genius

Keokuk's old lock and dry dock, both of which are retained for auxiliary purposes were built by the Mississippi River Power Company as a corollary to its building of the power dam across the Mississippi at the foot of the so-called Des Moines rapids and drowing out of the old Des Moines Rapids canal.

A passage through the old canal was for the larger boats a slow and tedious process with the added danger of landing a heavy boat three times in locks not much wider than the boat itself. All of this old canal with its three locks are now are submerged in depths from six to 26 feet.

Col. Hugh Cooper

To the genius and perseverance of one man, the late Col. Hugh L. Cooper, must go all of the credit for the construction of the dam, power house, old lock and drydock. After six years of unsuccessful attempts to finance the project he enlisted the help of the Stone and Webster Corporation of Boston, Mass.

Together they built and put into operation the entire project in a space of two and a half years. The old lock was opened to navigation June 12, 1913 with the honor of being the first boats through shared by the Steamers G. W. Hill and Sidney.

Construction of the water-power project, a dream in the minds of Keokuk and Hamilton men for many years, had its inception in 1899 when, on a call by Charles P. Birge, the Keokuk and Hamilton Power Company was organized.

The Officers

A. E. Johnstone was elected president, William A. Logan of Keokuk and C. P. Dadant of Hamilton vice presidents, R. R. Wallace of Hamilton secretary-treasurer, and Wells M. Irwin, D. J. Ayres of Keokuk and S. R. Parker of Hamilton directors.

In April of 1904 Congressman B. F. Marsh of Illinois introduced a bill in congress granting the company the right to dam the river and sell the resulting electrical power. It passed both houses and was signed into law by President Theodore Roosevelt February 5, 1905.

In April of 1905 the stock and franchise of the company was assigned to a committee comprising John N. Irwin, A. E. Johnstone, William Logan and C. P. Dadant which was given power to negotiate contracts. It issued pamphlets and prospectuses which fell into the hands of Colonel Cooper, who had previously harnessed Niagara Falls and on September 15, 1908 he and the committee entered into a contract to finance and build the project by 1915.

First Power Delivered

The dam is 4,849 feet long with 119 spillway spans and the powerhouse 1,172 feet long and 177 feet high. Its first power was delivered to St. Louis July 1, 1913 and it was formally dedicated in August of that year.

When constructed, the old lock chamber, 110 feet wide with 356 feet of usable length, was adequate for the type of craft then plying the river. These crafts consisted mainly of steamboats, packets, launches, and barges, all necessarily of shallow draft. In 1914, the

first year of operation, records show that such craft carried through the lock 72,900 passengers, but only 9,300 tons of cargo, principally grain and lumber. Contrast this tonnage with the approximately one million tons in 1939 and the more than four million tons in 1951. It is estimated that by 1960 this figure will reach six million tons.

Nine Foot Channel

The increase in river traffic through the years and the difficulties of navigating during low river stages led to the au-

thorization of the present 9-foot channel. This project was authorized in 1930 and was substantially completed in 1939. The locks of that project, 110 x 600 feet, furnished the impetus to the development of up-to-date traffic on the Upper Mississippi, and it was soon realized that the existing Lock 19 was outmoded. Based on an actual case history, a towboat with an eleven-barge tow required an elapsed time of 7 hours and 16 minutes for its passage through the lock. A tow of this kind and size is

When Built

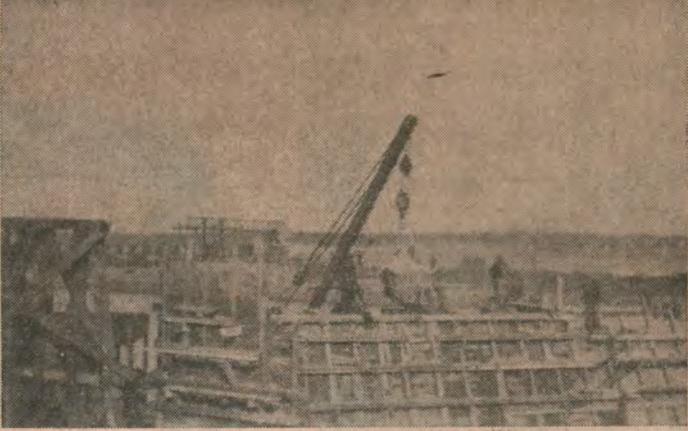
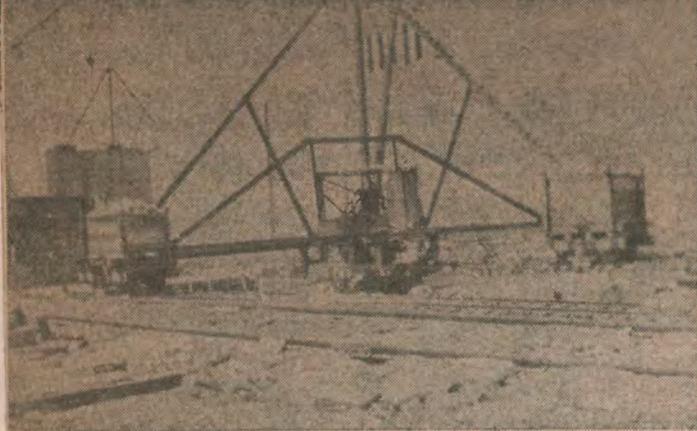
handled at the 600-foot lock in a little more than an hour and can be passed through the new lock in some 20 minutes.

In order to maintain a properly balanced national transportation structure and to insure an adequate national defense, existing waterways must be adequately maintained and improved and extended, where warranted, to meet the modern needs of waterway transportation.

The Daily Gate City Keokuk, Iowa
SATURDAY, AUG. 17, 1957



KEOKUK WAS FIRST HOME of the U. S. Corps of Engineers and what is now known as the Rock Island district was established here August 3, 1866 by Lt. Col. J. H. Wilson with the office, shown above, located on Third between Main and Blondeau. Among those identifiable standing in front of the office of that day are, left to right, C. F. Comegys, chief clerk, Branch Reilly, clerk; Peter Sullivan, custodian; Mr. Bayliss; O. S. Willey, draftsman; Maj J. B. Worrall and Theodore Holliday, teamster.



CONSTRUCTION OF KEOKUK DAM and power house in the early 1900's is shown in different phases in these old photographs taken during the development. The huge pro-

ject was completed in 1913 when in August the first power was delivered to St. Louis by the Mississippi River Power Company.



CLOSING THE LAST GAP in the Mississippi between the Iowa and Illinois cofferdams on July 20, 1912 during the construction of the Keokuk powerhouse and dam. At that time wooden cribs filled with stone and clay were used to dewater the area where the concrete dam was to be built. Small cribs were six by 16 feet and built up of six by 10 inch timbers into three compartments, each of which was filled with stone. The cribs were spaced eight feet apart with the river flowing freely between these openings until

they were closed off by means of eight by 10 inch stoplogs set back even with the crib faces. A single row of three by 10 inch plank sheeting covered the entire front face and this was then sealed by means of clay brought from the excavation on the Iowa side of the river. Only the concrete piers and arches and a small section of the base were placed originally at which time the cofferdams were torn out of the first segment and rebuilt further out in the river until the dam extended to the power house.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL · KEOKUK, IOWA

Keokuk Dry Dock, Fifty Years Old, Hospital for Many Boats

First Marine Ways Opened in Eighties Was Drowned Out by Water Power and New One Built in 1914. AUG. 9, 1932

THE KEOKUK DAILY GATE CITY

A dry dock to cost in the neighborhood of \$100,000 and to be located at Price's Creek—this was the big news of the day fifty years ago. It was so big that it crowded advertisements and the one column of telegraph news off the first page of The Gate City in the issue of Sunday, August 6, 1882. Although the dock was not actually completed and ready for use until some time later, it and its successor, the new modern dock built in 1914 may properly be said to be fifty years old, this month. Hundreds of boats, privately owned and government craft have entered the gates of the old dock and the new. Records of the old dock are still preserved in the U. S. engineer's office, and these recall many of the boats which plied the river in the day when navigation interests were foremost.

It was in 1881 that Major Amos Stickney, on November 21, recommended to the war department the establishment of a dock in the Des Moines rapids canal, declaring that "it would be of invaluable service to the government and to privately owned companies." At this time R. R. Jones was assistant to Major Stickney. The following year Major M. Meigs was appointed U. S. engineer here. Agitation for a dry dock began even earlier than Major Stickney's suggestion, according to the old files of The Gate City, which declare that the project is not a new one, having originated several years before 1882. On April 5, 1872, The Gate City quotes Major Stickney as saying that "if navigation interests and commerce call for a dock in connection with the Des Moines rapids canal" he would recommend that it "be constructed and maintained by the United States." At the request of Mayor Irwin, Secretary of War McCrary appointed a commission of engineers to report on the project. These met at Keokuk in 1879 and made a report which was signed by C. B. Comstock.

Engineers See Dock Need.

The report declared that "a dry dock is needed by the government for the repairs of the boats, dredges, barges, scows, etc., in use on the canal and numerous government vessels employed on the western rivers in the vicinity." The citizens committee had asked if it would be practical to build a dock near the middle lock, and one of the engineers reported that such a location would be feasible. A table of land between the canal and the river, of 600 to 800 feet in length with the surface about four feet above the canal bottom

was considered the place for the new dock when it would be built. On March 30, 1882, the house of representatives passed a resolution calling for information concerning the need of the government dry dock on the Des Moines rapids canal and Major MacKenzie made an exhaustive report which made the first page of The Gate City and brought news of the favorable action of the government on this report.

The report was embodied in the river and harbor bill which President Arthur vetoed, but congress determined to pass the bill over his veto, so that Keokuk was elated over the prospect of the construction of the new dock at its doors. The dock was to consist of a basin 450 feet long, 100 feet wide and admitting boats thirty feet wide over all. The gates were to be at the north end of the basin with a sluice through which to discharge the water when the dock was drained. Four large sized raft boats could be accommodated, it was planned, and the cost would be over \$100,000. In 1886 the government appropriated \$48,500 for the dock here and \$15,000 for extending the lock wall.

First Boats in 1889.

November 20, 1889, the dock was opened to U. S. boats and the steamer "Vixen," dredge "Ajax" and one new coal flat were in the dock for repair and construction. Ten boats were in the new dock that year. On April 26 it was opened to outside boats and the steamer "Boreallis Rex" was the first of the privately owned craft to go into the dock. The ferry boat "City of Nauvoo" was the last privately owned craft in the old dock, going in March 17, 1913, and out on April 2.

The first dockmaster was H. B. Martens who is living now in Rock Island. He retired on July 21, 1908, and was succeeded August 1, 1908 by J. W. Ackley, who is the present foreman of the dry dock. According to the record on the "Boreallis," the first dry dock crew consisted of J. R. Johnson, blacksmith; William Barrett, blacksmith helper; M. A. Forker, caulker; R. G. Gilles, A. Johnson, C. W. Sanstedt, Charles Nelson, carpenters; Dan Harrington, J. Davis and Frank Shadle, workmen. The labor on this first outside boat amounted to \$48.89, according to the figures in the handwriting of the dockmaster in the old record.

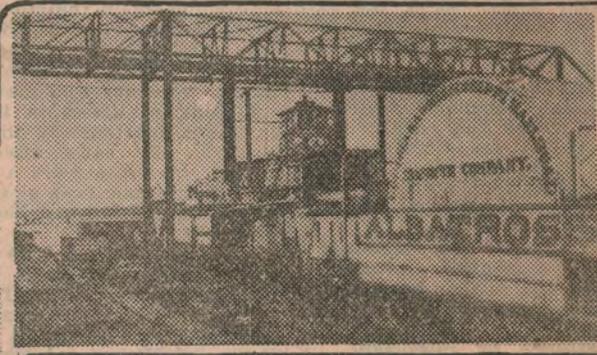
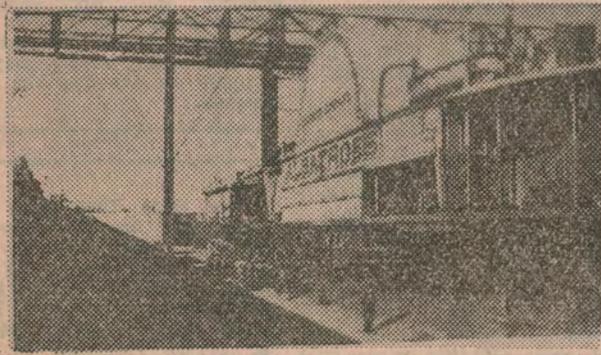
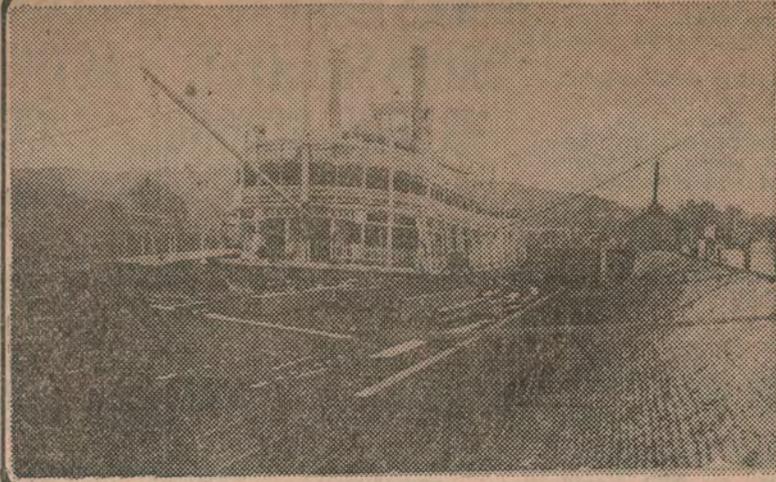
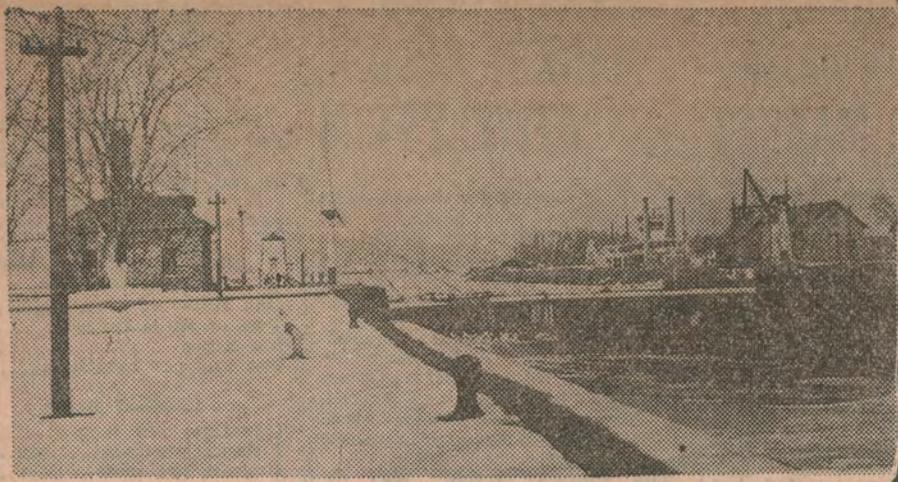
Many Boats on Books

Forty three boats and barges were put into the dock in 1890, besides the building of the pile driver, and lock booms. The steamer "J. G. Park" and "Fury" were in the dock that year. In 1891 there were forty-three U. S. boats in the dock, including the "General Barnard" a snag boat, and the "Lucia." Seventy-three boats were handled for Uncle Sam in 1892, one of these being the dredge "Vulcan." In 1892 a new lock bulkhead and a suction dredge were built. Forty-nine boats were in the dock that year. Of the sixty-four boats in 1894, the "Louise" was constructed and quarter boats built. In 1895 the dredge tender "Ruth" was built and the dry dock transfer flat "Jumbo" was another dock product. Altogether the records show that until the old dock was overflowed in 1913, close to a thousand government craft were built or repaired in its confines.

Five dredge boats were built in the Prices Creek dock, the "Geyser" in 1893, the "Etna" in 1909, the "Apo," "Mayon" and "Taal" in 1912. Steamboats built there were the "Grace" in 1904, the "Ruth" in 1895, the "Lucia" in 1885, the "Ada" in 1889, and the "Emily" in the same year. Forty-two motor skiffs were built between 1907 and 1912. Two drill boats were constructed in 1889 and 1893; six building boats, two in 1903 and four in 1912; three grasshoppers in 1912; a magazine boat in 1889; a loading boat in 1903, and a sounding boat in 1902. Fifteen office boats, ten quarter boats and forty barges were among the craft constructed.

Recall Old River Days

"Kit Carson," "Gem City," "Col. Patterson," "Lily," "Eloise," "Silver Crescent," "St. Paul" and "Sidney"—what memories these names conjure up as one looks over the old dock records. In 1890 the U. S. "Lily," 178 feet long, by forty-eight feet broad, with 212 tons as her bulk, came into the dock July 17. She was



Upper left—Old second lock and dry dock at Pricas Creek in the days of the Des Moines Rapids Canal. Upper right—Streckfus line boat "Sidney" one of the popular packets of a few years ago on the cradles in the old Pricas Creek dock.

Lower left—Car ferry "Albatross" in new dry dock for operation for "growing pains," showing ferry pulled apart for reconstruction of boat. Center—Government boats in dock last winter, "Nauvoo," "Muscatine" and barges are shown in picture giving an idea of the size of the dock.

Lower right—Another view of the "Albatross" and a glimpse of the gates of the dry dock in the background.

142

THE GREAT DUST BOWL CALLED HISTORY

R. F. BICKEL KEOKUK IOWA

Aug 9 1934
REC. DRY DOCK 2

followed on August 8 by the steamer "Julia," which had a hole in the bottom, around which a mud bulkhead had been built to keep the boat afloat. Nine new timbers were put in to patch this hole. On Sunday, so the log reads, the dock workmen were given double wages. The "Col. Patterson" went into the dock in September of this year.

"Thistle," "Scotia" and "Pittsburgh" were among the privately owned boats in the dock in 1891. In 1892 came the ferry "Eagle," the "Kit Carson" and the "Lotus." This latter was the U. S. and Illinois fish and game commission's craft. In 1893 came the "Gem City," the "Josephine," the "Mary Morton," while the next year saw the "St Paul," the "Sidney" and "City of Quincy" go in for repairs. The Joy Lumber company's boat "Coffrey" was also in that year together with the "Mary Martin" and the "J. W. Mills."

Old Favorites On Ways

It was in 1895 that the "Silver Crescent" one of the favorite packets of the upper river put into the dock. She had company that year of the "Lily," the "Bella Mae," the "St. Paul" and the "Climax." The next year the dock records show the arrival of the "Pittsburgh," the "Lorna Doone," and the "Quincy," besides some of the former visitors. In 1897 a celestial visitor was present in the person of the steamer "Saturn." "The Josie," "Linahan" and "Lumberboy" were registered as dock visitors that year.

The dredge "Beta" arrived in 1898, and in 1899 there were the "Percy Swain," "Park Bluff," "Silver Crescent," "Saint Paul" and others. "The Reindeer" was an arrival of the 1900's, and in 1901 the "J. S." was among the boats listed. In 1902 the U. S. and Illinois fish commission's new boat the steamer "Illinois" put in for repairs. In 1903, a year of high water there were few boats in the dock. Old timers recall the stage was so high that the water washed over the wall of the dock. In 1904, 1905 and 1906 there were the usual arrivals of boats for minor repairs. The "North Star" one of the best known raft boats was in the dock in 1906.

Last Year of Dry Dock

The dredge "Iota," the "Memphis," "Choctaw," and "Leota," the "Theta" and the U. S. snag boat "C. R. Lutor" were among the arrivals. In 1908 came the "Sachem" and "Casey". In 1909 the S. & J. C. Atlee company's barge "Emiline," the steamer "Uncle Sam" and launch "Cetric" and the ferry "Cantonina" were among the boats docked. "Gardie Eastman," "Wenona" "North Star" and "Arthur Hider" were among the boats which put into the dock.

The next year saw the "W. W." the "Black Hawk," "Morning Star" and practically all of the Diamond Jo packets, the "Dubuque," "St. Paul," and "Quincy" on the cradles in the old dock. In 1912 came the "G. W. Hill," the "Helen Blair," the ferry "W. L. Heckman," the "Keokuk," "Taber" and the packets for work to be done. This was the last year for the old dock, the building of the Keokuk dam and the consequent

flooding of the old canal marking the end of its existence.

New Dock in 1914

In 1914 the new dock was ready for use. It is 463 feet long and 110 feet at the mouth, with 155 feet inside the walls. It will accommodate any boat that draws not more than fourteen feet of water. This dock was built by the builders of the Keokuk dam and presented to the government. At one time the new dock employed as high as 175 men in its crew.

It is equipped with the very latest devices for shipbuilding and repairs. Two big cranes the Gantry crane and the locomotive crane handle the material and boats. Compressed air pipes make a network over the bottom of the dock so that tools may be attached wherever needed. A completely equipped machine shop and storage buildings are part of the present dock equipment.

According to J. W. Ackley, dock foreman since 1908, the new dock is a "Friday dock." That is all of the important dockings have occurred on the day that is generally considered by the superstitious as a bad time to commence a job. However there have been no serious accidents on the big dock, and all of the biggest jobs which have been attempted by the present force have been most successfully executed.

Cure Ferry of Growing Pains.

Big jobs are big jobs on this dock. All of the Streckfus line boats were converted from packets to excursion craft in this dock, and the car ferry "Albatross" built at Dubuque and brought down the river over the rapids in 1907 because she was too big to go through the old canal, was operated on most successfully for growing pains. Fifty seven feet were added to the length of the ferry in 1920. This required real engineering and Mr. Ackley and his crew handled it without a bobble. Lines were laid according to measurements checked and double checked by Mr. Ackley. The big boat was pulled apart and set upon the cradles so accurately that the measurements were not off one-sixty fourth of an inch. The new plates were put in and the boat completed January 19, 1921. She entered the dock hospital for the operation September 15, 1920. On February 5, 1921, the big ferry left for the south. So long was the boat that it was necessary to put her into the lock on an angle.

Another big job which has been done this year is on the light house tender "Willow" which was docked in June. The Albatross tonnage was 1,100 while the Willow's tonnage was 900. However, for its size, dockmen said that the Willow was the heaviest they have handled. A former German torpedo boat, was in the dock in 1916. At that time she had been rechristened the "Sommers" and was a training boat for naval reserves of the Quincy district. All of the present barge line boats have been in the big dock at one time or another.

Some Records of New Dock.

Through the courtesy and cooperation of the engineer's office, some interesting data has been

compiled on the boats which have been put into the new dock since 1913. The "City of Nauvoo" ferry boat, of fifty six tons has been in the dock several times, the last time in 1921. The steamer "Keokuk," 111 tons, the "Helen Blair," 213 tons; the "G. W. Hill," 267 tons; the "Belle Vernon," ninety tons; the "Blackhawk," the "Morning Star," 495 tons were early visitors to the new dock. The "Dixie" wrecked show boat which sank between Montrose and Nauvoo and later was raised was in the dock in 1915.

The "Dubuque," 493 tons; "Steel City," 678 tons; "Vernie Mac," ninety one tons; "W. W." and barge, 266 tons; "Quincy," 806 tons; "East St. Louis," 678 tons; "St. Paul," 832 tons; "J. S.," 806 tons; "Advance," 346 tons; "A. M. Scott," 168 tons all have their names on the register of the new dock. A memorandum book in the custody of the dock master tells just what happened in every trip to this boat hospital.

Some Recent Visitors.

The steamer "J. M." barges of the Burlington Glass company, the yacht "Tamiami," the "Julia Belle Swain," the "Minnesota," the "Capitol," the "William R. King," the "Red Wing" and the "Sand Boy" are some of the more recent boats to have been put on the cradles of the new dock. The "Lone Deer" rebuilt rafter was in the dock this year.

In 1914, records show that one dipper dredge, one towboat, five quarterboats, one launch, twenty-two barges, one lock boom and one boathouse were in the new dock the first year it was in use. In the eighteen years of operation the new dock has accommodated for construction or repair fifty dredge boats, four drill boats, 132 towboats, one snagboat, twelve derrick boats, ninety-one quarter boats, three store boats, twenty-eight launches, 170 pontoons, thirty-two mattress barges, two spudboats, one magazine boat, 561 barges, one pile driver, eleven boathouses and two subchasers. Lock gates, lock booms and a lighthouse float have also been built in the dock.

May Use as Emergency Lock.

The thousands of visitors to the Keokuk power house and the government lock every year pass and re-pass the dry dock as they walk across to the lock. Sometimes the dock basin is empty as Mother Hubbard's cupboard, more often there are boats on the cradles and the dock crews are swarming over the craft, making repairs that have been called for. In the half century that the dock at Keokuk has been a hospital and haven of refuge for boats, big changes have taken place in navigation and in boat building. The original dock gave place to a bigger and more completely equipped one.

Government engineers have planned to create an emergency lock here, and probably will so arrange the dry dock that it might be used as such a factor. However, the dock will always be operated as a dry dock, in the opinion of local river men. Navigation is changing and the river is no longer populous with packets and excursion boats. Instead it

NEW DRY DOCK 3

is becoming an artery of commerce. What changes the next half century or indeed the next generation will see in the dry dock remains to be seen. But it is sure to remain essentially as in the past, primarily a hospital, carpenter and machine shop for river craft. Perhaps in years to come there will be equipment for repairing hydro-planes which may eventually skim the surface of the Father of Waters, and in landing break a wing or pontoon. Fifty years ago when the old dock was built the water power project here was only a dream. Only a prophet or a dreamer knows what changes may be made in the dry dock of the next generation of river craft.

THE KEOKUK, IA., GATE CITY AND CONSTITUTION

Keokuk Water Power and Canal Company Incorporated in 1860

to be laid across the bed of the river. Thomas Gregg, Hancock County historian, dreamed of the development of water power. Many other men, living in the last century on the Iowa or Illinois shores, talked and wrote about assorted ideas for chaining the great stream to greater uses. Several plans have been tried, either for improved passage or for power, each replaced by something better, and the old canal and locks on the Iowa side, from Montrose to Keokuk, remembered by older citizens, was among them.

navigation."

\$200,000 Capital

The name chosen was that given above. The period covered was to be for 50 years, starting July 1, 1860. The principal place of business was to be Keokuk. The capital stock was to be \$200,000, which might be increased to \$500,000 by a vote of two thirds of the directors. Shares were to be \$100 each. The board of directors was to consist of 5 stockholders, or be increased to 7, elected annually, and they shall elect a president from their number, elect or appoint a secretary and treasurer, employ all other agents or assistants and fix their compensation, and conduct the business of the organization.

The Incorporators

In an old scrapbook kept by Washington Galland, of Fort Madison, and later preserved by Ralph Smith, of Keokuk, there is a dark brown clipping, in dim type, the letters so small that a magnifying glass is required for reading. It is the "Articles of Incorporation of the Keokuk Water-Power & Canal Co.," drawn at Keokuk, July 14, 1860. The signatures are of interest today: Sam F. Miller, Wm. Thompson, M. Alexander, J. P. Hornish, Wm. Patterson, J. M. Love, Wm. S. McGavic and Geo. B. Smyth. The legal document consists of an explanatory introduction and 14 points.

Each stockholder was to be entitled to one vote for each share, voting in person or by proxy in writing. All dividends declared from the net profits of the business are to be paid pro rata.

Among the financial arrangements we find: "The indebtedness or pecuniary liability of the company shall at no time exceed one-half of the Capital stock actually subscribed; and the private property of the stockholders shall be exempt from all liability for the debts of the company, excepting to the amount of their stock subscribed and unpaid. All stock subscribed must be paid in such manner and at such times as may be required by the Board of Directors, but not to exceed ten per cent of the amount subscribed every three months." Other details covered are duties of the officers and the powers of the company in regard to borrowing, mortgaging, leasing, issuing bonds, and conducting the business of the company.

The purpose was to "form an incorporated company, pursuant to the provisions of Chapter 43 of the Code of Iowa, for the purpose of constructing a canal upon or convenient to the west bank of the Mississippi river, between the city of Keokuk and the town of Montrose, Lee Co., Iowa, or some intervening points, and to create a water power for manufacturing and other purposes, by a wing dam at the head of said canal, extending into said river, and by locks, dykes, and such other improvements as may be deemed necessary; and to sell, rent or appropriate the power thus created, as may be found most expedient and beneficial to the company, and also, to adapt and use said canal, at the discretion of the company, for the purpose of steam boat

Time marched on, however, without the proposed canal, until in March, 1867, Congress authorized the Department of War to construct one. Work began in October, 1867, and the first steamboats passed through it on August 22, 1877.

NO 10, 1954

By PEARL GORDON VESTAL

What a lot of vicissitudes the old "Father of Waters" has had during the uncounted years before men, even red ones, arrived upon the scene! Geological sleuths report it long ago ran a different course through Lee County, Iowa, not along its present eastern boundary, for instance. Had the stream not cut its present newer channel, would a part of Lee belong to Illinois now?

Then came the years when Indians of several tribes paddled canoes up and down its course, or made migrations across its width. French explorers and traders carried along the human part of its story, using its present channel, skimming over its rocky rapids with care. With the white men finally settling on both sides of the stream, larger boats negotiated the stream, for rivers were the main highways during the pioneer years.

Rapids Made Trouble

The approximate twelve miles of rapids always made trouble, especially during low water seasons, when flat boats and steam boats had often to be unloaded and the freight "lightered" in small craft of shallow draft. Along the waterfront, north of Hamilton, Ill., lived several men once well-known as pilots specializing on that rip-roaring stretch of foaming mileage.

Something should be done to ease the river transportation problems, the early comers knew, and some were dreaming, over a century ago, of the development of water power as an adjunct to improved transportation. Dr. William H. Githens, as we told you in the Gate City of Jan. 30, 1952, had a plan, never carried out, for a huge hollow tube

Old Des Moines Rapids Canal Removed First Bottleneck Here

THE KEOKUK, IA., GATE CITY AND CONSTITUTION-DEMOCRAT THURSDAY, MAY 28, 1953

From the earliest times, the Mississippi river has played an important part in the economic development of its valley. The Indians used the stream for travel and transport purposes and within a short period of its discovery by the white man, it became an important artery for passengers and freight.

Even after the inception of the railroads in the central part of the country the use of the river continued and the existence of many river cities, such as Keokuk, can be traced to their connection with

the development of transportation by water.

Transfer Point Here.

Transfer or conceneration points were established where freight and passengers were transferred from boat to railroad and vice versa. These transfer points became large and important wharves. With the development of terminal facilities came improvements in the crafts themselves, including, progressively, canoes, bateaux, keel boats, flat-boats, rafts, packet boats, and finally

barges pushed by steam or diesel-powered towboats.

In its original condition the Mississippi river was navigable for light-draft river boats up as far as the Twin Cities; however, shoal reaches and rapids in the vicinity of Rock Island and Keokuk formed virtual obstructions during periods of low stages. Common practice was the employing of special pilots for navigating the rapids. Other impediments in the form of sandbars, snags, and narrow reaches gave trouble to the river pilots of those days.

DES MOINES CANAL - 1953

Early Work.

Although a definite project for the upper Mississippi was not authorized until the passage of the River and Harbor Act of June 18, 1878, various sums of money were appropriated by River and Harbor Acts passed between 1852 and 1878. These appropriations covered work in a number of localities, but were in general confined to the improvement of the conditions at the Des Moines (near Keokuk) and Rock Island rapids, and to the operation of dredges and snagboats.

Surveyed by Robert E. Lee.

It was in 1832 that Lt. Robert E. Lee (later the famous Confederate general) accompanied by 2nd Lt. Montgomery C. Meigs, made surveys of the Des Moines and Rock Island rapids. In September and October 1838, Lt. Lee personally directed the excavation of some rock from the Des Moines rapids near Keokuk, Iowa.

In the River and Harbor act approved June 23, 1866, congress authorized the construction of the Des Moines canal to by-pass these rapids and thus eliminate one of the worst obstacles to navigation on the upper Mississippi river. The bid

opening for the construction of this canal was held in Davenport, in September 1867. Messrs. Henegan and Sons of Mt. Vernon, Ohio, was the lowest of 28 construction firms bidding for the project, was awarded the contract and work was started in October 1867.

More Than Seven Miles Long.

The canal was seven and six-tenths miles in length and extended along the Iowa shore from Keokuk to Nashville. The width varied from 250 to 300 feet, and the maximum depth was eight feet while the minimum depth was five feet, which was sufficient to float the largest boat that plied the river in those days. The fall in the entire distance which the canal extended was 18 3/4 feet. These were two lift locks and one guard lock in the length of the canal, each lock being 350 feet long and 80 feet wide. The first or lower lock was located at Keokuk, the middle lock two and one-half miles above and the guard lock five miles above that.

The construction of the project was carried on under the direction of Col. J. N. Macomb, Corps of Engineers, U. S. army.

Opened in 1877.

The canal was formally opened to navigation on August 22, 1877.

The locks were each 350 feet between the miter sills and 80 feet wide in the chamber. They were filled through culverts leading from each gate recess and discharged through openings in the chamber walls. Each could be filled in from three to five minutes.

The locks were constructed of the best magnesian limestone quarried from the bluffs near the rapids and laid in hydraulic cement. The walls of the lower lock were 23 5-12 feet high, the middle lock 20 feet and the guard lock 18.

Ten Foot Wide Walls.

All were 10 feet wide at the base, six on top and provided with buttresses. Wooden gates with iron heelposts and quoin plates were supported by iron suspension posts held in position by rods anchored into the masonry. They were operated by steam engines.

The estimated cost of the construction was \$2,710,000 but the actual cost was almost \$5,000,000. All of the machinery was manufactured by the Buckeye Foundry and Machine shops of Sample, McElroy and Company of Keokuk.

THE WEEKLY GATE CITY.

HOWELL & CLARK, Publishers.

**FEBRUARY 17, 1881.
HYDRAULIC MACHINERY**

**APPLIED TO OPENING THE GATES OF
THE DES MOINES RAPIDS CANAL.**

A Paper by R. Ralston Jones, Assistant Engineer Des Moines Rapids Improvement, Member of the Western Society of Engineers, Chicago, Presented February 1st, 1881.

The following excellent paper, read before the Western Society of Engineers, by R. R. Jones, assistant engineer of the Des Moines rapids improvement, is an interesting and valuable document, containing much useful information:

GENTLEMEN:—Before proceeding with my subject proper, it will be necessary to give a general description of the Des Moines rapids of the Mississippi river, the canal, locks and approaches.

Time will not permit of a full discussion of the geological and hydrographic features of the rapids.

The report of the chief of engineers, U. S. army, 1867, contains a very clear and exhaustive treatise touching upon both these topics, written by General Wilson, at that time the officer in charge. One theory advanced by General Wilson is particularly interesting as affording an explanation of the causes operating to form the rapids. Briefly it is this: An extensive lake covered the broad, low grounds just above the present head of the rapids, during a comparatively recent geological period. The upper surface of this lake at a level, 105 feet above the present low water stage of the Mississippi, and maintained at such

level by the rocky barrier, now partially cut away by the action as the water, assisted by ice and other unknown geological agencies; also, that this wonderful erosive action has now ceased or is perhaps still carried on to an imperceptible extent; such rock as remains forming a natural submerged dam entirely across the river, and extending from Montrose to Keokuk, a distance of 11 miles, the upper surface sloping about 22 feet.

As early as 1836 Robt. E. Lee, then a lieutenant in the corps of topographical engineers, made a survey of the Des Moines rapids, and in 1854 and 1878 Gen. S. K. Warren made careful and complete surveys of the river in this locality. The earlier surveys of Lee and Warren resulted in the work carried on by the government at the most dangerous points on the reefs of rocks obstructing the old steamboat channel. The nature of the work then accomplished was such that it could not be utilized in the present scheme for improvement.

Major Amos Stickney, corps of engineers U. S. army, the officer in charge of the Des Moines rapids improvement and the Des Moines rapids canal, in his report to the chief of engineers for the fiscal year ending June 30th, 1880, alludes to the present condition of the work and the amount expended thereon as follows:

"The present project for this improvement was adopted July 19, 1867, the object being to secure a channel over the rapids navigable at all times, with 5 feet depth at the extreme low water stage of the river. This has been essentially secured by the construction of a canal along the west river bank from the city of Keokuk, Iowa, to the village of Nashville, Iowa, a distance of 7 6 miles, and open cuts through the chains and patches of rock from Nashville to Montrose, Iowa, a distance of about 3.5 miles. The canal is 300 feet wide, with the exception of a little less than two miles of its length, which is 250 feet wide.

The open cuts, when finished, are to be 200 feet wide. The natural channel

over the rapids was extremely narrow, crooked and difficult to navigate, even at medium stages of water, and was utterly impassable at extreme low water for boats of ordinary size, and even lumber rafts were often broken up and a large part of them lost in making the passage. The amount expended to June 30th, 1880, is \$4,303,495 06 for construction of improvement * * * * and has resulted in essentially completing the canal, and making a fairly passable channel above the canal."

THE CANAL, LOCKS AND GATES.

The extract just quoted from Major Stickney's report, shows the canal to be 7.6 miles long, and 300 feet wide, with a depth at the extreme low water stage (1864) of 5 feet.

It may be added, that the maximum range between high and low water stages in the river, is at the lower lock 21 feet, and at the guard lock 11.6 feet, while the total lift which has to be overcome by the locks, at a low water stage, is 18.75 feet, of which the lower lock has 10.75 feet and the middle lock 8.0 feet.

The three locks are located as follows: the lower lock at Keokuk, the middle lock 2 1/2 miles above, and the guard lock at Nashville, the upper terminus of the canal.

The top of the canal embankment is, carried to a line, 2 2 feet above the high water stage of 1851 (the highest stage of which there is record), making the height of embankment at lower lock 26 feet above the grade of the excavated channel below the lower lock; and at the guard lock 19 feet above grade. The embankment is 10 feet wide at the top; the slope wall protecting the sides having a thickness of 18 inches, and an inclination of 1 1/4 to 1 and 1 1/2 to 1 on the canal and river faces respectively. The top is covered with macadam, but at the date of this article, the stone protection on the sides and top are only partially completed, the slope wall, for the most part, being carried only a few feet above the ordinary water level.

DES MOINES CANAL - 1881

THE GATE CITY

KEOKUK, IOWA
WEDNESDAY MORNING, MAY 3.

The locks are each 350 feet long between the centers of hollow quoins, and 80 feet wide. The thickness of the lock wall at base is 10 feet, but the wall gains additional stability from the masonry of the culverts for filling and discharge, which extends for nearly the entire length of the lock, and heavy buttresses are constructed at points not reached by the culvert masonry. The inside face of the wall has a batter of 1/2 inch to 1 foot; the height of lock wall above lock bottom varies of course at the three locks, that of the lower lock wall being 23.5, with a width across the top of 6 feet.

113.09 square inches, and 28.27 square inches, or in a proportion of four to one. Engine furnished with fly wheels, governor, self-feeding oil cups, and every appliance to save the time and close attention of the engineer, who is thus enabled to devote himself particularly to the distributing valve.

To Major Amos Stickney, corps of engineers U. S. army, is due the credit of originating the plan for operating the lock gates by hydraulic pressure, as at present employed on the Des Moines rapids canal; this plan was approved by a board of engineers convened at Keokuk May 10th, 1875, and during the month of August in that year, under direction of Major Stickney, I assumed charge of the construction of the machinery and erection of the same. Messrs. Sample, McElroy & Co., of Keokuk, Iowa, obtained the contract for furnishing the material and labor required to construct the machinery at specified rates. As soon as the details were worked out sufficiently far to warrant a beginning, the preparation of patterns and the castings therefrom was commenced. After a cessation of work for over six months in 1876, the work of erecting the machinery at the middle and lower locks was finally completed and the canal opened for navigation August 22, 1877.

The lift of the pumps vary from 9 to 13 feet and the working pressure that is required to operate the gates, varies from 75 to 200 pounds per square inch, dependent on the stage of water in the canal and river. The vacuum and pressure chambers are wrought-iron cylinders the ends being stayed with four three-quarter inch rods.

The pumps can maintain a pressure of 300 pounds per square inch, if it should ever become necessary so to do.

The general plan of the machinery in use at each of the three locks is this: A steam pumping apparatus distributes water under high pressure, to eight hydraulic cylinders, four of which operate the culvert and four the lock gates.

The eight hydraulic cylinders, which at each lock operate the gates, are arranged in pairs, each pair consisting of one culvert, and one lock gate cylinder, placed in a pit enclosed by heavy masonry, directly back of each recess wall.

SEVERAL REMARKS.
The maximum duty performed by each of the culvert cylinders at the lower lock is in round numbers 160,000 ft. lbs., that of the lock gate cylinder 50,000 ft. lbs.

The central figure then of the whole system is the engine house, containing as it does the steam pump and the distributing valve, by means of which the cylinders are operated singly or in pairs; the machinery is thus under the perfect control of one man, the engineer, who, from his position in the house, responds to the signals of the lock master stationed on the lock wall.

Weight of the material composing each of the largest lock gates about 55 tons. The length of time occupied in moving the various portions of the machinery is as follows: Opening culvert gates about 1 1/2 minutes; moving upper lock gates 1 1/2 minutes; moving lower lock gates 2 1/4 minutes. The usual time required in making a lockage at the lower lock during an extreme low water stage is 10 minutes. This is counting from the time a steamboat is in the lock and her lines made fast, until the lower gates are opened ready for her departure.

The quantity of water displaced in filling or emptying the lock chamber is about 2,250,000 gallons, or by weight 9,371 tons.

ENGINE HOUSES.
The buildings are substantial structures specially designed for the purpose in view. The material used in their construction is magnesian limestone for exterior walls and brick for partition walls, the former being 18 inches and the latter 8 inches thick. Outside dimensions of house 27.4x27.4.

The cost of the machinery at the three locks nearly \$60,000.

Such portions of the lock grounds as are not needed for other purposes have been laid out in grass plats and walks lined with shade trees.

PUMPING ENGINE, ETC.
The pumping apparatus for supplying pressure to the hydraulic cylinders consists of an upright steam engine, stationed on the main floor of the engine house, the frame extending down into the basement, where it is bolted to a heavy masonry pier. To the lower part of this frame is attached a double acting piston pump, the rod of which is a continuation of the piston rod of the engine, extending through the lower head of steam cylinder and slightly diminished in size.

A telephone along the entire length of the canal and connecting with the main office, affords a means of notifying any of the locks of the approaching boats, so that delays are reduced to a minimum.

In closing this article, it may not be out of place to give a few extracts from the records kept at the lower lock from the time of opening, August 22, 1877, up to the close of the past season, December 1, 1880:

In round numbers, then, the lockages made during the above period were	6,000
Steamboats passing through	3,069
Flats and barges	1,892
Tons general merchandise	223,000
Bushels of grain	5,000,000
Passengers	26,000
Number rafts in feet B. M.	232,070,000
Log rafts in feet B. M.	32,000,000
Shingles	60,000,000
Latb.	52,000,000

The object in giving these figures was to show that, while by no means worked to its full capacity, yet the machinery has received sufficient test to demonstrate its success.

A Human Skeleton Exhumed

SUPPOSED TO BE THAT OF A MAN

How It Came to be Unearthed.

The work of improving the Des Moines Rapids of the Mississippi river is bringing to the surface many relics of former days, that otherwise might have remained forever undiscovered. The workmen engaged in excavating earth, with which to construct the embankment of the lower lock, came across the skeleton of a human being yesterday forenoon, a short distance below the Indicator. The first thing that attracted their attention was the skull, protruding from the bank. Further investigation revealed the entire skeleton of a man, who might have been about thirty years of age and measured more than six feet in height. The skull contains the full compliment of teeth, thirty-two in number, every one of which is sound and in the most perfect state of preservation. It was taken to the office of the Engineer of the Rapids Improvement. The remains were doubtless enclosed in a coffin or box at the time they were buried, as pieces of decayed black walnut were found in close proximity to the bones. Some may suppose, from the nature of the surroundings, the skeleton to be that of an Indian, but there are marks about it which prove it to be that of a white man. It was about two feet below the surface. Who the man was, how he came there, and how long he has been there, are questions which open a field for a very large amount of speculation, if one be disposed to indulge in it. Of course nothing definite can be ascertained, but the most plausible solution of the matter can be arrived at by considering the fact that the bank of the Mississippi river, from New Orleans to St. Paul, is a burying place for roustabouts who are so unfortunate as to die on board steamboats. It is a rule observed by all steamboatmen, that no dead body shall remain long on board a steamer, consequently when a roust about dies his remains are taken ashore and buried at the most convenient time, unattended by any ceremonial rites. At the foot of the Rapids boats are moored for a greater length of time than at any other point on the Upper Mississippi, and more burials of this nature have doubtless been made in this vicinity than one would naturally suppose.

THE GREAT DUST HURD CALLED HURON
BY BICKEL KEOKUK, IOWA

THE GATE CITY.

KEOKUK, IOWA:

FRIDAY MORNING, MARCH 25, 1870.

Riot on the Rapids Improvement!

Three Hundred Armed Strikers make a Raid on the Laborers and compel them to abandon the Work!

TEMPORARY SUSPENSION OF OPERATIONS!

ROUGH TREATMENT BY THE STRIKERS!

NINE MEN ARRESTED!

THE AFFAIR IN DETAIL!

About eleven o'clock yesterday, intelligence reached the city, of a very extensive riot on the Rapids Improvement, caused by a raid of about three hundred armed strikers, on a few of the men who had seen fit to resume work. Immediately upon receipt of the news, we put our repertorial machinery into active operation, made a thorough research after the facts in the case, and give below the true status of affairs up to last evening as near as it could possibly be ascertained from a well authenticated source.

In order that our readers may understand the character of the riot and what produced it, we will go back to the 15th of March. On that day the number of hours constituting a day's work was changed by the contractors from nine to ten. During the winter season the laborers were required to work but nine hours, owing to the shortness of the days. For this they were paid one dollar and eighty cents. The increase of time was made without any increase of pay. The laborers demanded two dollars per day, and the contractors stoutly refused to pay it. The result was a general strike of the entire force, on the day above mentioned. The force consisted of about a thousand men. It is not at all surprising that this number, thrown together in idleness, should concoct some mischief. Matters remained quiet until within the past two or three days, when they began to shape themselves for a disturbance.

While the strike was general, every single

man having deserted his post, a large number opposed it and were willing to continue work on the terms proposed by the contractors, but a majority were boisterous and clamored for more wages. The few who were disposed to work were kept from it through fear.

After a time the mouths of hungry wives and children began to cry for bread, and the necessities of the case demanded that something be done. Many of the men have families depending on them for their daily sustenance, and striking brought in no money. So the few who wanted to go to work expressed their willingness to the contractors and arrangements were subsequently made for resuming at three or four different places along the line yesterday morning. The whistle was blown at the accustomed time and the men went to work. This seemed to have been the signal for an outbreak by the majority who were still adhering to belligerency with a determination to fight it out to the bitter end. They marshalled their forces and made preparations for a general cleaning out of the resusers all along the line. The first indications of an outbreak were discoverable at the Nashville pit. A motley crowd of about one hundred and fifty men, consisting of Swedes and Irishmen, something of an equal portion of each, armed with pistols, knives, clubs and stones, came down upon the workmen (about 75 in number), bearing at the front a red flag, brandishing their knives, shooting their pistols, and threatening in vehement terms, vengeance upon and violence to the men unless the work should be immediately abandoned. Considerable resistance was offered at first, but the rioters surrounded them, and by a vigorous use of their weapons, compelled the workmen to desist. Several hand-to-hand conflicts took place, in which a number were severely injured but none fatally, that we could hear of.

The attack was obviously a premeditated one, as the rioters were thoroughly organized and officered. From the Nashville pit they went to the stone quarry of Case and Van Wagener, where about fifty men were at work. Here several men were badly bruised and one had his skull fractured. The next point of attack was at Rickey's Point, where a small force was engaged. This was soon scattered. The rioters constantly gained strength and numbers, and it is estimated that before they had completed their undertaking the company comprised something over three hundred armed men. From Rickey's Point they went to Stotts Mill, where Mr. McDonald, the Superintendent of the works, was overseeing a few men. These fled at the sight of the approaching army. Mr. McDonald, with two others, got into a skiff, and it was with considerable difficulty that they made their escape.

This completed the job. The rioters were the victors, and the work were in their hands. Benjamin Trimble, a train-man, in attempting to get to the city, was stopped a short distance out, and ordered to retrace his steps.

He promptly drew a revolver and declared his intention to pass, dead or alive. The men stepped back and allowed him to go on. We understand that these same men designed attacking Mr. Geo. Williams, one of the contractors, as he passed up the line, but their plan was frustrated.

After a time the crowd commenced to retreat, a majority retiring to the shanties along the works, and quiet again reigned.

In the afternoon Sheriff Bishop, accompanied by four or five men, went up the line a distance of about two and one half miles and succeeded in arresting six of the men who were implicated in the riot at this end of the route. Three others were afterward arrested here in the city, making nine in all. The following are their names: Gus Peterson, Otto Nelson, C. F. Bergham, John Burk, C. S. Wanson, Sand Berg, Andrew Peterson, Andrew Oren and A. Hagley. These are all Swedes and mostly young men. They are now lodged in the calaboose.

The affair has created considerable excitement here in the city, and last evening was the theme of conversation and subject of much inquiry.

It is surprising that in a riot of the magnitude and character of this one, so few were seriously injured. There are many conflicting rumors in relation to the affair, which we do not credit. We have stated nothing except on good authority. Neither have we attempted to magnify the matter in any way. We have given the plain unvarnished facts, as near as 'tis possible to ascertain them during the excitement, consequent upon a disturbance of this kind. The proper effort will be made to restore peace and quiet and to prevent any further demonstrations. We shall endeavor to give to our readers everything that may transpire in connection with the affair.

THE GATE CITY.

KEOKUK, IOWA:

SATURDAY MORNING, MARCH 26, 1870.

THE CANAL DISTURBANCE.

About Thirty of the Rioters in Limbo.

QUIET RESTORED AND WORK RESUMED.

Our city was the scene of considerable activity yesterday, occasioned by the canal riot of the day previous. The first war-like movement was the summoning by Sheriff Bishop of a posse comitatus consisting of about thirty-five of our citizens to aid him in arresting the ring leaders of the riot. The company congregated on Main street and at ten o'clock was ready to move. About twenty

stand of Government arms were furnished by Mr. Sam. G. Bridges. These were carried by the same number of men, who went in wagons. About fifteen others were mounted on horses and armed with revolvers

During the day everybody was eager to ascertain the result of the movement against the rioters, and the aforetime oft-repeated inquiry, of "What's the news from the seat of war," was revived and generally circulated. Meantime the squad proceeded up along the line. At its approach the men who were implicated in the riot fell like sheep. The posse, however, succeeded in arresting twenty of them, in addition to the nine captured the day before. No resistance was offered in any instance. The only difficulty experienced in arresting them was in overtaking them. They went through the brush like steers through a cornfield: The chase is described to us as interesting and exciting in the extreme. The following are the names of those who were arrested yesterday: Mike Shaughnessy, C. Spear, David Roch, Andy Moffet, N. F. Sharlson, Gus. Lyon, Thos. Finegan, Andrew Wychrist, August Noline, Henry Welsh, Wm. Bradshaw, Fredrick Fitzgerald, N. Johnson, W. Armstrong, John Nolen, John Silver, August Enders, Wm. Sacks, John McGrim and Dan. Connell.

John McGrim was sent to Fort Madison in irons. The balance were lodged in the Calaboose, with those arrested the day previous. Those captured yesterday participated in the riot, but the prime instigators of the movement made their escape.

The squad returned to the city with the prisoners about four o'clock yesterday afternoon. Main street was decidedly lively for a time after their arrival.

Work was resumed at the lower end of the line yesterday afternoon. No further difficulty is apprehended, and it is expected that operations will be resumed all along the works in a short time. How many more will be arrested and what will be done with those who are already in limbo, remains to be seen.

THE GATE CITY.

KEOKUK, IOWA: 1870
THURSDAY MORNING, MARCH 24.

THE RAPIDS IMPROVEMENT

What has been Done and what Remains to be Done.

Hon. Geo. W. McCrary, our Representative in Congress, visited yesterday in company with Mr. E. H. Worrall, the Engineer in charge of the section work, the canal for the improvement of the Des Moines Rapids of the Mississippi river, and gave the work a thorough inspection, both as regards its character and the progress which has been made.

The work of building this canal was commenced about two and a half years ago. The enterprise has been pushed forward with the greatest possible amount of speed of which the circumstances of the case would permit.

The following table will show the original estimate of the amount of work to be performed in connection with the improvement, the amount that was performed up to the 24th of January 1870, and the amount which remains yet to be done:

ORIGINAL ESTIMATE.	
CUBIC YARDS.	CUBIC YARDS.
Earth.....625,000	Slope wall..... 500
Rock.....257,000	Vertical wall..... 1,300
Embankment....164,000	Concrete wall.... 200
Lining..... 10,000	Railroad, 1 1/2 miles
Puddling..... 25,000	Public road, 935 rods
Rip Rap wall...149,000	

AMOUNT OF WORK PERFORMED UP TO JANUARY 24TH, 1870.

CUBIC YARDS.	CUBIC YARDS.
Earth.....386,750	Slope wall..... 500
Rock.....137,800	Vertical wall..... 200
Embankment.... 35,600	Concrete wall.... 200
Lining..... 2,700	Railroad, 1 1/2 miles
Puddling..... 2,600	Public road, 335 rods
Rip Rap wall... 71,500	

REMAINING TO BE PERFORMED.

CUBIC YARDS.	CUBIC YARDS.
Earth.....238,300	Slope wall..... 500
Rock.....119,200	Vertical wall.... 1,100
Embankment....128,500	Concrete wall... 200
Lining..... 7,300	Railroad, finished
Puddling..... 22,400	Public road, 600 rods.
Rip Rap wall... 77,500	

By the above it will be seen that about one half of the section work has been performed. The Government has appropriated in all \$1,185,000. Of this amount \$700,000 were for the section work exclusively, and \$485,000 for the lock work. About \$235,000 of the latter sum have already been expended on the lower lock, leaving about \$250,000 still available for that portion of the Improvement.

The appropriation of \$700,000 for the section work was exhausted on the 24th of January, 1870. In order that the work might be carried on uninterruptedly, Congress made a temporary appropriation of \$200,000 in December last, but this sum was not available until some time during the present month. In the meantime the Government ordered a re letting of the section work, which took place January 27th, 1870. Messrs. Dull & Williams, having made the lowest bid, the contract was awarded to them and they are now carrying on the work. This firm, during a portion of the month of January and all of the month of February, pushed things vigorously and succeeded in performing, during that brief period, about \$70,000 worth work. This comes out of the \$200,000 appropriation which, at that rate, will soon be exhausted.

Messrs. Dull & Williams are very efficient contractors. They have had employed four locomotives, 320 cars, 1100 men, and a large number of teams and horses. The work which is now being performed is below the surface, and necessitates the use of six centrifugal pumps running day and night, in order to keep the encroaching waters of the Mississippi outside the excavation and allow

the men to work.

The foregoing table shows only the status of the section work. The original estimate on the lock work was \$860,000. The amount which has already been expended on that portion of the work was, as we have already stated used on the lower lock, for which Mr. E. Owen has the contract; nothing has as yet been done on the guard and middle lock. Although it has required two years and a half to perform one half of the work, the balance of it can be done in much less time than that, provided the necessary appropriations are made.

There is one fact worthy of note in connection with the progress of the improvement thus far, and that is that the work has sustained no damage by accident or otherwise, which has been any expense to the Government to repair. Everything has been conducted systematically methodically, and economically.

General Wilson, the Chief Engineer in charge of the work, is a very capable and efficient officer, is emphatically the right man in the proper place, and is assisted by thoroughly competent engineers.

It is universally conceded that no public works in the United States, either in progress or contemplation, exceed in importance the removal of these obstructions to the navigation of the Mississippi river. It is impossible to calculate with any degree of precision the very large benefit which will be derived therefrom. It has been estimated that the detriment to commercial progress resulting from these obstructions, and the expense of transferring freights, amount to a million of dollars annually.

The distance from New Orleans to Keokuk is about fifteen hundred miles, and from Keokuk to the Falls of St. Anthony eight hundred miles. Complete the Rapids Improvements here and at Rock Island, and eight hundred miles will be added to the uninterrupted navigation of the Father of Waters—making in all something over two thousand miles unimpeded.

In view of the benefits which will ensue to the commercial interest of this great valley, and of the importance to the Government of finishing a work in which so much progress has already been made, and upon which so much money has been expended, it is to be profoundly hoped that provision will be made for carrying on the improvement to a speedy completion.

THE GREAT DUST HEAP CALLED HISTORY
G. BRIDGES
KEOKUK, IOWA

THE DRY DOCK.

An Improvement of Vital Importance to Keokuk,

And One That Has Been Worked for by Our Citizens,

Including the Engineers of the Canal,

For Several Years Past, With a Final Successful Issue.

What the Dock Will be When it is Completed.

A Cut Showing its Probable Location, as Advocated by Mr. Jenne,

Which was Made by Mr. Stripe During Mr. Jenne's Visit.

Major Stickney's and Major Mackenzie's Recommendation for the Dock.

The Probable Cost of the Improvement—When the Work Will be Commenced—The Benefits to be Derived.

The project of having a dry dock in connection with the Des Moines Rapids canal is not a new one. It was originated several years ago by a number of Keokuk's public spirited citizens, Capt. A. M. Hutchinson being the leader in the movement. On April 5th, 1872, Major Stickney, then in charge of the canal here, recommended, in a letter to the chief of engineers, that the dry dock be built. His suggestions relative to the matter were: "If the navigation interests and commerce of the Mississippi valley call for the construction of a dry dock in connection with the Des Moines Rapids canal, I would respectfully recommend that it be constructed and maintained by the United States, as now done at the Louisville-Portland canal. The construction would cost a very moderate sum of money, and very moderate charges for its use would pay for its maintenance and a fair interest on the cost. In this way there would be no question as to jurisdiction, rights, or privileges, and the general public would be benefitted by the charges being lower than they would be if the matter was in the hands of private parties."

Finally, upon request of Mayor Irwin and the citizens of Keokuk, Secretary of War McCrary appointed a commission of engineers to report upon utilizing the water power of the canal, and from the work of this commission grew the first

official action of the government in the matter. The board of engineers met in Keokuk, March 20th, 1879, at 2 p. m. During their session they made the following report as to dry docks, which concluded the labors of the board:

"In reference to the dry dock the board is of the opinion that such a work in connection with the canal would be of great value to commerce. The amount of water required for this purpose would have no appreciable effect on the canal. The location mentioned by Mr. Jenne is the most favorable for such a work. A dry dock is needed by the government for the repairs of the boats, dredges, barges, scows, etc., in use on the canal and numerous government vessels employed on the western rivers in that vicinity. The dock should be built by the government and be open for general use at rates to be prescribed by the Honorable Secretary of War, and under such regulations as he may prescribe. As the proper maintenance of the river bank of the canal is essential to its existence, under no circumstances should the absolute control of it and all openings through it pass out of the hands of the government.

C. B. COMSTOCK,

Major of Engineers, B't. Brig. Gen'l."

The report of Mr. Jenne, above referred to, was in response to the query of the citizens' committee: "Is it practicable to construct a dry dock for use and repairs of boats, near the middle lock? If so, what is necessary to utilize it and what effect would it produce on the canal?" Mr. Jenne's reply was: "I have examined the location referred to and believe it entirely practicable to build a dry dock between the canal and river, at a short distance above the middle lock or between it and the old channel of Price's creek. Low water mark in the river 6 feet below the bottom of the canal, which affords splendid drainage for the dry dock.

There is a table of land between the canal and river of 600 to 800 feet in length and about 200 feet wide, with the surface of earth about 4 feet above canal bottom, and this will furnish all the earth necessary for the embankment. An opening should be made diagonally through the canal bank, just below Price's creek, and a set of guard gates built 80 feet between the walls for boats to enter the dock. An embankment should be extended from the canal bank along the shore of the river to a point 600 to 800 feet below, and there connected properly with the canal bank and well protected with rip-rap on the river or outside.

A discharge culvert or bulkhead should be built under or through the bank with proper valves, to discharge the water from the dry dock after the boat has

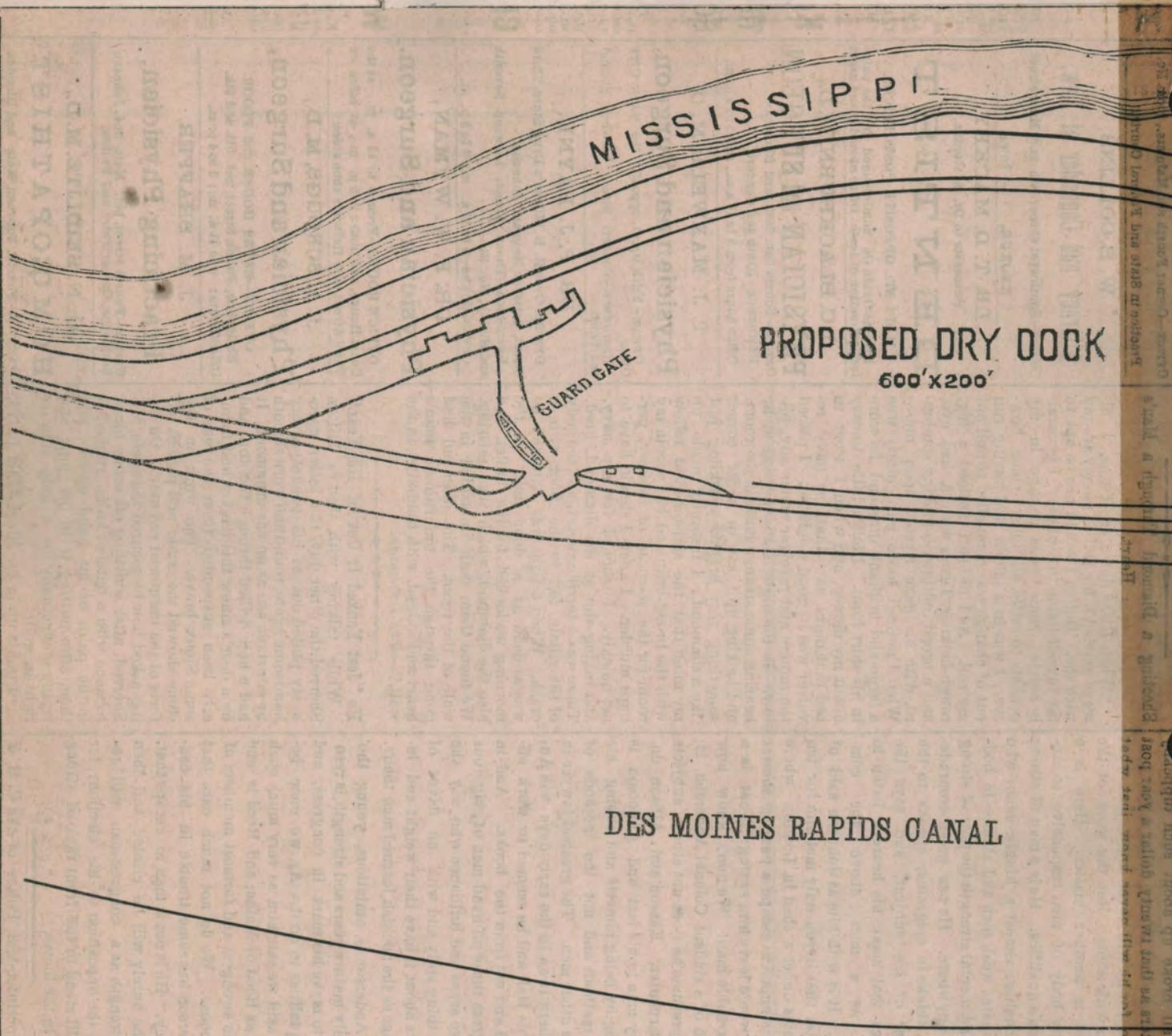
passed in and the guard gates closed.

It would produce no injury to the canal if properly and securely constructed, and would be of great service to the boatmen, and might very often be to the canal, in case a boat is injured in locking or should spring a leak and likely to sink and become an obstruction, in which case it could be floated into the dry dock and repaired.

This dry dock should be under the control of the engineers in charge, so far as letting boats in and out of the same, and during its constructions. It would probably cost from \$20,000 to \$25,000.

I herewith present a sketch of the proposed location of the dry dock and form of its construction, also a map showing the proposed improvements to the canal in order to utilize the water power.

The report of the board of engineers set forth plainly that the dry dock would be a very valuable addition to the facilities afforded by the canal, but that it would be impossible to allow if its control by private parties as the only eligible site was owned by the government and the integrity and safety of the canal would depend on the stability of the walls and general construction of the dry dock, into which the canal must open, thus making it necessary that the dry dock and the canal be under the same head. It was proposed that the use of the dry dock for repairs, if built by the United States, should be allowed to private parties under regulations to be made by the secretary of war. This is the method followed at the Louisville and Portland canal on the Ohio river, where a dry dock has been in successful operation for the last 20 years. For the benefit of those who are not familiar with the purposes and uses of a dry-dock we give the following explanation. Dry docks are used for the purpose of laying vessels dry for examination or repairs. They may have their entrance either from a wet dock or from a tidal harbor, and the former, which is always the best plan will of course be used at Keokuk. They require to be built of good, water-tight masonry. The entrance has generally a pair of folding gates pointing outwards to exclude the water, but sometimes it is closed by the use of a caisson—viz: a vessel shaped something like the hull of a small ship and having a keel and two stems which fit into a groove in the masonry. The gates will be used in the Keokuk dry-dock. No pumping will be required, as would be the case were the caisson is used. The floor of the dry-dock is nearly level and the keel of the vessel to be docked rests on wooden blocks fastened down to prevent them floating, and of such a height as to permit of the ship-wrights getting under the vessel's bottom. Sideshores are put in to keep the vessel in an



upright position and blocks are fitted in under the bilges as soon as possible after the water has been gotten out of the dock. The sides generally consist of stone steps called altars, for the purpose of fixing the lower end of the shores and also for the convenience of supporting the workmen's scaffolds. Dry docks are frequently made long enough to hold three or four vessels of considerable size at one time, in which case they are placed, not in the center line of the dock but obliquely across, so as to give more available length. The dry-dock here will be quite a large one as will be seen elsewhere in this article, and will be used for general construction, and repair work of both government and private craft of all kinds.

On March 30th, 1882, the house of representatives passed a resolution calling for information concerning the need of a government dry dock at the Des

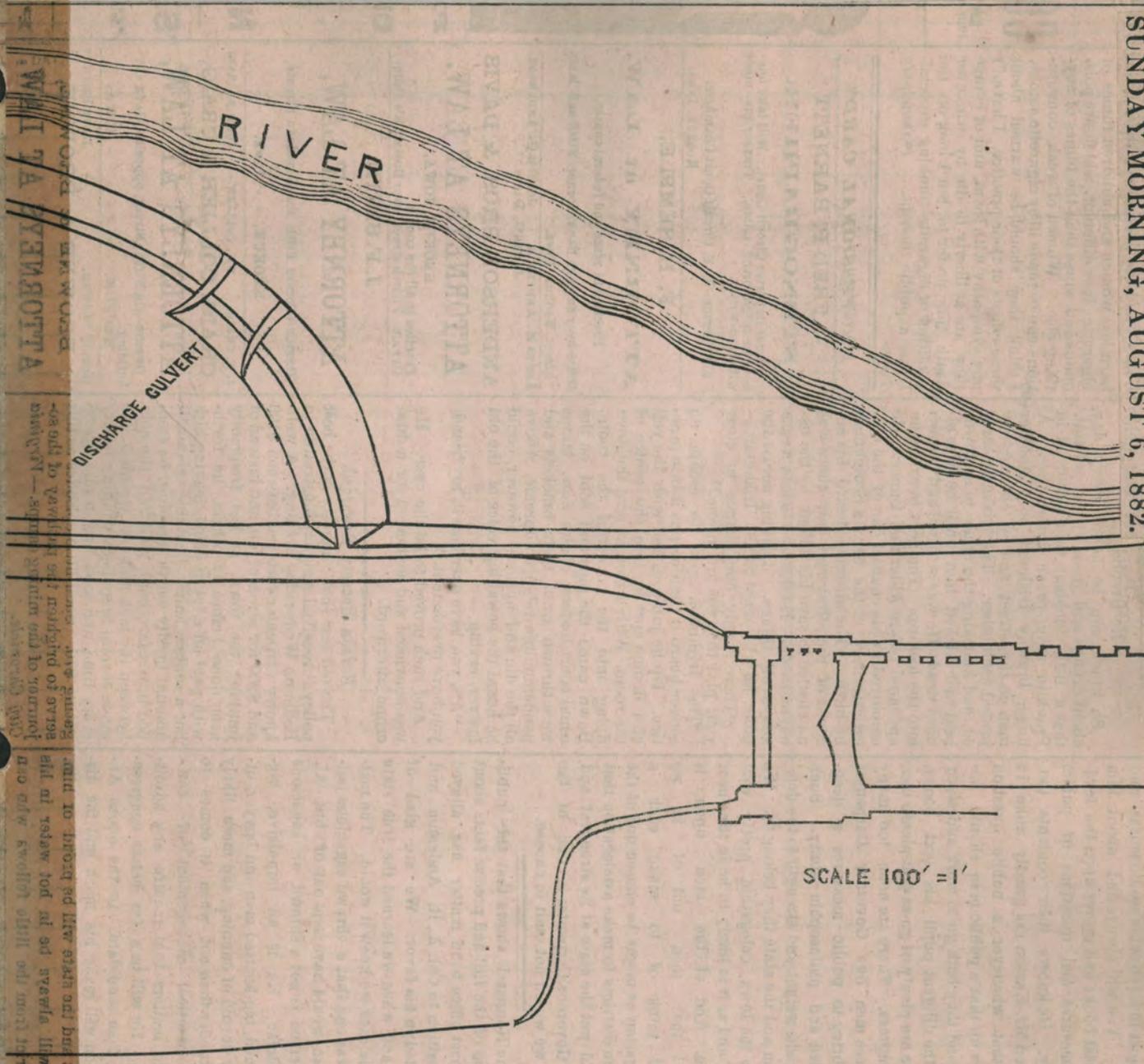
Moines Rapids canal. General H. G. Wright, chief of Engineers, forwarded the resolutions to Major Mackenzie, who made an exhaustive report in the matter. Major Mackenzie in his report stated that the upper Mississippi river is navigable during a large portion of the year for the largest class of steamers, from St Paul to the mouth of the Mississippi, a distance of over 700 miles. That there is no dry dock in this stretch of river and to make repairs upon hulls, steamers and barges must be hauled out upon ways. These ways are few in number and none of them are suitable for the repairs of the largest steamers. That a dry dock is much needed in the interest of commerce and its construction is of importance. The Major continues in his report that the most favorable point for establishing a dry dock is at Keokuk, where, by building as an adjunct to the canal the cost of construc-

tion and operating can be reduced to the lowest figure consistent with doing good work. Such a dry dock, says Major Mackenzie, connected with the canal cannot, without endangering the interests of navigation, be constructed or operated by private interests, but if the management of the dock is in the hands of the government, as is the management of the canal, no interference is possible. The United States now owns and uses, in connection with the improvement of the upper Mississippi, large fleets of tow-boats, barges, dredges, etc. It is desirable to make Keokuk a depot for repairs and construction, and in connection with such work a dry dock would be most convenient and would materially reduce the cost of repairs which must now be made at private ways. In addition to the amount saved to the United States by facilitating the repair of its own fleets a dry dock would be quite a

THE GREAT FIRST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

SUNDAY MORNING, AUGUST 6, 1882.

MR. JENNER'S PLAN, DRAWN BY MR. STRIPE.



SCALE 100' = 1'

source of revenue, as private parties should be expected and would be most willing to pay any reasonable amount for its use when not required for government purposes. Major Mackenzie, in his report, refers to the dry dock established in connection with the Louisville and Portland canal, at Louisville, and cites the fact that the plans for the completion of the St. Mary's Falls canal contemplate the construction of a dry dock. In connection with these two works he quotes from recent reports of Major Wetzel, corps of engineers, in charge, showing the benefits derived from dry docks and the ease with which they are operated. Major Mackenzie refers to Major Suckney's report favoring the project, and heartily endorses the same. There is no doubt the dry dock will be of great benefit to the commerce

of the upper river. It will not interfere at all with the operating of the canal, providing that the work always remains in charge of the officer who has charge of the canal, and this, he thought, should be insisted upon to the extent of making such works appurtenances of the canal. The report of Major Mackenzie having been forwarded to General Wright, chief of engineers, that officer forwarded it to the secretary of war, saying that he concurred in the views expressed by Major Mackenzie, and in connection with the subject, also called attention to the report of the board of engineers (given above), constituted by order of the secretary of war, March 13, 1879, for considering the feasibility of utilizing the water power of the Des Moines Rapids canal. Secretary Lincoln forwarded all these reports to the speaker

of the house of representatives, adding thereto: "The views of these officers are concurred in by this department."

The measure went into the river and harbor bill, over which there has been such a struggle and so much comment, and for a time the friends of the project feared that it would fail on account of some of the provisions of the river and harbor bill, tending to induce the president to veto the bill, and that he did do so evidenced the fact that their fears were not groundless. For a time after the veto of the river and harbor bill was announced the people of Keokuk as well as the government officials and those interested in seeing a dry dock established and built here were quite despondent. But congress determined to pass the bill over President Ar.

SUNDRY ACCOUNTS

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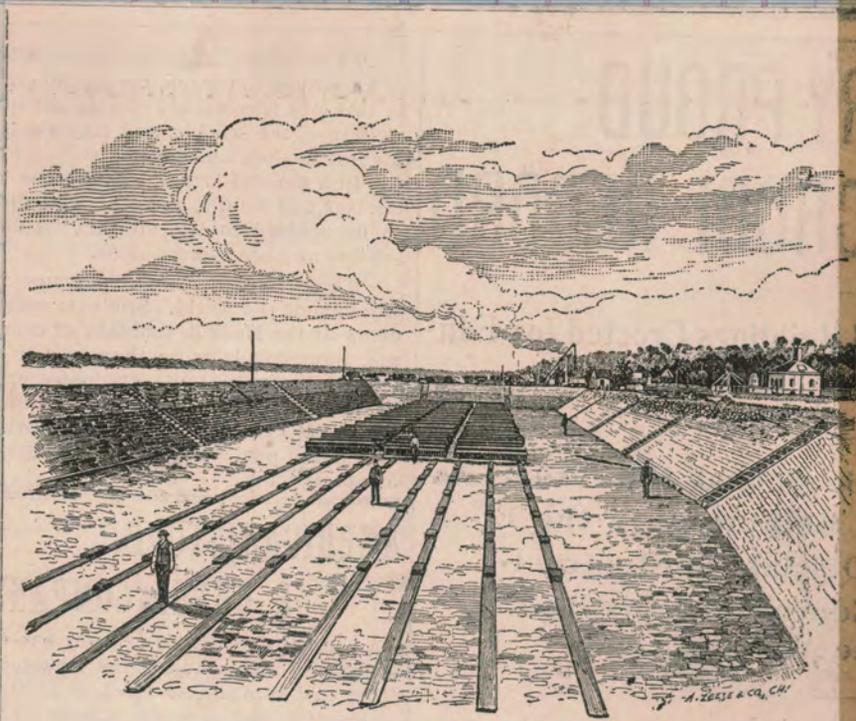
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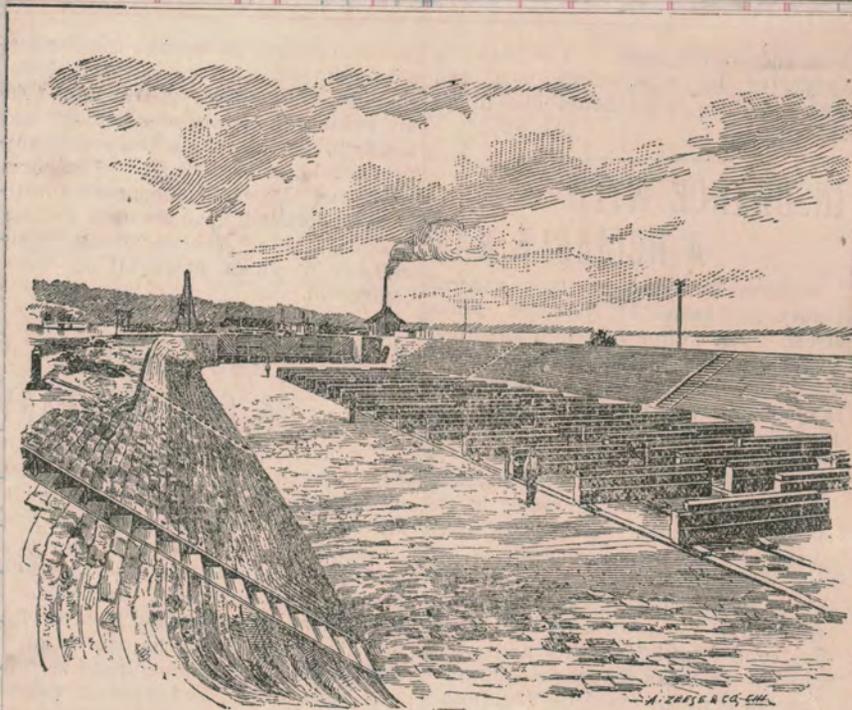
Shur's veto, and so the dry dock will very probably be constructed. The dock will consist of a basin about 450 feet long, 100 feet wide, admitting boats 80 feet wide over all. The gates will be at the north end. A sluice way will discharge the water from the basin after the boat has entered and allow it to settle on the bottom. Such a basin as the above will accommodate the Centennial and five barges such as are used on the river improvements, or four large-sized raft-boats at once. The outer wall of the dock will be of earth paved with stone. The gates will be similar to the upper gates at the middle lock. After the dock is built the earth embankment of the canal will be removed and water allowed to enter. The estimated cost of this dry dock is something over \$100,000. The present appropriation will build much of the embankment and begin the masonry for the sluice and gateways.

The dry-dock is an improvement of the greatest importance to Keokuk. It will not only necessitate the expenditure of a considerable sum of money in its construction, but will bring to Keokuk's door an important branch of work that will add somewhat to our population and much to our reputation. Private parties will find the dry-dock a great convenience, and altogether the success of the project is most gratifying to all Keokukians.

Mr. Meigs, of this city, in charge of the work here, will go to Louisville soon, to inspect the dry dock there and formulate plans for the Keokuk dry dock. He will prepare his plans, send them to the department at Washington and when passed upon and returned, if a favorable report is made by the department, the work will be commenced at as early a date as practicable, but it will be at least six weeks and perhaps longer before anything is done. The plans mentioned above are thought to be about what will be used in the construction of the dry dock.



View of Dry Dock.



View of Dry Dock.

THE GREAT DUST FLEA CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

SUNDAY MORNING, OCT. 29, 1876.

MADE BY BAKER-YAWT

DATE
192

THE CANAL

A Complete History of the
Improvement.

Geological Formation of the
Rapids.

Various Attempts Since
1838 to Ameliorate
the Obstacle.

Description of the Survey and Pro-
gress of the Improvement Under
Gen. Wilson and Col.
Macomb,

With an Account of the Big
Coffer Dam at Montrose,

And Maj. Stickney's Ingeni-
ous Invention for Ope-
rating the Gates.

Cost of the Canal and a Comparison
of Prices Between Contract
Work and Day's Labor.

Estimate of the Available Water
Power and Manner of Util-
izing It.

RETROSPECTIVE.

GEOLOGICAL FORMATION OF THE RAPIDS.

It has somewhere felicitously been said of our great artery, along whose channel course the supplies for the support, pleasure and profit of a large proportion of civilized humanity, that "This giant stream, with its head shrouded in Arctic snows, embracing half a continent in the hundred thousand miles of its curious net work, and coursing its majestic way to the Southern Gulf, through lands so

fertile that human ingenuity is overtaxed to harvest their productiveness, has been given by its Immortal Architect every mile of it into the glorious keeping of this Republic," and the representatives of this Republic in Congress assembled, taking an unusually ample view of the subject, did, by act of June 23d, 1866, authorize its agents, the Engineers of the U. S. Army, to make another hydrographic survey of the two most serious obstructions to the navigation of that "giant stream," the first of which, known as the "Lower, or Des Moines Rapids," occurs about fifteen hundred miles from the mouth, and will form the subject of our sketch.

Geologists speculate that the great section of country ranging north of the Ozark Mountains, in remote ages, was an immense clear water lake, and that at "Grand Tower," below St. Louis, the water has apparently cut through nearly three hundred feet of rock. This erosion, something similar to what is known to be taking place at this time at the edge of the rocks over which thunder the volumes of Niagara, has gradually worn the channel of the Mississippi to its present dimensions.

This same phenomenon shows where the bluffs, receding at right angles from the river below the town of Montrose, and near Nauvoo, that historic location of the earlier trials of Jo. Smith's wonderful fanatics—and seems to indicate that the rapids known as the "Des Moines" have been formed by a gradual erosive process, extending through ages, until the present eleven and a-half stretch of tortuous, dangerous and sometimes impassable navigation has been formed, making a gentle and almost uniform slope from Montrose to Keokuk, with a fall of about twenty-two feet, over which the waters of the river, widening out to a mile and more, flow smoothly and swiftly with a mighty current on their way to the Gulf.

For years the problem of improving the navigation of these rapids has been studied by the best of engineers and steamboat men along the river, and as early as 1838 Lieut. Robt. E. Lee—afterwards the celebrated leader of the armies of the Confederacy—made a survey for the purpose of solving this problem, but nothing was done at that time.

The next investigation of this knotty subject was made by Gen. Samuel R. Curtis, a distinguished engineer of Keokuk, in 1849, who incorporated a company for the purpose of building a canal around the rapids—the general idea of which has actually been carried out. No work was ever performed under this organization.

In 1854 Lieut. G. K. Warren, U. S. Engineers, made another survey of the rapids, and recommended a channel improvement. Shortly afterwards Major J. G. Floyd, a Government Agent, in attempting to carry out this plan, succeeded in partially improving the Spanish and Lower chains, but the work was found so expensive and the result so meager in proportion to the money and time expended, that Congress refused any further appropriations, and the work was abandoned.

In the meantime the great rebellion had broken out, and it was not until 1866 that this subject was again brought before Congress and action taken thereon.

The carrying out of the plans for the amelioration of this obstruction, and at times impassable barrier to the transportation of the endless and immense products

of a great and prolific section of the country, was entrusted to the care of Brevet Major General J. H. Wilson, then Captain of Engineers, U. S. A., who, fresh from the war, the laurels of his conquests thick upon him, entered upon his duties with the dash and vim characteristic of the great cavalry captain that he is, inspiring his subordinates with the same energy that had hitherto marked his eventful career, the preliminaries of the survey were pushed through rapidly and accurately. The comparison of the different

PLANS,

and the details of his own most excellent plan were submitted to and discussed by a board of learned and experienced engineers, and the final conclusion, which embraces almost the very recommendations of Gen. Wilson, with some modifications of details, at length arrived at was as follows, which embodies the General's plan and the changes recommended by the board:

* * * The construction of a lateral canal extending along the Iowa shore from Keokuk to the village of Nashville, a distance of seven and six-tenths miles, and that the improvement should be completed to Montrose by making a through cut two hundred feet wide and five or six feet deep, along the natural channel of the "Upper Chain." That the dimensions of the canal should be as follows: length seven and six-tenths miles; width on surface three hundred feet; depth at lowest stage, six feet; with two lift-locks and one guard lock, each three hundred and fifty feet long and eighty feet wide on top; and that the embankment should be made twenty feet wide on top, be carried up to four feet above the highest known flood, and be covered inside, outside, and on top with a riprap of broken stone.

The board of engineers recommended certain changes in the details of the above mentioned plan, viz: that the embankment be reduced to ten feet in width on top, with a riprap covering two feet thick, to be carried two feet above extreme high water instead of four feet; the prism of the canal to be three hundred feet wide in embankment but reduced to two hundred and fifty feet in excavation; the minimum depth of water to be five feet; maximum depth eighth feet.

"The recommendations of the board were concurred in by the chief of engineers, and approved by the Secretary of War, and the officers in charge directed to proceed at once to carry out the plan adopted."

This is a summary of the plan, and it was estimated that it would cost three millions three hundred and ninety thousand dollars, which estimate, if Congress had promptly appropriated the desired sums and not pattered along with inadequate and petty proportions of the amount of money know to be required, would have been amply sufficient. But the political antagonisms of the lower House, the numerous demands on the public Treasury to satisfy the diversified wants of a country embracing three-fourths of a continent, and the apparent impracticability of supplying all the demands of such an extended constituency invariably caused the different committees through whose hands the appropriation bills passed to cut down the amounts asked for from fifty to seventy-five per cent. This, though it has been the custom of Congress for years and in some cases may be the proper method, has been unfortunate for this impro-

The Canal 1876

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DATE
192

ment, owing to the peculiar nature of the work. Its magnitude; the dangerous casualties to which it was liable, running alongside of the largest river on the Continent—a river known to be subject to immense and dangerous floods at uncertain seasons of the year, floods that carry disaster and destruction to millions of dollars worth of property, and frequently hundreds of lives, which should have been incentive enough to our Representatives to have filled the estimates of the officers in charge and enabled them to carry out their plans and push the work to completion as rapidly as possible.

In this connection Gen. Wilson reports as follows: "Contemplating the immense trade of the upper Mississippi valley, through its natural channel, the Mississippi river, we must come to the conclusion that the obstructions at Keokuk and Davenport are the great drawback of the growing States bordering on the river, and that the damaging influence of those rapids must necessarily increase with the constantly increasing population

To represent the necessity of the proposed improvement in dollars and cents is, from the nature of the problem simply impossible; but it is believed that the work is National and not local or sectional.

A simple calculation will show that the improvement of the rapids of the Mississippi will decrease the cost of transportation by increasing competition between the carriers, thus adding greatly to the wealth of the entire Northwest and removing an oppressive tax from the Eastern consumers of its products.

The dangerous places of the sea coast are marked by light houses and are provided with harbors of refuge at the national expense, for the benefit of commerce not exclusively our own. It seems then nothing more than justice that the general Government should authorize and provide the means for the improvement of a river in which our own people are exclusively interested, and in the navigation of which nearly every material interest of the entire country is concerned."

THE BEGINNING.

PREPARATIONS FOR ACTIVE WORK.

After instructions had been received from Washington, no time was lost in advertising for proposals for constructing the canal or section work. And at a letting held in Davenport on the 4th of September, 1866, Messrs. Henegan & Son, of Mt. Vernon, Ohio, were awarded the contract, they being the lowest bidders out of twenty-eight competitors.

Seven hundred thousand dollars having already been appropriated for this work, directions were received to enter at once into contract with the successful bidders: who, upon furnishing the required bonds and signing the proper papers, were ordered to start work without delay.

In compliance they began at the upper end of the canal, at Nashville, on the

8TH OF OCTOBER, 1867,

by building a temporary guard bank from the shore at the head of the guard lock, out to the line of the embankment, preparatory to extending down the river the outside embankment and rip-rap wall.

The great work was now fully inaugurated. Details of plans were considered daily; the route of the canal accurately laid out; property required for its construction surveyed and purchased from

its owners; county roads and railroads changed where they interfered with the progress of the work: hundreds of men and teams employed blasting rock and excavating earth, which was transferred to the end of the embankment, making it stretch its slow and sinuous line down the river towards the outlet lock at Keokuk. Everything seemed working advantageously.

Meanwhile advertisements were published asking proposals for the work on locks, which was divided into five classes: stone, cement, iron, lumber and labor.

The work was duly awarded to the respective lowest responsible bidders, but as all of the money on hand was pledged to the section work, the lock contractors were unable to proceed until the next appropriation was received from Congress, and it was not until August 17th, 1868, that Mr. E. Owen, the successful bidder for labor on the lower lock was able to get to work. Then however, he started the construction of his coffer dam which was formed principally of earth protected by a rip-rap covering of stone, with a timber coffer dam closing the lower end.

This lock was located entirely in the river, and in order to hasten the completion of the improvement, it was decided to enclose the whole area required for its construction in a coffer dam, proceeding with the work at once, and not to wait for the extension of the river embankment. The upper end of the dam was an earth bank protected by rip-rap, which extended into the river until it met the line of the proposed main bank. Then by building down as far as the foot of the lock where the masonry of the pier began, to finish the balance with a timber coffer filled in with earth and gravel—in this way a portion of the main bank would be built, forming at the same time a side of the coffer. This was successfully accomplished, and by the 15th of November, 1868, Mr. Owen had the whole area enclosed and pumped out.

But now happened one of those

DIFFICULTIES

predicted in the construction of this work. The river began to rise and scarcely had the bottom of the dam been exposed to the curious gaze of the employes when in order to save the structure, which was twelve feet high and only ten feet wide, from being crushed by the rising waters, it was found necessary to flood it. In a few days, however, the river receded. The dam was successfully pumped again and with the exception of a few leaks and threatenings of breaks, the work of excavation for the foundation of the lock was carried on continuously until the night of December 31st, 1868, when an ice gorge forming in the river just outside of the dam raised the timber coffer bodily from the rock bottom, the waters rushed in, the dam filled and further operations ceased temporarily.

While the work was progressing actively at the lower lock, trouble not induced by high water had interfered with the operations on the canal prism and embankment. The contractors for that portion of the work as its magnitude began to develop, and as the demands of the officers in charge for a more energetic prosecution of their contract with greater facilities in the shape of machinery and men, proved entirely ineffectual, it became manifest that they were totally incapable of fulfilling the terms of their contract and on the 25th of October their

agreement with the Government was declared violated, and was abandoned by the Chief of Engineers.

Advertisements were again published, offering the excavation of the prism and building the embankment wall to the lowest responsible bidder.

In the meantime, as the work had been left in an unfavorable condition for retreating, the officer in charge was directed to make use of the means at hand to place it in the best condition possible. It was in the midst of winter, everything was frozen, ditches had to be dug, drains made, guard banks extended and raised, extra roads made, etc., but all was done that could be, to accomplish this end.

Under the terms of the advertisement bids for doing so much work as the balance of the appropriation would cover, were opened November 18th, 1868, and the

CONTRACT AWARDED

to Mr. J. J. Dull, of Harrisburg, Pa. He at once made arrangements to purchase the tools of the late contractor, and by January 2d, 1869, with an improved plant consisting of locomotives and dump cars built expressly for this work, and a large force of men and teams, started in the middle of winter to work out this problem. A mild, wet winter followed by a rainy spring, together with unusual high water, rendered the transportation of earth and rock very difficult, but despite these drawbacks, considerable progress was made.

The operations of the lower lock during the years 1869 and 1870 were carried on as effectively as possible under the circumstances. One serious mistake made by the contractor, and in direct opposition to the advice of the officers in charge, was to build his timber coffer only twelve feet high. The known variation of the water at this locality, some twenty feet, would naturally admonish a man engaged in works exposed as this was to the fluctuation of the river, to guard against such contingencies to the best of his ability, but with an erroneous notion of economy twelve feet was adopted instead of fifteen, and frequent overflows causing expensive delays was the consequence.

The first contract for stone, which had been taken at entirely too low figures, came to a sudden conclusion, like the contract for the prism and embankment work, and was abandoned. This proved an inconvenience to the lock contractor, but on account of the many stoppages from overflows did not materially delay the masonry, and General Wilson immediately entered into a contract with Messrs. Wells, Timberman & Co. who furnished all the stone required. The celebrated Sonora quarry, and fully fulfilled their agreement.

The energy of the lock contractor in prosecuting his work, when not interfered with high water, was marked. Steam drills for excavating the heavy mass of rock preparatory to laying the foundations of the immense walls; derricks moved by steam power for handling and placing the large blocks of stone; railroad tracks with small cars darting hither and yon for delivering the different kinds of material; crowds of men and teams at work, and all surrounded by the turbid waters of the Mississippi, gave

LIFE AND ANIMATION

to the scene that those who watched its progress will not forget. The known insecurity of the frail timber coffer prov-

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THE GREAT DUST HEAR CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

The Canal #1

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ing to be a constantly impending danger, seemed to increase their expectations, and to crown all, the tremendous blasts made from the large holes put down by the "Burleigh steam drill," which were exploded at noon and night, recalled the heavy bombardments of the war through which a large number of the men had passed, and inspired them almost with martial ardour.

This lock was built by authority of Congress in exact accordance with the plans approved by the Secretary of War. The massive walls, the complete arrangements for filling and emptying the chamber by means of culverts behind the main walls with lateral openings, the heavy gates and peculiar facilities for manipulation, both of the gates and wickets, are more fully described further on.

Work on this portion of the improvement was continued until October 29th, 1870, when on account of the exhaustion of the appropriation the contractor was notified to cease operations by the officer in charge, now Col. J. N. Macomb, U. S. Engineers, who had relieved Gen. J. H. Wilson, at his own request September 30th, 1870. Consequently, during November, by order of Col. Macomb, precautions were taken to preserve such of the work as had been done from the action of water and severe frosts of winter, as no further appropriation could be expected until the next meeting of Congress.

THE SECTION WORK.

In the meantime work was progressing on the sections between the locks. Earth and rock were excavated rapidly, the embankment being built, and protection wall laid. Congress in a spirit of unwonted generosity, especially appropriated December 23d, 1869, two hundred thousand dollars for this improvement, enabling the officer in charge to renew his contract with Mr. Dull, who took into partnership Mr. Geo. W. Williams, of Keokuk, a railroad man, endowed with the energy and push of the American railroad man, and who, in this new position, proved a valuable acquisition.

The excavation of the prism and construction of embankment being now in good hands, the work went bravely on, but most of it being located in the river, it was subject to the vicissitudes of that changeable stream, numerous leaks and slides occurred, floods delayed the work and innumerable yards of unfinished bank was washed away, and although the expense of these losses and delays had to be borne by the contractors, they energetically prosecuted their work until the appropriation was expended, when with rare public spirit they proposed in writing to carry on the work without estimates or pay, until Congress should make the usual appropriation. This proposition was accepted and the work went on.

It was now May, 1870, and the appropriation was not received until July. The indebtedness of Dull & Williams was paid off, new contracts entered into with the same parties, and the work pushed rapidly through the summer and fall months, during which season a low water stage generally obtains, and large amount of work was done. This last contract carried the work on the canal section to the 9th of November, 1870, when the money having been expended and the advices from Congress about any more appropriations being indefinite, the contract was stopped, and

everything done to place the entire work in security for the winter.

These precautions in regard to the sections were not required, for Congress upon being memorialized by citizens of St. Louis and several other towns along the river passed a bill granting an appropriation for this portion of the work, January 18th, 1871. The same contractors again went to work. During this season but little trouble or expense was experienced from the fluctuations of the river. Several leaks sprung, but preventive measures were taken, and no damage ensued, and the work was closed in the whole length of the prism, so that by July 31st, 1871, the main bank had been connected to the upper corner of the coffer dam surrounding the lower lock, making a continuous bank above ordinary high water, from Nashville to the end of the lock pier at Keokuk. All of this bank was protected on the outside by rip-rap, most of it laid in form and a large portion of the inside was also covered with stone.

Now

MORE THAN FOUR-FIFTHS

of the work had been done and a prompt appropriation would have finished this portion economically, but such was not to be the case. A strange notion of retrenchment seemed to pervade the councils of the nation, and orders were given to prepare the sections to remain idle for an indefinite time, and right well was this neglect paid for by the Government.

The summer of 1871, as mentioned in the record of the section work, was a most favorable season for prosecuting this immense undertaking, and every advantage was taken of the weather and low stage of water that the money on hand would admit of. Contracts were awarded to bidders for work on the middle lock and also for resuming work on the lower lock. But the means were inadequate, and when the allotments to the locks had been expended, the lower lock was still in a very unfinished condition, and only the foundation of the middle lock started.

Now, was the great hiatus on this improvement, and the false economy of ill-judged retrenchment applied for political motives to strictly commercial objects fully illustrated.

For nearly a year the great work was allowed to

REMAIN IDLE,

and expensive damage was the consequence. Leaks started through the half-finished banks, slides took place where the protection was unfinished. The bottom of a large portion of the prism where excavation had been completed, and also at places where it was incomplete was soon covered from one to three feet deep with debris from the lateral streams emptying into the canal; a forest of weeds took possession of the bank, mink and muskrats were busily engaged erecting their little homes in the now abandoned prism and boring through the earth embankment, much to the detriment of the work.

The officer in charge was powerless to prevent this wholesale destruction; the appropriations were exhausted; without means his hands were tied. Complaints were sent to Washington concerning this condition of affairs, but retrenchment was the watchword—no matter what interests suffered—no matter who went to the wall, retrenchment was the order. Another excuse was found for not making

an appropriation. The cost of the work had already nearly equaled the amount of the original estimates. A board of engineers was ordered to investigate this state of affairs and try to discover where the public money had gone and why, like the cry of poor Oliver, the demand should be for more. They came; they investigated; they reported; the money was found properly and legitimately expended, and this very condition of affairs had been predicted, in a letter of Gen. Wilson's to the Department, of Dec. 3d, 1868, wherein he says, "that with partial appropriations the entire work must be increased *very materially* in cost and be greatly delayed in its final completion."

The Presidential campaign, in which the rallying cry of the Republicans was retrenchment, and during which Gen. Grant was elected, seems to have been the prime cause of this suicidal policy, as in June, 1872, another little drib of an appropriation was made, and during the following autumn work was resumed where it was practicable along the line and at the locks.

Great difficulty was experienced preparing the section so as to resume; leaks through the unfinished bank had to be patched up; weeds and shrubbery removed, in order to relay the tracks; ditches dug to drain the excavation pits; approaches which had been washed away renewed, and an expensive clearing up of the collection of sediment for a year at those points where it was decided to re-commence.

The condition of the locks was better than the line of the canal; considerable delay, however, was caused even there, on account of an unfinished work remaining idle so long, but operations were carried on rapidly during the autumn until the cold winter of 1872 necessitated another stoppage.

The winter of 1872 and 1873 was exceptionally severe. Frost penetrated the embankment thirty inches. The water in the prism froze solid to the very bottom. The swift current over the rapids was covered with a thick coating of ice that would bear up teams and wagons with the heaviest loads, and this icy stillness over the rapid river remained unbroken until March 9th, 1873, when, yielding to the approaching spring, the force of the mighty current increased by the accumulations of the melting snow, broke its crystal bounds and dashing the masses of ice on either shore, caused it to crowd and gorge to the very height of the embankment, and in some places rearing in a dazzling crumbling wall above the top, tumbled, crushed into a harmless mass, upon the inside slope. No damage was sustained, the work proved substantial and not a sign was left of the trial it had undergone during the few hours of the breaking up of the icy barriers of the great river.

After the weather had become settled in the Spring of '73, work on the middle and lower locks was resumed with considerable activity. The huge dimension stone were being delivered daily, the clicking of the stone-cutters' tools, the hoarse cries of the masons from the walls, the rattling of machinery, cars and wagons moving rapidly over the works was exhilarating, and seemed to promise that the end was drawing near.

During this season a proposition was submitted to the Department for

BUILDING SLUICES

around the locks of sufficient capacity to control the surplus water carried into the

canal by the numerous streams emptying therein during their frequent floods. These being absolutely necessary, increased the cost of the work and should have been included in former plans and estimates, but heretofore, from some unaccountable reason, they had been dispensed with until their importance becoming apparent, their construction by days labor was recommended. This inaugurated the system of labor by employes instead of contract, and an extract from the report of the officer in charge in reference to it, says he is "justified in saying that it is by far the best plan for the United States to do this class of work by their own employes. It has cost much

LESS THAN ANY CONTRACT WORK on this improvement. The employes of the United States have no other interest than to carry out to the fullest extent all the instructions received, and to do the work in the very best manner, and a majority of the funds appropriated go directly to the laborers employed, benefiting the many, and not, as under the contract system, a large percentage profiting the few."

To return to the section work. During the month of July, 1873 a new letting was held to finish the excavation in the prism, the guard lock and the channel approaches at both ends of the canal, but owing to the strong opposition made by competing bidders the contract was not awarded until the latter part of August, nor did the new contractors get to work until September, 1873.

In the mean time the government laborers built a coffer dam around the proposed channel excavation for an entrance to the guard lock, repaired some of the leaks underneath the embankment, reopened the drains and ditches through the prism, which had become clogged on account of the work lying idle for so long, which facilitated operations and dispensed in a great measure with the expense of pumping.

The contractors with a plant of two narrow gauge locomotives, fifty cars and the necessary appurtenances went to work energetically, and by January 12th, 1874, the excavation of the new channel was completed and the dam allowed to fill. They now transferred their machinery and men to the coffer dam, which in the mean time had been constructed around the channel at the entrance to the lower lock, but ere they had got well to work the high water of March flooded the dam, and they were obliged to find work in the upper part of the prism and the excavation for the foundation of the guard lock.

As high water continued in the river during the Summer of 1874 and the lower coffer dam remained flooded, what work could be done was carried on at the sluices around the two locks; in the prism, and for foundation of the guard lock. The only masonry laid, except at the sluices, was the circular wall connecting the upper inside wing wall of the guard lock with the rip rap wall on the canal bank. The work was now being pushed vigorously. Congress was impertuned to furnish sufficient means at one appropriation to complete the improvement, and the consummation of the plans of this great work, which would overcome this first obstruction of the navigation of our national highway, seemed to be within the grasp of the officers in charge, and renewed enthusiasm and energy actuated

Except the final finishing of the prism all of the excavation between the guard and middle locks was done this summer, and the contractors concentrated their force in the lower coffer dam. The Government employes were engaged quarrying stone and laying rip-rap wall, prolonging the bridges and erecting dams for silt pools at the mouths of the two largest creeks that debouch into the canal, and preparing the concrete foundation for the immense walls of the guard lock, which was to be built entirely by hired labor, and the officer in charge desired that no pains should be spared to make it a structure superior in all respects to either of the other two locks which had been built by contract, and also to be done in less time and at less cost; consequently the foundation was substantially laid in and flooded so that it should become well set before the superstructure was placed on it, and the force during the winter was employed cutting stone for the walls.

Meanwhile during the month of September, 1874, the contractors had removed all of their plant to the coffer dam below the lower lock and the excavation of the channel was this time carried on successfully to completion, such rock and earth as was suitable being used to raise the embankment of the canal to grade and the balance placed along the shore of the river between the lower lock and Keokuk bridge abutment, making a very convenient levee; and on the 25th of December, 1874, after an official inspection, the channel was found cleaned up nicely to grade, the slopes true, and everything finished in accordance with the specifications. This closed the contract system of work on this portion of the improvement.

The extreme cold weather of the winter of 1874 and 1875 prevented continuous work. The mercury fell to zero and below, where it remained for weeks, everything froze solid, ice made upon the rapids where the current is from three to five miles an hour, twenty-six inches thick, men could not work exposed to such a temperature, and it became necessary to suspend operations until spring.

By that time the last appropriation being available, work by day's labor was inaugurated all along the line. The middle lock and sluice were finished. The work on the lower lock and sluice had been completed, and laying masonry for the guard lock with the new and approved machinery in the shape of two travelers spanning both side walls, was commenced in earnest.

THE FLOODS

that interfered during the summer of 1875 with the balance of the improvement were not felt here. Every day was taken advantage of and the work completed during the fall. It now stands a monument of the best cut-stone masonry on the river, and thoroughly fulfills what was intended by the officer in charge, when in his report he said "that no pains would be spared to make it a structure superior to either of the other locks, and that it would be done in less time and at a less cost than either of them." That prediction was fulfilled, for by November, 1875, the last stone in the lock walls proper was laid.

The objective point during the season of 1875 was to push the work so far forward as to admit of the passage of boats through the canal some time during the fall, consequently every exertion

was made to that end. The rip rap protection for the inside slopes of the banks was built up to high water mark as far as possible. The prism was mostly cleaned up. The big crevice leak below the middle lock, through which poured thousands of gallons of water was blasted out, refilled with concrete and puddled. The sluice at the guard lock nearly completed. The old timber on hand for the gates having become useless from dry rot, was condemned; new timber was purchased, and work on the gates for the middle and lower locks was going on rapidly.

THE MACHINERY

for operating the gates and wickets, made from an original design of Major Amos Stickney, the officer in local charge, was constructed and partially placed in position at the middle lock. This plan consists of a system of pulleys, chains, and wire ropes, operated by a pump forcing water into hydraulic cylinders sunk behind the walls back of each gate, connected by means of iron pipes, with an engine situated near the head of the lock, and such as has been tried works admirably, so that when finished one man at the engine can handle the massive gates and wickets with ease and precision.

While work upon the canal proper was being thus energetically carried forward towards completion, the final consummation of the original plan of this great work—the through cut at the upper chain and improvement of the channel between there and Nashville, was also undertaken. A new survey was made so as to definitely locate the channel and verify former surveys, by means of a very ingenious sounding apparatus, invented and managed by Major E. F. Hoffman, assistant engineer, from the Rock Island Improvement. The results from this proved that former calculations had been partially erroneous, and a much larger quantity of rock required moving than had been estimated for. Nothing daunted, however, by this discrepancy, work on the

HUGE COFFER,

designed to enclose the channel, to be excavated through the solid rock; was commenced in June, and by the 13th of August, 1875, was closed, and punping began.

The projecting and energetic pushing of this monster coffer to completion—being five thousand seven hundred and eighty-two feet in length and enclosing ninety-five acres of the waters of the Mississippi, has been one of the great engineering feats of the age, and in spite of frequent mishaps, the crushing of the walls of the coffer, were weakened by the washing out of underlying fishures; the unprecedented high water of the fall and winter of 1875, when once in September, and again about New Year's day the flood waters of the great river, seemingly intent upon preventing the desecration of its rocky bed, rose in their might and overwhelmed the petty structure made by man, the channel was successfully finished.

These frequent floodings were the source of great inconvenience and expense, and occurring at a season of the year when low water generally obtains, were unexpected and unprovided for, tools and material were lost, the work terribly delayed, gangs disorganized and men demoralized. The perseverance that actuated the officer in charge, was tried to the utmost, but as fast as the dam broke, which sometimes happened during the dark hours of the night, in spite of the

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DATE
192

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THE GREAT EAST RIVER CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

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DATE
192

efforts of the men working by the flickering glimmer of their torches in fighting the persistent water which seeking out a weak spot would come crushing and surging over the works, repairs were made and the work continued. The length of channel enclosed by this dam was three thousand one hundred and sixty feet, two hundred feet wide, and owing to the frequent mishaps, it cost a little more than had been anticipated. But when from the exhaustion of the appropriation it became necessary to stop the work, the channel was completed except a small portion of the head, which can be removed by means of chisels. This undertaking was fought out courageously to the end, and has been done for nearly one-half the cost of the same kind of work heretofore done under contract for the Government.

The rock taken from the excavation was placed in a bank parallel with the line of channel, fifty feet removed, located upon the west or Iowa side, raised above extreme high water and making an excellent guide for navigation.

The balance of the channel improvement from Montrose chain to the approach to guard lock at Nashville, a distance of about three miles, was partially improved this season by means of smaller cofferdams were required and the use of the chisels. These chisels are immense steel pointed masses of iron weighing about nine thousand pounds, raised in a frame work similar to a pile driver, by means of an engine on the boat, and so located as to drop upon the rock bottom that is required to be excavated and gradually to crush it into pieces suitable to be dredged up and removed. This work was carried on until the running ice during November made it necessary to lay off the boats and harbor them for winter.

The great work had now been brought nearly to a close. The locks finished, part of the gates put in, the machinery for moving them well advanced towards completion, the prism ready for the water and the protection walls except in the lower level brought up to high water mark so that the finish could be put on at any time whether the canal was in use or not.

THE GRAND OBJECT
of opening the canal for navigation seemed within the grasp of the officers. Such, however, was not to be.

The accumulation of silt in the prism from the creeks which had never been properly protected (until the last year) the large quantities of material left scattered over considerable space from unfinished contracts, which had been stopped prematurely on account of inadequate and insufficient appropriations; the unprecedented high water of the fall and winter that backed up into the prism delaying all operations and necessarily increasing the cost, together with the casualties of the Montrose dam, used up the available means, and on the 26th of February, 1875, orders were reluctantly issued to cease operations everywhere, and prepare the work for an indefinite season of idleness. This too, when it was known that two months' work would carry the improvement so far ahead as to allow it to be used for the purpose intended. The circumstances were at once reported to the Chief of Engineers at Washington and steps taken by him to obtain sufficient funds through Con-

SUNDRY ACCOUNTS
gress, then in session, to allow operations on the locks at least, to proceed far enough to become of some use to the navigation of the river. But it was not to be. Again had arrived the quadrennial cycle in American politics.

The spirit of investigation had taken possession of the House. The status of the political aspirants to the White House occupied the sole attention of Congress. Nothing like an appropriation could be obtained. Personal ambition and the success of political cliques, no matter what material interests of the people suffered in the mean time, ruled the hour, and this great work, instituted for the benefit of millions of our countrymen; a work national, not political; an improvement of a world's commercial highway; a work that would cheapen the transportation of the food of millions, and be of incalculable benefit to mankind for the gratification of petty political partizanship is allowed to remain idle and go to ruin from inaction. But at last, after seven long months of inactivity; after the heavy floods of the spring of 1876, and exceptional heavy rains of the last season, during which the prism of the canal has been again partially filled with debris from the creeks; portions of the unfinished protection walls washed out and almost everything connected with the improvement swamped for months, and which could all have been avoided by an appropriation at the proper time and the canal been in use during this present season of low water. Congress has graciously donated another partial modicum of the amount asked for, which by strict economy of expenditure, may possibly make the great work available for the purpose intended by the low water season of '77.

THE APPROPRIATIONS.

Following is a list of the appropriations received and the amount of money expended on the canal:

1856, June 23d. \$200,000	1871, Jan. 18th. \$341,000
1867, M'ch 2d. 500,000	1871, M'ch 3d. 250,000
1868, July 30th. 300,000	1872, June 10th. 400,000
1869, May 11th. 150,000	1873, M'ch 3d. 400,000
1869, Dec. 23d. 200,000	1874, June 2d. 400,000
1870, July 11th. 400,000	1875, M'ch 3d. 480,000
	\$1,780,000
	\$1,780,000

Total.....\$4,051,000

This is the amount the canal has cost the Government so far, and, with the present appropriation for 1876, of \$230,000, which will certainly render it useful for navigation, the total is \$4,281,000. Rather a large sum, but by making a comparison of the following table of figures, between contract price and the cost of labor by employes, and at the same time taking into consideration the suicidal policy of Congress, of making partial appropriations far a part, during which time the work has laid idle and necessarily deteriorated, it will be easily understood why the building of the canal has cost so much more than the original estimates.

COMPARATIVE COST.

Comparison of cost of different kinds of work on this improvement, done by contract and labor hired by the United States—the lowest prices for contract work are taken for this object:

Kind of work.	Lowest contract price.	Labor price.
Cut stone masonry per y'd.	\$8.00	\$5.65
Concrete foundation per y'd.	5.53	2.85
Rock excavation per y'd.	2.0	1.75
Earth excavation per y'd.45	.83
Slope wall per y'd.	1.00	.77
Wrought iron per lb.10	.08
Rock excavation in coffer dam per y'd.	11.25	5.00

WATER POWER.

ITS AVAILABILITY.

Frequent inquiries are made concerning the water power, if any, that is made available by the building of the canal along the rapids, and a few thoughts on that subject are appended.

The middle lock, located just below Price's creek, and with a lift of eight feet, holds the water at an elevation never below extreme low water at Nashville, the head of the canal, five miles above, which elevation can be carried by means of a flume below the lower lock, a distance of two and three-fourths miles, and be there used for power with an extreme fall of eighteen and three-fourths feet, which can be utilized to a greater or less extent the whole year round, except in cases of extreme rise, similar to that of 1851, when of course the power is lost, though high water seldom lasts more than a few days.

This will be better understood by a comparison of the figures of the datum elevation of the canal.

The surface of extreme low water at Nashville, which is carried to the middle lock is 27.70. Extreme low water at the lower lock is 8.95. This gives a difference or fall in that distance of 18.75 feet, which is the greatest fall that can be obtained. Now the highest water that will be allowed in the upper level, or above the middle lock to prevent that structure from being flooded is 30.70. The highest recorded water at the lower lock, which occurred in 1851, and has never been reached since, was 29.80, making a difference of fall of 0.90 tenths of a foot. This is not available for water-power, but as previously stated, such an extreme height has never been known to last more than a few days, and delays caused on that account would be inappreciable. Calculations made from the daily records kept of the changes in the river at the lower lock for the last ten years show that a mean head can be obtained for most of the working days of the year, of say 14 feet. This fall or head with a discharge of say 800 feet per minute, and a 26 inch turbine wheel gives a result of nearly 22 horse-power; with a discharge of say, 16,000 feet per minute, and an eight-foot turbine, the result would be nearly 382 horse-power. These results vary as the head changes or the size of the turbine is increased or diminished. Having simply glanced at the power to be obtained, it remains to show

HOW IT CAN BE UTILIZED.

The most feasible method is by tapping the upper level of the canal where Price's creek debouches into the prism and building a head race or flume from there, following the line of the present location of the C. B. & Q. R. R. track, down to Brown's warehouse on the levee, from which point, small flumes radiating to mills located upon the edge of the levee can be built, and the power utilized.

It is not proposed to make any estimate as to the cost of this work, but simply to show the best method of using the canal improvement as an adjunct to the water improvement at this joint.

The length of this flume or head race would be 2½ miles, the width would necessarily be determined, (say ten feet or fifty feet) by the amount of water required. The excavation to a great extent would be made through lime stone

SUNDAY ACCOUNTS

rock and have to be carefully puddled, while a timber flume would probably be required at the lower end.

An enterprising company might build this head race and in a few years, by attracting sufficient capital to use it, would undoubtedly realize a fine profit on their investment.

Another method of utilizing the water power is by building a short head race from Price's creek to just below the middle lock, at the Hornish property, and from thence down as needed, which will make a flume of about half a mile long. There a head or fall can be obtained of from four to five feet, generally five feet all the year around, except of course in extreme high water—with a tail race or discharge into the lower level of the canal. But this small head would require the use of large turbine wheels, certainly nothing less than five feet, which would give only thirty horse power; or, if a ninety-six inch turbine was used, the power obtained would be but eighty horse.

With these few hints the subject of the utilization of the water power of the canal is left in the hands of the community.

NOTE.—Since the above was written the appropriation has been cut down, by authority of the President, one-half. This reduction, of course, changes all calculations, but it is hoped by the officer in charge that enough work can be accomplished, even with the reduction, to allow of the passage of boats by next fall. Whether such will be the fact or not time alone can tell.

—The history of the Rapids Improvement, which we publish this morning, was written by Mr. E. Hudson Worrall, Engineer in charge of the section work. Mr. Worrall is the only member of the Engineer Corps who has been identified with the enterprise from the start. His ability as an engineer, his knowledge of the work, and his ready pen peculiarly qualify him for the task he has so successfully accomplished. He does not confine himself to the dry details of the improvement by any means, but imparts to his subject a freshness and originality that render his article valuable as a literary, as well as a historic production. It is an exhaustive and accurate history of one of the most gigantic improvements ever undertaken in this country, and will be found entertaining and instructive reading. It will richly repay a careful perusal.

THE GATE CITY: SUNDAY MORNING, DEC. 14/89

CANAL.

The Amount of Business Done Through it the Past Season.

A Large Increase Over Last Year—Interesting Report by Major Stickney.

The average stage of water in the Mis-

issippi river during the past season has probably been lower than during any previous one for years and the practical importance and value to navigation of the canal around the Des Moines Rapids at this place has been fully shown.

While the stage of water has been unusually low, the amount of business has been extremely large—far exceeding that of former years. River men inform us that it would have been

UTTERLY IMPOSSIBLE

to transact this immense business in the absence of the canal. The freights that have been moved down the river could not have been transferred around the rapids, as was done before the canal was in operation. Nor could rates have been kept down to the low figures that have prevailed throughout the season. It will be seen, therefore, that the people of the Mississippi Valley have not only been able to transport a larger portion of their products to market by water than they would had the canal not been completed, but have had the benefit of much lower rates of freight than they otherwise would.

INTERESTING REPORT.

Major Stickney, the officer in charge, has, at our request, very kindly furnished us with the following report of the business through the canal during the season:

(To the Editor Gate City.)

UNITED STATES ENGINEER OFFICE, DES MOINES RAPIDS CANAL, KEOKUK, IOWA, December 12, 1879.

SIR:—In accordance with your request I have prepared the following summary of the business of the Des Moines Rapids Canal, for the past season of navigation. The water was let into the canal March 15, 1879. The first boat to pass through was the steamer Annie, of the Keokuk Northern Line, March 22d. The last boats were the steamers Victory and Tidal Wave, of the same line, December 9th, 1879.

The canal was closed December 1st, and the machinery connections for operating the gates disconnected. As an accommodation to one of the Packet Lines having boats up the river the water was not drawn off from the levels until the 9th inst.

PASSED THROUGH THE CANAL.

Table with 2 columns: Item, Quantity. Steamers 927, Barges and flats 622, Rafts 104.

CARRYING.

Table with 2 columns: Item, Quantity. Passengers 14,511, Tons of general merchandise 79,992, Bushels of grain 2,566,047, Feet of lumber 132,634,127, Feet of logs 18,081,960, Shingles 83,196,650, Lath 31,191,990, Lockages at one Lock 2,118, Average lockages in 24 hours 8.

Very respectfully your ob't servant, AMOS STICKNEY, Capt. of Engineers, Bvt. Maj. U. S. A., in charge Des Moines Rapids Canal and Improvement.

COMPARISON.

By way of comparison we give the following statement of the amount of business through the canal during the pre-

Table with 2 columns: Item, Quantity. Number of steamers 1,224, Number of barges and flats 765, Number of Rafts 29, Tons of general merchandise 83,374, Bushels of grain 1,528,426, Feet of lumber 21,796,968, Feet of logs 5,185,000, Lath 5,394,146, Shingles 10,514,000.

ceding year: From this it will be seen that while the number of steamboats passing through the canal has been less and the tons of general merchandise about the same, the quantities of grain and lumber are very much larger, the number of bushels of grain exceeding last year's figures by over one million bushels; the quantity of lumber more than six times greater; the quantity of logs more than three times greater and other things in proportion.

The canal has, under the able management of Major Stickney and his efficient corps of assistants, been successfully and satisfactorily operated. Everything has worked smoothly and there has not been the slightest delay or accident of any kind.

DAILY GATE CITY.

FRIDAY MORNING, DEC. 17, 1875.

DISGUISED.

A Woman Dons Male Attire and Goes to Work in the Cofferdam at Montrose.

A few weeks since a murder was committed at a country dance in Montrose township, in this county, at which whisky was freely indulged in by those participating. About the same time the wife of the murdered man disappeared and it was thought that she committed the deed. The authorities have been searching for her ever since, but did not until Wednesday last succeed in getting any traces of her. On that day it was ascertained that a woman dressed in male attire was working as a common laborer in the cofferdam at Montrose. The authorities made up their minds that she was the woman they were in search of and laid their plans to capture her. When they went to arrest her yesterday morning, however, she was missing. She evidently became aware, in some way, that the officers were after her and skipped off.

This woman has been working in the pit with several hundred laborers for the past fifteen days and performing the hardest kind of manual labor. So well did she disguise herself, however, both in appearance and deportment, that those who were working right along beside her never suspected that she was one of the gentler sex.

THE GREAT EAST RIVER CALLED THE RIVER R. J. BICKEL KEOKUK, IOWA

WEDNESDAY MORNING AUGUST 22.
Its Magnitude and Importance.

An Illustrated Historical and Descriptive Sketch.

Containing All the Facts and Figures in Detail.

The Dimensions, Character and Cost of the Improvement.

The Locks and the Machinery for Operating Them.

The Water Power and Its Availability.

The Canal Will Be Formally Opened to Navigation To-day.

Preparations for Celebrating the Event-- Programme of Exercises.

Who Will Be Here and What Will Be Done.

KEOKUK AND HAMILTON BRIDGE.

RETROSPECTIVE.

AWAY BACK.

The Des Moines Rapids of the Mississippi River at this place have formed the principal one of the two most serious obstructions to the navigation of the Father of Waters between New Orleans and St. Paul. For more than forty years the problem of improving them so as to render them navigable during low water has engaged the attention of the best engineers and steamboat men along the river, and as early as 1838 Lieut. Robt. E. Lee--afterwards the celebrated leader of the armies of the Confederacy--made a survey for the purpose of solving this problem, but nothing was done at that time.

The next investigation of this knotty subject was made by Gen. Samuel R. Curtis, a distinguished engineer of Keokuk, in 1849, who incorporated a company for the purpose of building a canal around the rapids. No work was ever performed under this organization, but the general idea conceived by General Curtis has actually been carried out in the present improvement.

1877.

CHANNEL IMPROVEMENT

In 1854 Lieutenant G. K. Warren, U. S.

Engineers, made another survey of the rapids, and recommended a channel improvement. Shortly afterwards Major J. G. Floyd, a Government Agent, in attempting to carry out this plan, succeeded in partially improving the Spanish and Lower chains, but the work was found so expensive and the result so meagre in proportion to the money and time expended, that Congress refused any further appropriations, and the work was abandoned.

In the meantime the rebellion had broken out, and it was not until 1866 that this subject was again brought before Congress and action taken thereon.

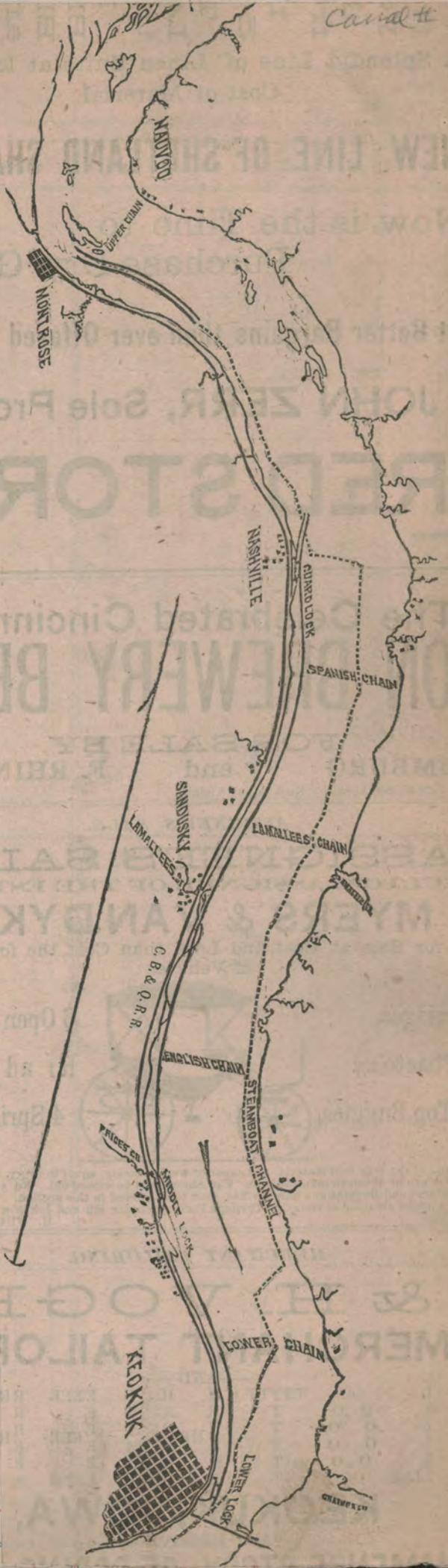
At the close of the war the importance of this improvement was again urged and Congress by an act of June 23d, 1866, authorized its agents, the Engineers of the U. S. Army, to make

ANOTHER SURVEY of this obstruction. This effort resulted more successfully. The matter was placed in the hands of Gen. J. H. Wilson, then Captain of Engineers, U. S. A., who proved himself admirably qualified in every respect for the vast undertaking. Hedrew up plans which with others were submitted to and discussed by a board of learned and experienced engineers. The result of their deliberations was that General Wilson's plan was adopted with some slight changes, recommended by the board. This plan, the details of which will be found further along, has been carried out, with some alterations and additions which were found necessary as the work progressed, and we today celebrate the practical completion of one of the most stupendous internal improvements in the country.

ITS IMPORTANCE.

In one of his reports General Wilson has this to say of the importance of this undertaking:

"Contemplating the immense trade of the Upper Mississippi Valley, through its natural channel, the Mississippi river, we must come to the conclusion that the obstructions at Keokuk and Davenport are the great drawback of the growing States bordering on the river, and that the damaging influence of those rap-



Mississippi Canal etc - August 22

SUNDRY ACCOUNTS

ids must necessarily increase with the constantly increasing population.

To represent the necessity of the proposed improvement in dollars and cents is, from the nature of the problem, simply impossible; but it is believed that the work is national and not local or sectional.

A simple calculation will show that the improvement of the rapids of the Mississippi will decrease the cost of transportation by increasing competition between the carriers, thus adding greatly to the wealth of the entire Northwest and removing an oppressive tax from the Eastern consumers of its products.

The dangerous places of the sea coast are marked by light houses and provided with harbors of refuge at the national expense, for the benefit of commerce not exclusively our own. It seems then nothing more than justice that the general Government should authorize and provide the means for the improvement of a river in which our own people are exclusively interested, and in the navigation of which nearly every material interest of the entire country is concerned."

It is estimated by experienced steam-boat men that the canal will accomplish

AN ANNUAL SAVING

of at least \$100,000 in the cost of navigation and will therefore benefit the commerce of the Mississippi Valley to that extent. The value and importance of the improvement will, of course, be enhanced as the trade and navigation of the river increase, as they naturally will with this obstacle removed and the cost of transportation reduced.

THE FIRST APPROPRIATION

amounting to \$200,000 was made by Congress on the 23d of June 1866. On the 2nd of March 1867 another appropriations of \$500,000 was made, making \$700,000 in all with which to begin operation. At a letting held at Davenport in September 1867, Messrs. Henegan & Son, of Mt. Vernon, Ohio, were awarded the contract, they being the lowest bidders out of twenty-eight competitors, and on the 8th of October, 1867, work upon the improvement was

ACTIVELY COMMENCED

at Nashville. The details of the enterprise have been faithfully chronicled by the GATE CITY as the worked progressed. They are too manifold and extend over too long a period to be even reviewed in this connection.

Owing to the inadequacy of the appropriations and the tardiness in making them, the delays and damage incident thereto, the failure of some of the contractors to carry out their contracts and the damage and delays by high water, floods, overflows and natural waste, the work has been prosecuted at irregular intervals and has occupied ten years, whereas had the appropriations asked for been promptly made it might have been accomplished in five years or even less.

THE CANAL.

ITS DIMENSIONS AND CHARACTER.

The canal is seven and six-tenths miles in length, and extends along the Iowa shore from Keokuk to Nashville. The width proper is 300 feet in embankment, and 250 feet in excavation, but owing to the irregularity of the shore it stretches out in places to a width of five to six hundred feet. The maximum depth is eight feet, and the minimum depth five feet, which is sufficient to float the largest steamers that ply the waters of the upper Mississippi. The fall in the entire distance which the canal extends, is 18.75 feet.

THE EMBANKMENT

enclosing the canal varies from sixty to ninety feet in width at the bottom, has a slope of 1 1/2 horizontal to 1 perpendicular, and is from sixteen to twenty-seven feet in height. It contains in the aggregate 884,325 cubic yards of earth, and is protected on both sides by a rip-rap wall containing 111,667 cubic yards of rock. It is ten feet in width on top, with a macadam covering of two feet.

THE EXCAVATIONS

There have been excavated from the prism of the canal 406,653 cubic yards of rock and 857,775 cubic yards of earth. In addition there have been excavated from the channel of the river 97,500 cubic yards of rock. This includes the excavations of the chains at Montrose and Nashville, the channel intervening and the approaches to the guard and lower locks. The accompanying engraving shows the general outline of the canal.

THE LOCKS.

There are two lift locks and one guard lock, each 350 feet long and eighty feet wide on top. The first or lower lock is located at Keokuk, the middle lock two and one-half miles above and the guard lock five and one-tenth miles above that. The lift of the lower lock is ten feet and nine inches and of the middle lock eight feet.

The locks are all built of cut stone masonry and are pronounced by experts who have examined them to be very substantial and highly creditable specimens of engineering skill. They have attracted much attention for their massiveness and the evidences of solidity and durability displayed in their construction. The lower lock contains about 14,000 cubic yards of stone and the middle and guard locks about 8,000 each.

The locks are filled by means of CULVERTS,

one on either side, with lateral openings into the lock. These culverts are eight feet in width and seven in height at the upper end, and the openings into the

lock are three feet by three feet ten inches. The water is admitted to these culverts by means of wickets, and pours into the locks through these small openings. There are also wickets under the upper gates by which the locks may be filled, but these will only be used in an emergency.

In order to control the surplus water carried into the canal by the numerous streams entering therein during their frequent floods it became necessary to build

SLUICES

around the locks. These were not included in the original plans, and have materially increased the cost of the work. The dimensions of these sluices are as follows: At the lower lock 18 feet in height, 16 feet 7 1/2 inches at the bottom, and 25 feet 1 1/2 inches at top.

At the middle lock 15 feet in height, 17 feet 7 1/2 inches at bottom, and 25 feet 1 1/2 inches at top.

At the guard lock the sluice is in the outside embankment just below the lock. It is 19 feet in height and 38 feet in width.

All the sluices have six openings 3x6 feet with gates at the head, the lower ends being open.

THE LOCK GATES

are massive affairs. To give an idea of their magnitude it may be stated that the lower gates at the lower lock which are the heaviest on the improvement, weigh 110,000 pounds each. The gates close on mitre sills and are suspended by means of heavy iron rods fastened to large iron columns.

THE MACHINERY

for operating the lock-gates and wickets is made from an original design of Maj. Amos Stickney, the officer in local charge of the improvement. This plan consists of a system of pullies, chains and wire ropes operated by means of a pump forcing the water into hydraulic cylinders sunk behind the walls back of each gate, connected by means of iron pipes with an engine situated near the head of the lock so that one man at the engine can handle the massive gates and wickets with ease and precision.

We shall not undertake a detailed description of this machinery. We could not explain it satisfactorily on paper if we should try and the public wouldn't understand if we should succeed. To an uneducated eye it looks somewhat complicated but those who are familiar with mechanism and engineering say it is easily understood and yet quite ingeniously contrived. One man standing at the engine can take in at a glance the lock and all its machinery, and by an easy movement of a wheel at the distributing valve can open or close any one or all of the gates, in fact has perfect control over the entire machinery,

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August 22, 1871 - Pg # 2
(The Canal)

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL
KEOKUK, IOWA

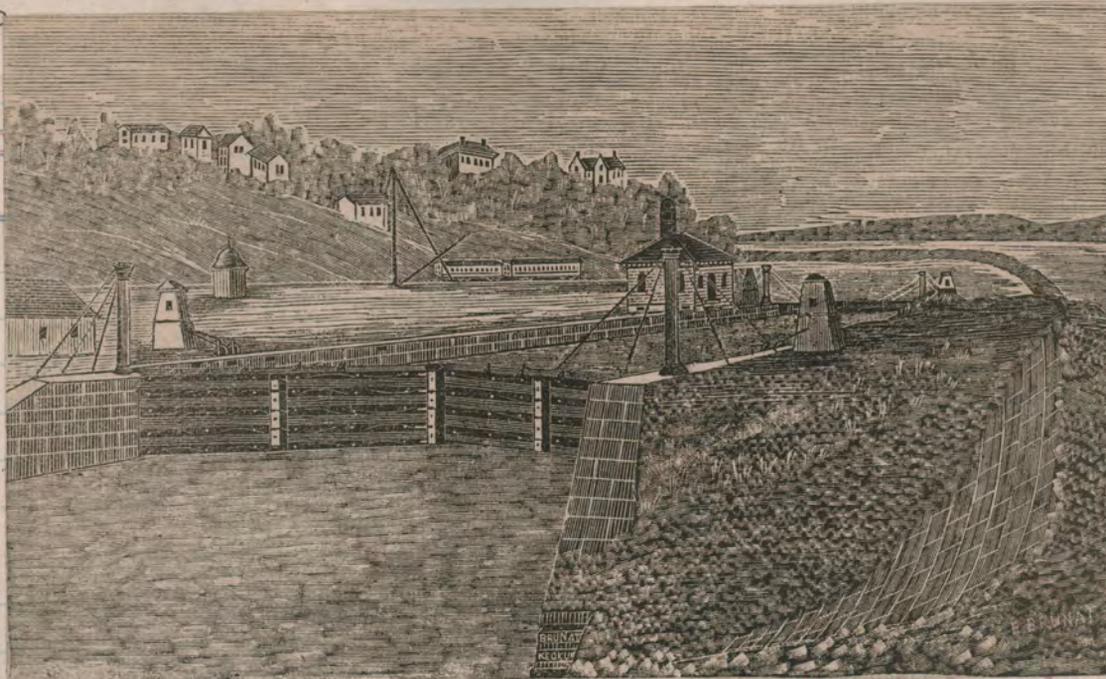
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and can move it at his will with perfect ease. Everything connected with the locks works with remarkable accuracy and fidelity. The invention is a rare achievement in engineering, and will no doubt win for Major Stickney a deservedly high reputation in his profession. The machinery has all been manufactured at the Buckeye Foundry and Machine Shops of Sample, McElroy & Co., of this city, and not only demonstrates that they possess excellent facilities for doing everything in their line, but that they employ superior mechanical skill, as everything operates to perfection.

The machinery for the guard lock is not yet completed but this is not needed in low water as the gates can be thrown open and remain in that position. So the absence of this machinery will not interfere with the use of the canal in any way at present. The time required for opening or closing a pair of gates is from thirty seconds to one minute, and for filling or emptying a lock about three minutes so that a steamer can be "locked through" in from eight to twelve minutes.

The principal part of the stone for the locks, as well as for the embankment walls is from the Sonora stone quarries of Wells, Timberman & Co., and is of a very superior quality.

AN ENGINE HOUSE

is located at each lock. These are all built of stone, and are each 27 feet 4 inches square, with slate roof. Underneath each engine house is a cistern eight feet in diameter used as a reservoir for the water that is forced through the pipes by means of a steam pump for opening and closing the gates. The engines are 25 to 30 horse power each.

ILLUSTRATIONS.

In addition to the map of the river showing the entire improvement which

we give elsewhere, we publish in this connection an engraving of the lower lock, which will give a correct idea of all three, as they are similar in size and construction. This was executed by Ernest Brunat from a photograph by E. P.

THE LOWER LOCK.

Libby. The artist and the engraver have each done well.

THE COST.

A BIG EXPENDITURE.

The original estimate for this improvement was \$2,530,000, which estimate, had Congress promptly appropriated the desired sums and not pottered along with inadequate and petty proportions of the amount of money known to be required, would have been amply sufficient. But through the practice of cutting down the amounts asked for from 50 to 75 per cent. each year, the work has been delayed and heavy losses have been incurred from high water, overflows, and natural waste so that the canal has cost the Government so far \$4,155,000.

The total appropriations have been \$4,281,000, leaving an unexpended balance of about \$100,000.

The following are some of the details of the cost of the canal in its different departments:

Cost of Lower Lock complete, including Sluice, Lock gates and Machinery for operating gates.....	\$ 725,000
Cost of Middle Lock complete, including Sluice, Lock gates and Machinery for operating gates.....	470,000
Cost of Guard Lock complete, including Sluice, Lock gates and Machinery for operating gates.....	360,000
Cost of section work, including excavation of prism and embankment.....	1,900,000
Channel excavation, upper and lower entrances to canal and excavation of channel between Nashville and Montrose.....	475,000
Miscellaneous consisting of paid claims, right of way, engineering expenses, etc.....	225,000
Total.....	\$4,155,000

It is estimated that in addition to all appropriations \$100,000 will yet be required to finish the work, and Congress will be asked to make an appropriation of this amount at the next session.

The work has been performed partially by contract and partially by labor employed by the Government.

A COMPARISON

of the cost of different kinds of work shows a large balance in favor of the labor hired by the United States, and an extract from the report of the officer in charge in reference to it says he is "justified in saying that it is by far the best plan for the United States to do this class of work by their own employes. It has cost much less than the contract work on this improvement."

PERSONAL.

WHO ARE ENGAGED IN THE WORK.

The following gentlemen comprise the engineer corps now engaged upon the improvement:

Major Amos Stickney, Corps of Engineers, in local charge of the improvement.

E. Hudson Worrall, C. E., Section Work.

S. L. Bayless, C. E., Lock Work.

O. S. Wiley, C. E., Draughtsman.

R. R. Jones, C. E., Mechanical Engineer.

C. P. Comegys, Chief Clerk and Paymaster.

Branch Railey and Wm. Lytle, Clerks.

W. H. Anderson and John R. Carpenter, Overseers.

These gentlemen have all proven thoroughly capable and efficient in their respective departments. They have made many warm friends and have become so thoroughly identified with our city that there will be general regret if the completion of the canal shall take any of them away from here.

WATER POWER.

ITS AVAILABILITY.

As the question of water power in

The Canal Aug 22, 1871 - 1873
 (The Canal)

connection with the canal has attracted much attention here and elsewhere, and as frequent inquiries are made concerning it, we republish the following article on the subject by Mr. E. Hudson Worrall, Engineer in charge of the section work, which appeared in the GATE CITY in October last.

The middle lock, located just below Price's creek, and with a lift of eight feet, holds the water at an elevation never below extreme low water at Nashville, the head of the canal, five miles above, which elevation can be carried by means of a flume below the lower lock, a distance of two and three-fourths miles, which can be utilized to a greater or less extent the whole year round, except in cases of extreme rise, similar to that of 1851, when of course the power is lost, though high water seldom lasts more than a few days.

This will be better understood by a comparison of the figures of the datum elevation of the canal. The surface of extreme low water at Nashville, which is carried to the middle lock is 27.70. Extreme low water at the lower lock is 8.95. This gives a difference or fall in that distance of 18.75 feet, which is the greatest fall that can be obtained. Now the highest water that will be allowed in the upper level, or above the middle lock to prevent that structure from being flooded is 30.70. The highest recorded water at the lower lock, which occurred in 1851, and has never been reached since, was 29.80, making a difference of fall of 0.90-tenths of a foot. This is not available for water-power, but as previously stated, such an extreme height has never been known to last more than a few days, and delays caused on that account would be inappreciable. Calculations made from the daily records kept of the changes in the river at the lower lock for the last ten years show that a mean head can be obtained for most of the working days of the year, of say 14 feet. This fall or head with a discharge of say 800 feet

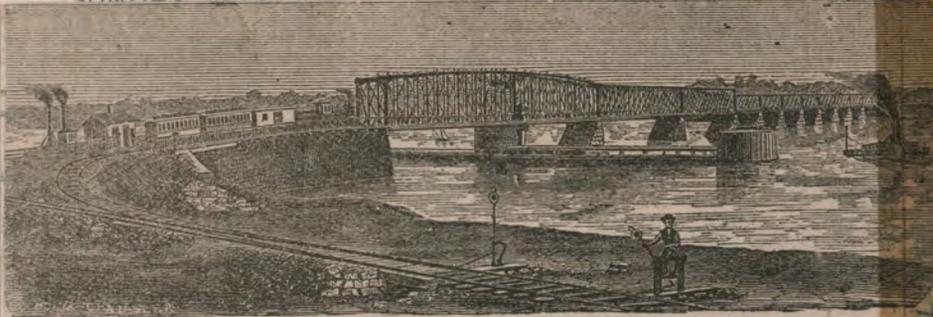
per minute, and a 26-inch turbine wheel gives a result of nearly 22-horse power, with a discharge of say, 16,000 feet per minute, and an eight-foot turbine, the result would be nearly 382-horse power. The results vary as the head changes or the size of the turbine is increased or diminished.

Having simply glanced at the power to be obtained, it remains to show

HOW IT CAN BE UTILIZED.

The most feasible method is by tapping the upper level of the canal where Price's creek debouches into the prism and building a head race or flume from there, following the line of the present location of the C. B. & Q. R. R. track, down to Brown's warehouse on the levee, from which point small flumes radiating to mills located upon the edge of the levee can be built, and the power utilized. It is not proposed to make any estimate as to the cost of this work, but simply to show the best method of using the canal improvement as an adjunct to the water improvement at this point.

The length of this flume or head race would be 2½ miles, the width would necessarily be determined (say ten feet or fifty feet) by the amount of water required. The excavation to a great extent



KEOKUK AND HAMILTON BRIDGE.

would be made through lime stone rock and have to be carefully puddled, while a timber flume would probably be required at the lower end.

An enterprising company might build the head race and in a few years, by attracting sufficient capital to use it, would undoubtedly realize a fine profit on their investment.

Another method of utilizing the water power is by building a short head race from Price's creek to just below the middle lock, at the Hornish property, and from thence down as needed, which will make a flume of about half a mile long. There a head of fall can be obtained of from four to five feet, generally five feet all the year around, except of course in extreme high water—with a tail race or discharge into the lower level of the canal. But this small head would require the use of large turbine wheels,

certainly nothing less than five feet, which would give only thirty horse power; or, if a ninety-six inch turbine was used, the power obtained would be but eighty horse.

With these few hints the subject of the utilization of the water power of the canal is left in the hands of the community.

THE CELEBRATION. PREPARATIONS.

The formal opening of the canal to navigation will be celebrated to-day. For this preparations have been made which will insure a creditable demonstration, if the weather is favorable, as it promises at this writing to be.

Col. J. N. Maccomb arrived in the city yesterday morning on the C., B. & Q. train. During the afternoon a telegram was received from the Montana, the Government steamer, which is to head the fleet of boats in the passage through the canal. She was then at Fort Madison and expected to reach Montrose or Nashville last night. She will be locked through the canal this morning, and be here ready to take part in the celebration.

The Northwestern is at the levee and the Golden Eagle is on the way with the St. Louis delegation. They are accompanied by the Arsenal Band, of that city, and will be joined at Quincy by the Gem City Band and a delegation of people from that place.

Commodore Davidson and Capt. Hutchinson, of the Keokuk Northern

Line Packet Company, individually, and the Packet Company itself, are deserving of special credit for generously furnishing steamers for the celebration, for their persevering and determined efforts to get them here on time, and for the personal interest and activity they have manifested in making the affair a success.

Colonel Maccomb, Major Stickney and the other Government officials are also entitled to public praise for the manner in which they have co-operated with our citizens in arranging for and carrying out the celebration.

The Executive Committee announce the following

PROGRAMME.

The steamers Montana, Golden Eagle, Northwestern and Cricket will leave from the foot of Main street to ascend the canal at 2 o'clock Wednesday afternoon.

An excursion train will leave the upper depot of the C. B. & Q. railroad at the same hour, and will go to the upper end of the canal and return, stopping at the locks.

Tickets have been issued to visitors which will give them precedence to the steamer Northwestern, which has been placed by the Packet Company at the disposal of the Committee. After admission of guests, our citizens will be admitted to the limit of safety.

The train will be for the use of visitors and citizens.

The citizens of Keokuk, ladies as well as gentlemen, are invited to go on the excursion, so far as practicable. No children can be taken.

The excursion leaving at 2 o'clock, will return by 5 or sooner.

The committee had no means at its disposal for the general entertainment of those to whom invitations were sent. The indications are that a large number of leading citizens of this and other States will be present. We ask our citizens to privately exercise that hospitality for which they are noted. Open your homes to-morrow for the reception of friends and visitors.

Those wishing or willing to entertain either friends or strangers as guests, should report to the committee before noon to-day.

Addresses will be made on the return from the excursion, and the celebration formally closed.

The Golden Eagle will return to St. Louis at 6 o'clock p. m., with its party of excursionists. There will be a reception from 8 to 11 p. m. on the steamer Northwestern. Owing to the inability to get boats as anticipated, and the low stage of water endangering navigation, the reception on the packet in the evening will have to be limited. Special tickets will

August 22, 1871
(Keokuk Canal)

THE GREAT DUST HEAV CALLED HISTORIC
B. J. BICKEL KEOKUK, IOWA

SUNDRY ACCOUNTS

be issued.

Business men on the principal streets having flags are requested to display them.

Committees will be at the packet depot and at the C., B. & Q. depot from 10 to 2 o'clock, for the distribution of tickets to the excursion to visitors.

The citizens of Keokuk are requested to attend the arrival of trains and the packet with their vehicles and conveyances, to take the invited guests a ride around the city, either before the excursion or afterwards.

Every member of the Committee will meet at the office of Mayor Irwin, at Irwin, Phillips & Co.'s., at 9:30 o'clock a. m. sharp.

By order of the Committee.

The Keokuk Veteran Guards have made arrangements to take part in the demonstration.

The people of Alexandria and Warsaw have secured the ferry boat there and will be up to take a hand in the celebration.

SECRETARY M'CRARY.

WASHINGTON, D. C., Aug. 20, 1877. To Sam. M. Clark, chairman, &c.

I greatly regret my inability to be present to join in the celebration of the opening of the Des Moines Rapids Canal. The occasion is one of deep interest to the whole country and especially to the people of the Mississippi Valley. Though not present I shall rejoice with you.

GEO. W. McCRARY.

THE ST. LOUIS DELEGATION.

ST. LOUIS, August 21.—About one hundred and fifty representatives of the Merchants Exchange and Board of Trade and invited guests left for Keokuk at 1 o'clock to participate in the celebration of the opening of the canal around the lower rapids in the Mississippi river tomorrow. The party left on the steamer Golden Eagle, which was furnished by Commodore Davidson, of the K. N. Line Packet Company, for the occasion.

ST. LOUIS, August 21, 1877.

To A. M. Hutchinson:

The Golden Eagle left at 1 o'clock with one hundred excursionists and the Arsenal Band aboard. Will take delegations along the river. F. L. JOHNSTON.

MERCHANTS' EXCHANGE OF ST. LOUIS.

St. Louis, August 20th, 1877.

Sam. M. Clark, Chairman Executive Committee:

DEAR SIR:—The following named gentlemen have been appointed to represent the Merchants' Exchange, of St. Louis, at the canal celebration at Keokuk, Iowa:

- Joseph Brown, Ch'n, Wm. G. Bartle,
- Hon. John Hogan, Jas. Ward,
- H. I. Massengale, Thos. W. Shields,
- D. P. Rowland, C. W. H. Brewer,
- E. B. Kirby, Ben. W. Clark,
- J. H. Teasdale, H. G. C. Haarstick,
- Wm. C. Buchanan, A. J. Carter,
- N. S. Elliott, Henry Ames,
- Wm. H. Barnett, Capt. Ed. Sheble,
- Chas. N. McDowell, W. S. Bartley,
- J. H. Chassaing, Fras. W. Crane,
- Chas. Bayha, J. V. W. Dutcher.

Respectfully,

JOHN A. SCUDDER,
President Merchants' Exchange.

JUDGE GRANT.

DAVENPORT, Iowa, August 20th, 1877.

DEAR SIR: Allow me to extend the committee in general of the canal cele-

bration my sincere thanks for the invitation on the 22d. I regret that sickness will prevent my being present on that occasion. Your obedient servant,

JAMES GRANT.

AT ALTON ON TIME.

ALTON, Ill., August 21st, 1877.

To Sam. M. Clark:

GATE CITY: The Golden Eagle leaves here at 3:30, on time. One hundred and fifty prominent citizens of St. Louis are on board. C. GREGG, Clerk.

THE BRIDGE.

A VALUABLE IMPROVEMENTS.

In addition to an outline of the canal and an engraving of the lower lock which we give elsewhere we publish a cut of the Keokuk and Hamilton bridge. This is an improvement that was begun and completed during the early progress of the canal, having been commenced in the Spring of 1869, and finished and thrown open to travel April 11th, 1871. It was built at a

COST

of about a million dollars, making over five millions of dollars which have been expended in public improvements here at Keokuk during the past ten years. Few cities can boast of having achieved so great a prominence in this respect.

THE SUPERSTRUCTURE

is 2,192 feet in length and twenty feet in width in the clear. The bridge has the longest draw span on the river, being 376½ feet from center to center of piers. There are two spans 250 feet each in the clear of the masonry; three spans 162 feet 9 inches from center to center of piers; one span of 151 feet 4 inches, and four of 164 feet 7 inches from center to center of piers.

There is a wagon track of sufficient width to accommodate all kinds of vehicles on either side of the railroad track. The passage way for footmen is five feet in width and is built on the outside of the superstructure.

This is the only wagon bridge over the Mississippi river, above St. Louis, and from the large increase of trade which has been realized from it, Keokuk has great cause to congratulate herself upon having secured it.

THE PIERS.

There are thirteen piers in all, including the pivot pier, the average height of which is thirty-five feet. The pivot pier in thirty-two feet in diameter on top; the first pier 7x29 feet on top and 10x51-9 at the bottom; all the other piers are 6x29 feet on top and 10x51-9 at the bottom. The piers all reach ten feet above the high water mark of 1851.

WORK SUSPENDED ON THE CANAL.—We are informed by Mr. Owens, contractor for the Lower Lock of the Government Canal around the Des Moines Rapids, that in consequence of exhaustion of the funds appropriated by the last Congress, he has quit operations and his force of 150 men are now idle. The Government officers in charge are employing about fifty hands in protecting that portion of the improvement already done, against possible injury during the coming winter.

The section work of about seven miles (Messrs. Dull & Williams, contractors) will be stopped about November 10th, for the same cause.

Thus the great National work of overcoming the obstacles opposed to the navigation of the Mississippi river above Keokuk, is hindered and unnecessarily delayed by the failure of the Congress of 1870 to devote a sufficient sum to carry the improvement forward to completion. We regard it the duty of the coming Congress to attend to this matter at once. It is estimated that \$800,000 will finish it and enable steamers of the largest size and requiring any depth of water, to pass with cargoes undisturbed from St. Paul to New Orleans. This Canal is an enterprise of the first importance to all the vast region traversed by the Mississippi, and is demanded by a powerful constituency. Nov. 1, 1870

THE GATE CITY:

FRIDAY MORNING, AUGUST 21.

THE MAYOR'S WELCOME.

Hon. John N. Irwin's Address at the Canal Reception—List of the St. Louis Delegation.

Those who heard the speeches at the reception on the Golden Eagle and Northwestern Wednesday evening speak of them in very complimentary terms, particularly the address of welcome by Mayor Irwin. In order that all our people may have an opportunity of reading this we give it below in full:

Mr. President, Ladies and Gentlemen: In ancient times, in Venice, it was the custom to celebrate with all the pomp and circumstance of that old, rich and powerful city the marriage, as it was called, of the city to the Adriatic Sea. This custom sprang, it is supposed, from the fact that Venice, her riches and her power were creations of the commerce of the ocean, and that she owed all she had been and all she was to her position in the sea and to her ships trading in all parts of the then known globe. Gratefully then, by this beautiful custom, this great city paid tribute to the source of her wealth and her power, and proudly called herself Venice—the strong and beautiful daughter of the waters.

In like manner, fellow citizens of the Mississippi Valley are we gathered to-

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gether here to-night to celebrate the marriage of the waters of the Mississippi river, no longer separated by the rocks and shallows of the rapids. By this great work, costing years of labor and millions of money, the great valley of the Mississippi from the head of the river to its mouth is joined together by this belt of water and the great carrying trade of the valley will now be free and untrammelled from the head waters of the river in the North to the jetties below New Orleans in the South.

As Mayor of Keokuk—the city at the head of low water navigation of the river—the city that opens the gate of waters to the great Northwest—it is my pleasant duty to bid you all a hearty welcome. I feel that you will pardon me if I enter into statistics enough to show you to what we welcome you in Iowa alone, saying nothing of the almost boundless agricultural riches of Northern Illinois, of Wisconsin and of Minnesota.

Iowa will produce this year, and the computation is thought to be under rather than over the mark, forty-five million bushels of wheat, one hundred and seventy-five million bushels of corn, forty million bushels of oats, six million bushels of barley, thirteen million bushels of potatoes, three million five hundred thousand hogs and three million five hundred thousand tons of hay.

After feeding our own people enough will be left to ship without our borders to bring into the State \$70,000,000, or a sum equal to all the gold and silver mined in the United States and territories during the year 1876.

Speeches of welcome should be brief, and I will close by saying to you that we welcome all—the river interest and the railroad interest, the seaboard and the valley—St. Louis, New York, New Orleans and Chicago—the United States and the whole world to compete for our carrying trade.

We welcome you, gentlemen, individually and as a delegation, to our boundless prairies and streams of running water, to our fields, our factories and our farms, to our broad acres of waving wheat and tasselled corn, to our oceans on oceans of golden grain to be garnered and gathered into the granaries of the world.

To all this and to this great work of internal improvement, whose successful working we have admired to-day, and which we hope may enter into the solution of the problem of cheap transportation, we bid you all a hearty welcome.

The speeches of the other gentlemen were also very highly spoken of, and we regret that owing to the lateness of the hour we were unable to give a fuller report of them.

THE ST. LOUIS DELEGATION
was composed of representative citizens. It included members of Congress, members of the Merchants' Exchange and Board of Trade, and prominent citizens and officials. The following is the list:

P. P. Mannion, Silas Atkins, Rev. Mr. Cross, Geo. H. Ray, Mr. Nevin, Capt. Wm. F. Farrar, Capt. Jos. Brown, Capt. Charles Rogers, Chas. Bayha, E. C. Chamberlain, Capt. A. J. Carter, Wm. Barnett, Capt. E. A. Sheble, Wm. Bain, H. C. Harrstick, C. W. H. Brewer, I. V. N. Dutcher, H. T. Massengale, E. H. Cassaing, John Jackson, Hon. L. S. Met-

calf, O. C. Filley, F. B. Chamberlain, Judge Chas. Speck, Benj. Clark, Hon. John Hogan and son, Hon. Nathan Cole, E. Smith, Mr. Chase, Hon. C. A. Steifel and daughter, Hon. Mr. Cuzzins and daughter Ella, Rev. M. Irwin, Henry Ames, R. S. Elliott, James Richards, Mr. Souther, C. P. Damon, Mr. Collins, Mr. Shearer, N. C. Chapman, W. S. Bailey, W. G. Bartle, N. P. Baxon, G. Breckingham, W. C. Buchanan, F. W. Crane, A. R. Moore, Mr. Lawrence, A. Witmore, H. B. Louderman, N. C. Judson, G. L. Jay, Hon. Anthony Ittner and son, G. J. Shaw, Mr. Hamilton, Henry Atkins, S. Leathe, Capt. Thos. H. Griffith and daughters, Capt. James Ward and daughters, D. T. Jewett, Warren M. Anderson, Will. G. Smith and wife, A. C. Dunlevy and Wife, Judge Treat and wife, the Misses Good, Hon. C. I. Filley and wife, Shephard Knapp, P. A. Garrotte and daughter, Mr. Paddock, Theodore Allen, S. J. Watterman, W. S. Reed, W. W. Henderson, John W. Dann, Andrew Gregg, Jas. Strawberger, Mr. H. Melving, Oliver Quinnett.

THE GATE CITY:

TUESDAY MORNING, OCT. 2, 1877.

THE CANAL.

It is Again Closed to Navigation--The Mitre Sill at the Lower Lock Sprung--All Boats Above the Rapids to be Laid Up.

For some time past the lower mitre sill of the lower lock has been gradually forced up by the pressure of water in a manner similar to the one at the middle lock, which had to be taken out and rebuilt recently. The authorities in charge of the canal have been trying to keep it down until after the close of navigation, so as not to interfere with the passage of boats, but on yesterday it was found impossible to do this and the canal has been closed to navigation in order to make the necessary repairs. How long it will take to do this it is impossible to say. A coffer dam will have to be thrown across the mouth of the lock and the water pumped out before the precise extent of the damage can be ascertained. It is thought, however, that the mitre sill is sprung about an inch and a half. It required about ten days to take out the mitre sill at the middle lock and rebuild it.

Owing to the near approach of the close of the navigation season and the uncertainty as to when the canal will be ready again, Commodore Davidson, who came up on the Golden Eagle Sunday, has ordered the entire line above the rapids laid up and has instructed agents above here to receive no more freight and agents below to receive none for points above Keokuk. Whether navigation above the rapids will be resumed this season depends on the time occupied in repairing the lock. The interruption

will be a serious loss to the Packet Company and to the trade of the upper river.

THE GATE CITY:

SATURDAY MORNING, MARCH 9, '78.

THE CANAL.

It is Now Filling with Water and Will be Ready for Boats on the 20th.

During the Winter every and all repairs that could be made to the canal and locks to prevent the unfortunate disasters of last Fall, within the power of the officers in charge, has been accomplished—the walls of the embankment have been thoroughly repaired, the gates reset, the machinery examined and tested as perfectly as it is possible, all mud and deposits of every kind in the chambers of the locks removed and every precaution taken to ensure as far as is in human knowledge a perfect working of the canal during the present season. On Thursday all of these repairs were finished and yesterday the sluice-gates at the guard lock were opened, and the canal commenced to fill with water. It will probably take five or six days to fill both of the levels, and afterwards the Government dredge boat will be engaged removing the protection coffer at either end of the canal, which will take a few days longer—consequently it may be about the 20th of the month before boats can pass through the canal. But that will probably be sooner than any of the packets or heavy freight-boats will be ready to avail themselves of its facilities.

The dilatoriness of Congress in making appropriations for the work may delay its opening or operation, but the officers in charge have done everything to help the great work forward for the coming season, with the limited means at their disposal.

BAKER-VAWTER CRIMPED LEAF
CK CREDITS

THE GREAT JUST HEAR CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

THE GATE CITY.

KEOKUK, IOWA

THURSDAY MORNING, FEB. 18.

IMPROVEMENT OF THE DES MOINES RAPIDS.

Description of the Lower Lock—Character of the Work—Amount of Labor to be Performed—Material Required—Progress of the Work—Number of Men Employed—The Kind of Machinery used—A Modern Invention.

The improvement of the Mississippi river at this point, by the construction of a Canal around the Rapids of sufficient capacity to admit of the passage of the largest steamers that ply the waters of that stream above St. Louis, is, in point of magnitude and general importance, unsurpassed by any work of a similar character in the United States, either past or present, and with one exception, perhaps, we may include prospective. In making this assertion we but reiterate a statement to that effect made a year ago or more, and which, even at that time, no one pretended to deny; but the magnitude of the enterprise didn't discover itself to those not directly engaged in it until the work was fairly under headway. And even now, after it has been in progress for more than a year, and large sums of money have been expended upon it, a large majority of our citizens are in ignorance as to the extent and character of this great scheme. We propose to give the readers of the GATE some information on these two particular points, and as it would be wholly impossible to go over the entire work in one article, we will confine ourself for the present to that portion of it nearest by, and therefore most accessible to those of our citizens who take an interest in watching its progress, viz:

THE LOWER LOCK.

And shall commence by giving a description of it.

This lock is located at the lower or southern end of the canal, now being constructed by the United States Government for the improvement of the Des Moines Rapids of the Mississippi River. The foot of the lock has its location about 800 feet above the Packet depot in this city. The center of lock longitudinally is directly opposite the Pilot's Indicator, and the center line of lock is 220 feet into the river and east of said Indicator, running nearly parallel with the shore line of river opposite, but the center line produced touches a point about 900 feet from shore at the foot of Main street, caused by the sharp curvature of the shore line of river below the foot of lock. The whole width of the bed of river taken up by the lock and its side walls and embankments will be about 375 feet. The extreme length of the lock walls, including the wings, will be 488 feet, and below

this, on the river side, a pier will be extended 225 feet, protected by heavy wall of Hydraulic Stone Masonry on either side, 27 feet high, and terminating at the lower end by a curved wall on a circle of 12 feet radius on the bottom, with a batter or bevel on the face of one inch to a foot rise. On the end of this pier the Pilot's Indicator will be placed, with its guages connected with the water of the river by a well and culvert built in the masonry.

On the shore side walls of masonry will extend from the out end of wing wall to the shore, and down the shore about 250 feet. At the head of the lock on the river side, a wall of masonry will be built extending up 200 feet to connect with the inside wall of the canal. On the shore side a wall of masonry will be built connecting the head of the lock with the shore, and extending up the river from the lock about 200 feet. The outside river bank along the lock will be protected by a heavy rip-rap below the surface of the water and above by a slope wall to the top of the bank, which will be 2 feet above the high water mark of 1851, it being the highest water ever known.

The chamber of the lock will be 350 feet in length between the gates, 80 feet wide between the walls at the top, which will admit the largest class steamer on the river.

The lift of the lock will be 10 $\frac{3}{4}$ feet at low water mark of 1864, and with 5 feet in the canal above. The water below the lock for 300 feet will be 6 feet deep at low water of 1864, and for 1000 feet farther it will be only about 4 feet until the rock is excavated 2 feet for this distance.

The walls of the lock will be 23 $\frac{1}{2}$ feet high, from 14 to 20 feet thick on the bottom and generally 6 feet thick on the top. They are to be built of first class hydraulic cut stone masonry from the beautiful Magnesian lime stone found along both shores of this river in the vicinity of this city, which is said to be of the most durable character.

The gates are to be built of wrought iron in a circular form, shutting against stone miter sills. The lower gates will be each 46 feet wide and 23 feet high, and weigh probably from thirty-five to forty tons each.

To give some idea of the amount of labor to be performed, it may be stated that the rock in bed of river where the walls stand has to be excavated an average of 3 $\frac{3}{8}$ feet deep and 116 feet wide, and below the lock for 300 feet an average of 2 feet deep and 250 feet wide, making 14,000 cubic yards of rock to be excavated.

A coffer-dam has been built in the river, 1000 feet long and 375 feet wide, embracing an area of over eight acres. The water has been removed by a rotary pump, with a discharge pipe twelve inches in diameter, operated by a 25 horse power steam engine. This pump is capable of discharging 10,000 gallons per minute, but is not used at this dam for over 4,000 gallons per minute.

In the construction of this work the following general quantities of materials are required:

2,500 yards of excavation of earth.
14,000 yards of excavation of rock.
110,000 yards of embankment.
3,000 yards of slope wall.
4,000 yards of loose stone, in rip-rap walls and elsewhere.
4,000 yards vertical wall, laid dry and in cement.
1,360 yards cut stone masonry in pier.
10,440 yards cut stone masonry in lock walls;
5,400 barrels of hydraulic cement.

The entire cost of the lock when completed, including 200 feet above the lock and 300 feet below, will be about \$470,000. The contract for labor in constructing the lock is let to Ephraim Owen, of Albany, New York; contract for stone to Charles E. Tobie, of Utica, New York, and the contract for furnishing the hydraulic cement to James Clark, of Utica, Illinois. The contract for constructing the iron gates and fixtures, including the valve gates for filling and discharging the lock, has not been made.

The work on the lock was commenced about the 15th of August last, but owing to the unequal stage of water in the river for the last three months, has not progressed as fast as could be desired. The amount of work done to the present time is about \$35,000. The contractor for the labor, Mr. E. Owen, has manifested great perseverance and energy in prosecuting the work, but having so much to contend with the elements, since the middle of November last; has not accomplished what he anticipated up to this date.

This improvement is in charge of Brevt. Maj. Gen. J. H. Wilson, Lieut. Col. 35th Infantry United States Army, assisted by L. Cooper Overman, Captain Corps of U. S. Engineers, and in local charge of Daniel C. Jenne, U. S. Civil Engineer, who has placed us under many obligations to him for kindly furnishing us with the facts and figures which go to make up the above statement.

Gen. Wilson has national fame. His position and estimation in the army are the highest proof of his fitness for the Superintendence of this great national work. He is well assisted by Capt. Overman, as pleasant

a gentlemen as he is a capable Engineer. Mr. Jenne is deservedly in high reputation in his profession. He is unsurpassed as a skilfull and efficient engineer. It was a wise choice that gave him his position in the Improvement. In addition to getting that work in good hand, it has given a pleasant and estimable gentleman to our social circles. He is so thorough a gentleman, with a courtesy so unflinching, that intercourse with him, official or unofficial, is always a pleasure. A praise that can be given to too few officials.

The number of men employed on the lower lock at the present time numbers about four hundred, and then there are teams, and wagons and carts, and tools in proportion all working together with system and order, and in such a manner as to accomplish the greatest possible amount of labor.

One portion of the force is employed in constructing the embankment along the shore, another portion in blasting and removing rock from the basin below the lock, and still another portion in dressing stone and building the outer wall.

145

Panel

The rock that is taken from the chamber of the lock and the basin below it is solid lime stone and is used in constructing the rip-rap wall which is to protect the outer embankment.

The machinery used is capacious and of the most substantial character, so that time and labor are very successfully economized. In addition to the rotary pump above referred to, there are ponderous derricks for transferring the heavy rock from the cars, upon which it is brought from the quarries, to the ground, where it is properly dressed, and from thence to its position in the massive wall.

One of the rarest productions of modern inventive genius is the Burley steam drill used in excavating the rock in the chamber of the lock. It drills a cavity three inches in diameter with a very remarkable degree of rapidity. The greatest speed which this one has acquired, is that of six inches in one minute. This, however, is by no means an average rate of speed, as it was only continued for a brief period, but we state this fact to show how the work of this machine contrasts itself with the old fashioned manner of drilling by hand. It is operated by a twelve horse power steam engine, and is estimated to perform the labor of from fifteen to twenty men. It is a portable machine, and can be moved about by hand: It is of Eastern patent and manufacture.

We can at present give but a very inadequate idea of its workings, so we counsel you to go down there and see it operate. Mr. A. A. McLeod has the contract for excavating the rock at the bottom of the lock, and this machine is owned and run by him. He estimates that henceforth he will be able to take out about 150 cubic yards per day.

Since writing the above we learn that the recent swell in the river has overflowed the coffer-dam, and that it is rapidly filling with water. This morning it is probably full. As soon as the freshet subsides a little the water will be pumped out, and the work go on.



STR. VIXEN - MIDDLE LOCK - - COPYRIGHT

R. J. BICKEL KEOKUK, IOWA

Navigation and Hydraulic Company of Mississippi Formed Here 95 Years Ago

MONDAY, DEC. 20, 1943

It wasn't until 1913 that they finally got around to harnessing the Mississippi river but that was no fault of a group of far-sighted pioneers who not only envisioned the potential power in the old Des Moines rapids but actually incorporated themselves to do something about it 95 years ago.

An old deed book in the office of O. R. Herron, deputy county recorder, carries articles of incorporation for the Navigation and Hydraulic Company of the Mississippi Rapids filed April 10, 1848, sixty-five years before the power house and dam were completed in May of 1913.

According to the articles, "the general object shall be the improvement of the rapids of the Mississippi, usually known as the lower or Des Moines rapids for navigation and hydraulic purposes, and for the application and disposition of the water power that may be accumulated by the erection of such improvements."

Capital stock of the company was set at \$500,000 divided into 5,000 shares of \$100 each. The company was to be governed by a board of seven directors, a president, treas-

urer and secretary elected biennially on the first Monday in June.

Those who signed the articles of incorporation were T. Lyons, Samuel R. Curtis, Peter Pattee, D. W. Randle, William Leighton, D. W. Kilbourne, Guy Wells, Edward Kilbourne and H. W. Sample.

Panel

THE KEOKUK, IA., GATE CITY AND CONSTITUTION-DEMOCRAT

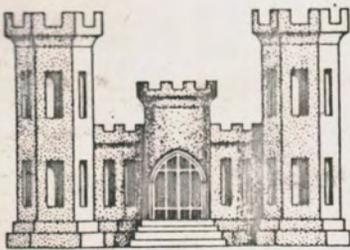
TUESDAY, FEB. 17, 1953



—Daily Gate City Photo

OLD MAKES WAY FOR NEW in the Keokuk Boatyards and down comes a slab of the solid brick wall of the U. S. Corps of Engineers office building which was completed in 1914 soon after the waterpower construction. The buildings in the boatyard, part of the site for the new 1200 foot lock, are being demolished by the W. J. Vale Co. of Davenport under a subcontract with the McCarthy Improvement Company of Davenport. The late Major Montgomery Meigs was the first occupant of the office building and directed river activities in this area for many years. Robert Iakisch, now retired, also was engineer in charge for a long period.

NEW LOCK NO. 19
MISSISSIPPI RIVER
KEOKUK, IOWA



Corps Of Engineers
U.S. Army
Rock Island District

118

pg. 1

WELCOME

The Corps of Engineers welcomes you to lock No. 19. This folder, describing some of the more important features of the project, is furnished in the hope that it may be of assistance to you in better understanding the construction and operation of the lock.

HISTORICAL BACKGROUND

From the earliest times the Mississippi River has played an important part in the economic development of its valley. Within a short time after its discovery, it became an artery for passengers and freight and the origin of many of our important towns and cities can be traced to their connection with its development. Navigation in the early days was beset—particularly during periods of low water—with such difficulties as obstructing rocks and snags, sand bars, narrow tortuous reaches, shoals and rapids. Early recognition was given by Congress to the desirability of correcting the difficulties and improving the channel. The primary obstacles to navigation in the early part of the nineteenth century were the Des Moines Rapids at Keokuk, Iowa, and the Rock Island Rapids above Rock Island, Illinois. In 1832 Lt. Robert E. Lee (later the famous Confederate General) participated in a survey of the river and in 1838 directed the excavation of rock in the Des Moines Rapids. Subsequently, a longitudinal dam with three locks was built through the Des Moines Rapids; thus, in effect, providing a canal within the river. The Rock Island Rapids were similarly improved. In the years which followed, Congress provided first for performance of work to provide a 4½-foot draft and later a 6-foot draft channel. In 1905 the Mississippi River Power Company (now the Union Electric Power Company) was authorized to construct a hydroelectric plant with a dam, powerhouse, lock, and drydock with several appurtenant buildings, at Keokuk, Iowa. These structures, with exception of the dam and powerhouse, were turned over to the United States upon their completion in 1913. The dam and lock replaced the Des Moines Rapids canal and locks.

NINE-FOOT CHANNEL PROJECT

By the River and Harbor Act of 1930, Congress authorized the construction of a 9-foot channel project in the Upper Mississippi River. The natural water slope of the Mississippi River between St. Anthony Falls at Minneapolis downstream to the mouth of the Missouri River averages about 6 inches per mile except at the Rock Island and Des Moines Rapids where the low water slope is about 1½ feet per mile. The 9-foot channel project, achieved by the construction of 26 locks and dams now essentially completed, in essence transforms the river's surface at low stages to a condition resembling a flight of steps, with the locks and dams constituting the risers and the pools

"THE GREAT DUST HEAP CALLED HISTORY"
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pg. 7.

PROJECT DATA

Useable length of lock chamber1,200 feet
 Width of lock chamber 110 feet
 Length of lower land wall (below
 miter gate) 625 feet
 Length of lower guide wall (below
 miter gate) 532 feet
 Length of upper land wall (above
 upper guard gate) 220 feet
 Overall length of lock and
 guide wall 2,163 feet
 Lift, normal 38.2 feet

*Elevation, in feet above mean sea level; of parts
of lock structure:*

Top of lock walls 523.2
 Top of lower land wall and lower
 river wall 500.0
 Top of upper service gate sill 503.2
 Top of miter gate sill 467.0
 Floor of lock chamber 466.5

*Elevation, in feet above mean sea level, of river
water surface*

Upper pool (project elevation) 518.2
 Lower pool, high water (1851) 498.8
 Lower pool (project elevation) 480.0

Gates

Upper guard: submergible vertical lift, single
 leaf gate
 Upper service: submergible Tainter gate
 Lower service: miter gate
 Gates and valve operating machinery — elec-
 trically operated

Filling and emptying system:

Lock wall culverts, 14'6" x 17'0"
 Tainter valves: (in lock wall tunnels), 14'6"
 x 15'6"
 Intake ports: (in upper service gate sill) 8
 openings, 9'6" x 15'0", streamlined
 Twenty tapered concrete culverts with many
 perforations built across floor of the lock
 chamber and connected to the large wall
 culverts, are used to fill the lock. These
 tapered culverts plus eight additional
 tapered culverts discharge the water from
 the chamber.

Operating time: Filling about 9½ minutes;
 emptying, 8½ minutes

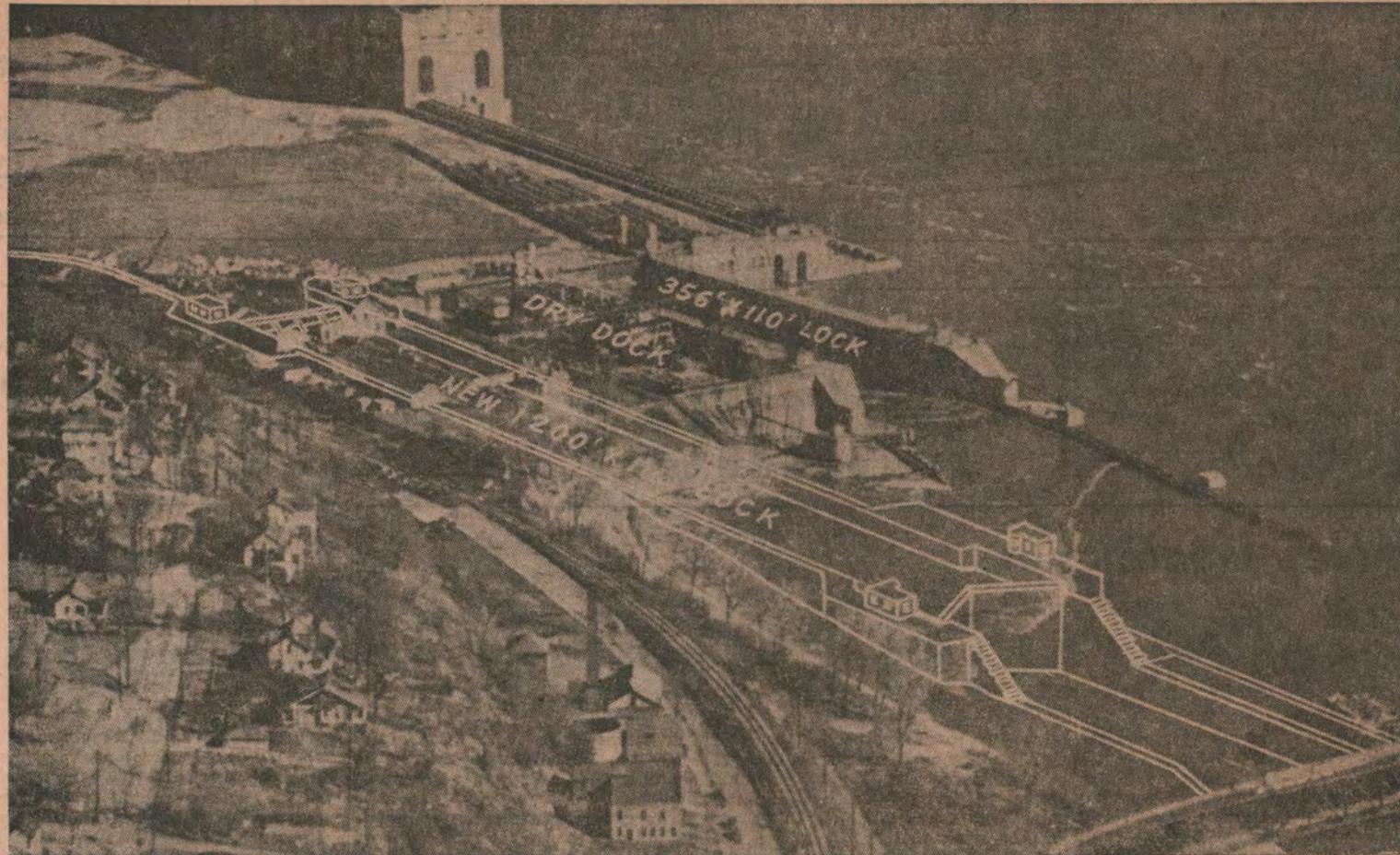
Total estimated cost: \$17,827,000

PROJECT VISITORS

Please remember that heavy equipment cannot be stopped or maneuvered as readily as your car, so it is dangerous to walk or drive into construction areas. If children are present, please see that they are supervised at all times. Your cooperation in observing safety regulations and using only the designated conveniences will be appreciated and will make your visit more enjoyable and safe, both for yourself and for the workmen.

THE GREAT DUST HEAP CALLED HISTORY
R. I. BICKEL
KEOKUK, IOWA

172



CONGRESS HAS VOTED \$1,000,000 to permit a start on construction of the new 1200 foot Keokuk lock which has been in the planning stage by the U. S. Engineers for many years and urged for as long by shipping interests on the river. The appropriation, part of the rivers and harbors bill, needs only the president's signature. The photograph is of the present 356 foot lock with the location of the new 1200 by 110 foot lock super-imposed upon it by U. S. Engineers. As can be seen the new lock will be built landward of the dry dock, cutting through much of the present government boatyard, and extending to within about 150 feet of the Municipal bridge. Guard walls will continue from the low gate beneath the inner draw of the bridge and well down the river.

174

THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

OFFICIALS HERE DOUBT EXPLOSION ON DAM STORY

This Was Back of Self-Exile of Peoria Man Who Returned Home Yesterday, He Says, But No Record is Found.

Officials of the Mississippi River Power company were inclined to be skeptical today, over the alleged explosion on the Keokuk dam 25 years ago, in which a Peoria man was believed to have been killed. According to L. E. Dickinson, vice-president, the company's records contain no information of any such accident or explosion.

The story came to light yesterday when a man named William Francis Baker came back from self-imposed exile, and came to the home of his son in Peoria, after an absence of 25 years. It was claimed that Baker's family considered him dead, when a report reached Peoria in 1912 that a man had been blown to bits in a dynamite explosion on the Keokuk dam. Baker was known to have come to Keokuk to seek employment, and when he failed to return or notify his family, it was taken for granted he was the victim of the dynamite blast, the Peoria story revealed.

However, officials of the power company, and others who recall the various accidents in connection with the dam construction deny that there was any such explosion of dynamite or any such casualty.

Peoria Report.

The news story from Peoria is the following:

"Believed killed in an explosion during the building of the huge dam at Keokuk, Iowa, a quarter century ago, Baker, now a man in his early sixties, ambled up to the home of William Baker, in Peoria Heights, yesterday.

"In a faltering voice he asked the Peorian his name, his mother's name, his father's name and a score of other questions. The personal nature of the questions from this strange old man irked the Peorian and he grew blunt, demanding to know the cause of such questioning. His voice quavering more, the shambling old man asked one more question:

"And where is your father now?"

"He was killed in an explosion while working on the Keokuk dam 25 years ago," Baker shot back bluntly.

"Almost collapsing, the old man gasped, 'then you must be my son.'

"A happy reunion followed, but despite questioning the elder Baker would not reveal his reason for leaving home.

Gets Acquainted Again.

"Now the self-imposed exile is spending some time getting acquainted with members of his family. There are four sons, William and Earl of Peoria, John of Los Angeles and Raymond of

near Quincy, and three daughters, Nola of Peoria, Bessie Dunham of Plymouth, Ill., and Mrs. Bertha Raker of Jacksonville."

TWO RECALL EXPLOSION IN WHICH 3 DIED

Dr. O. T. Clark and Timothy Harrington Say Three Water Power Workers Were Killed in Blast Near Sandusky 25 Years Ago.

When William Francis Baker returned to Peoria, Ill., after an absence of 25 years with a mysterious story about a dynamite explosion during the construction of the Mississippi river dam and power house here, he caused many Keokuk people to delve into memory and others to thumb musty old records in the effort to either authenticate or disprove his statement.

At least two have discovered facts which lend credibility to his tale. They are Dr. O. T. Clark, physician to the Mississippi River Power Co., during the construction days, and Timothy Harrington, for nearly 50 years lock-master for the government here. And both of them describe the same incident, an explosion of frozen dynamite near the Sandusky cemetery in which three men were killed and two others were slightly injured.

Attended Men.

Dr. Clark attended the injured men and with the help of an old scrap book, recalled the case clearly this morning.

It happened, his clippings from the Gate City reveal, on December 2, 1912, while workmen were relocating a road on the hill at the rear of the Sandusky cemetery. They were blasting a new road bed through a rock ledge and after they completed their drilling operations on December 1, decided to postpone the blasting until the following morning.

The temperature dropped to far below freezing during the night and the dynamite, all capped and in readiness for the detonating spark, froze in its container, a three-gallon bucket.

Built Fire.

When the men, seven of them, reported for work the next morning, they built a fire and a workman by the name of Tom, the powder monkey, brought out the bucket of dynamite and set it near the fire to thaw out. Louis Zimmer, foreman of the crew, saw him place it there and cautioned

him about the treacherous explosive but Tom was confident in his knowledge of dynamite and reassured his boss who started to walk away.

He had progressed only a few feet when the stuff exploded. The powder monkey, Tom, and a companion, Charles Anderson, were thrown into the air and over the tops of nearby sycamore trees and both of Zimmer's legs were torn from his body, Dr. Clark says. Zimmer and Tom were killed outright but Anderson lived until 4 o'clock that afternoon.

Injured by Gravel.

Two other men were injured by flying gravel which Dr. Clark laboriously extracted from beneath their skin but both lived. The physician was informed later that two others, whose names no one seemed to know, were seen to dash off down the hill and up the railroad tracks following the explosion. They were never heard of again and one of these may have been Baker but Dr. Clark says that his impression is that both of them were Bohemians.

Two days after this blast, another man by the name of Mike Lucas, lost the sight of both eyes and was severely mangled in a similar dynamite explosion near Mt. Moriah. He was also thawing out frozen dynamite. The power company awarded him \$3,000 and sent him back to his own country.

Recalls Fire Tragedy.

Mrs. Roy Sherwood, who served as a telephone switchboard operator during the construction days, recalled another tragic accident but after checking it over with Dr. Clark, whom she had summoned to take care of the case, she remembered that the man in question burned to death. He was D. Brown, a pump operator. His death occurred in the subway beneath the locks when he attempted to start a fire with gasoline instead of kerosene.

In his recollection of the Sandusky explosion, Mr. Harrington says that shreds of the men's clothing hung in the trees all winter.

EL. 518.2

RIVER

UNION ELECTRIC POWER CO.
POWER HOUSE & DAM

LOWER POOL EL. 480.0

EXISTING LOCK 356'x110'

EXISTING DRY DOCK

PROPOSED 1200'x110' LOCK

KEOKUK HAMILTON BRIDGE

ARTIST'S CONCEPTION OF THE NEW KEOKUK LOCK in its relation to existing structures. Head of the new lock will parallel the present but instead of being 358 feet long it will have a usable chamber 1200 feet long by 110 feet wide and thus extend far down the river, taking in land now

occupied by boatyard and engineer buildings. From the lower end of the lock, guard walls will extend beneath the inner draw span of the bridge to about the foot of Main street.

—U. S. Corps of Engineers Photo

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Cut Filling Time For New Lock

Large as it will be, 1,200 feet long compared to the 358 foot length of the present lock, Keokuk's new lock will be filled and emptied with considerably more speed according to data on the new structure supplied by the U. S. Engineers.

Filling of the old lock is dependent upon the stage of the river, ranging from 11 minutes at high stages to about 17 at low water and, with the level as it is at present, it takes about 15 minutes to fill the chamber.

9.4 Minutes to Fill.

With the new lock, equipped with modern valves, the filling time will be approximately 9.4 minutes and the emptying time about 8.3 minutes, the engineers say.

When the new lock is to be filled, the two upper tainter valves will open in four minutes, remain open about 2½ minutes and close in four minutes. The tainter gate at the upper end of the lock will begin to lower below the upper pool within one minute after the tainter valves start to open. It will continue to lower at a rate of eight-tenths of a foot a minute until it is submerged.

Statistics show that the usable length of the lock chamber will be 1,200 feet, its width 110 feet and its normal lift 38.2 feet. Minimum channel depth below the lock will be 10 feet.

Chain Lifts Upper Gate.

The upper guard gate will be of the single leaf, submergible vertical lift type and the upper service gate a chain-lift, submergible tainter. The lower service gate will be of the mitring, horizontal framed type. Present gate system is air-operated and consists of two structural steel, arched framed, miter gates at the lower end and structural steel, floating type service and emergency

gates at the upper end.

Both upper and lower gates are in poor shape as a result of corrosion and the impact of tows and the pipes constituting the air system for operation of the valves and gates are seriously corroded and approaching the limit of their useful life.

Intakes and Discharge.

The new lock will have five, strut-operated 14 feet, 6 inch by 14 feet 6 inch, reversed, tainter valves;

eight openings 9 feet 6 inch by 15 feet filling openings in the upper gate sill; and a discharge system including four openings 9 feet 6 inches by 14 feet 6 inches.

In addition there will be 20 laterals in the sides of the lock chamber, interlaced and tapered, 6 feet high by 6 feet wide at the entrance and 3 feet 5¼ inches wide at the last port; and two other discharge systems consisting of four 8 feet 5 inches wide by 7 feet 6 inches high and nine ports on each side one foot, ne inch wide and 5 feet 3 inches high.

The discharge manifolds will be streamlined and vary from 14 feet 6 inches by 14 feet 6 inches at the valves to four ports 8 feet 5 inches by 7 feet 6 inches at the entrances to the discharge laterals.

176

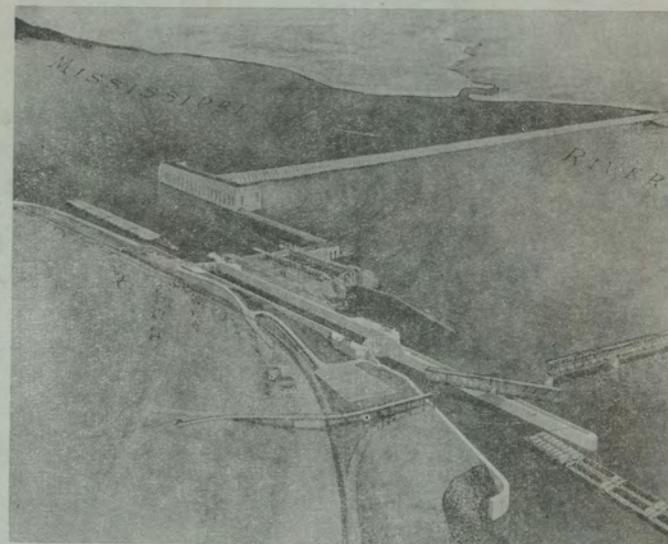
Souvenir Program



Keokuk is the location of the only National Cemetery in Iowa. The cemetery was established in September, 1861.

There were five hospitals in operation in Keokuk during the Civil War and Keokuk's "Little Arlington" is now the final resting place for soldier dead from six wars and Indian uprisings.

Wives and children of veterans are buried here and a few civilian victims of Indian wars were transferred to Keokuk from Fort Yates North Dakota in 1908.



TO MARK THE BEGINNING OF CONSTRUCTION
OF LOCK **19** IN THE MISSISSIPPI RIVER
AT KEOKUK, IOWA

MAY 30, 1953

Sponsored by the Keokuk Chamber of Commerce

PROGRAM

Victory Park at Mississippi River and Main Street

2:30 P. M.—Concert by the Keokuk Municipal Band

LOCK CEREMONY

3:00 P. M.-----Opening Remarks by Edward H. Fries,
General Chairman
God Bless America----- Keokuk Municipal Band
Invocation ----- Reverend Clyde L. Jardine
Welcome by Hubert Schouten, Mayor of Keokuk
Introduction of Guests
Presentation of Governor William S. Beardsley
Presentation of Colonel Delbert B. Freeman
Acknowledgements by Edward H. Fries
Band Selection

MEMORIAL SERVICE

for those of the Armed Forces who are buried at sea

Sponsored by American War Dads, Veterans of Foreign Wars
and their Auxiliaries

Introduction of Speaker—

Donald E. Johnson, Commander Iowa Dept., American Legion
Boy Scouts will give signal with flag to release float with
flowers.

Taps—Firing Squad by American Legion.

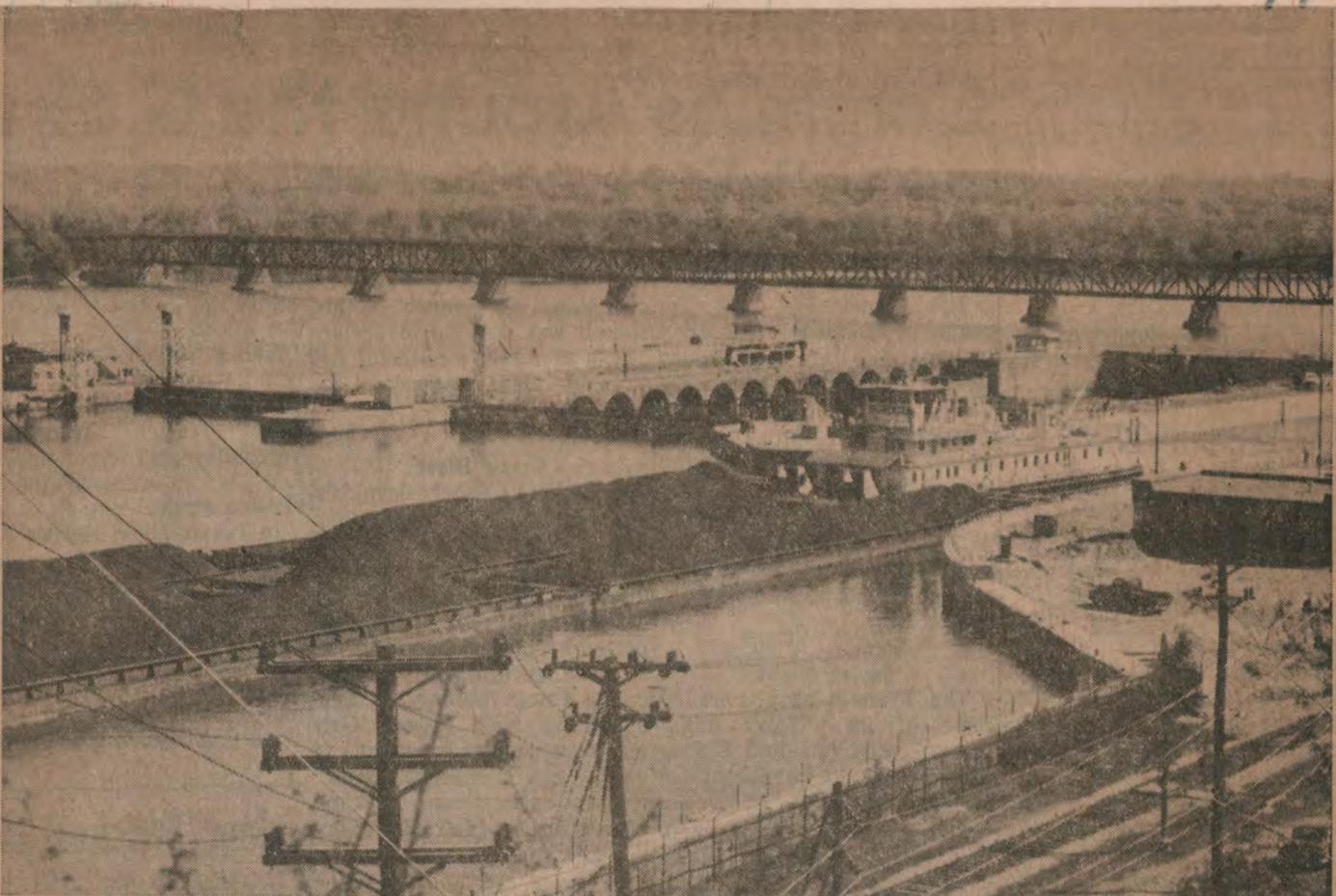
Benediction by Father Egan

Star Spangled Banner ----- Keokuk Municipal Band

COMMITTEE

General Chairman ----- Edward H. Fries
Attendance and Protocol ----- Mayor Hubert Schouten
Program ----- A. C. Ferguson
Facilities ----- L. R. Nelson
Guides and Arrangements ----- Dr. H. E. Ewing
Publicity ----- D. A. Gross
Safety -- James A. Breitenstein, Commissioner of Public Safety
H. R. Delahoyde, Sheriff

178



KEOKUK'S NEW LOCK underwent its first testing operation with a large tow Tuesday afternoon and, quite appropriately, it was a new boat, the Midwest Towing Company's "Hawkeye," to supply the first cargo, 18,500 tons of coal on 12 barges. The huge 1200 foot long chamber embraced the big tow with room to spare for additional barges had it been necessary, and the locking was thus a single-phase process of a few minutes. In the upper picture the Hawkeye is shown pushing its barges into the lower ap-

proach of the lock below the Municipal bridge. In the center it has all of its barges in the lock with the lower gates shut awaiting elevation to the lake level, and in the bottom picture it has passed through the lock and is entering the forebay. Several of the persons watching the first boat through also had seen the old lock opened for the first time June 12, 1913 when the excursion steamers G. W. Hill and Sidney were locked through together.

Daily Gate City Photos

2 The Daily Gate City Keokuk, Iowa
WEDNESDAY, MAY 1, 1957

New Lock, New Boat and Record Tonnage Make River News Today

Last week in April was not only the biggest of the year in respect to commercial traffic on the river here but, on the last day of the month yesterday, the new 1200 foot lock was opened to its first tow, an 18,500 ton cargo of coal pushed by the new towboat, Hawkeye.

April also established new records at the old lock with 699,885 tons of freight breaking all previous marks. The April tonnage last year was 543,791.

1,001,935 Tons

The old lock was in opera-

tion 308 times and for the season to midnight last night the figure was 495. Tonnage to date has been 1,001,935, also a new record for April 30. Lockages in April of 1956 were 241 and for the season 354. Tonnage up to April 30 last year amounted to 767,596, Lockmaster George Johnson reports.

Although the new lock went into actual operation with a boat and cargo for the first time Tuesday, it was merely another phase of continuing tests which must be conducted before the lock is formally turned over to the U. S. Engi-

neers later this month. Dedication ceremonies have been scheduled for July.

229,300 in Week

Since last Tuesday the Keokuk lock has handled 229,300 tons of freight, including a record 108,800 tons of coal, 54,000 tons of petroleum products, 37,300 tons of grain and 29,200 tons of miscellaneous cargo.

Coal shipments included the Manito 9,800 tons, Southland 8,400, Barbara Jean 5,600, Louisiana 13,500 along with 1,000 tons of merchandise and 1,100 tons of aluminum, the Buena 7,200 along with 5,700 tons of merchandise, Arrowhead 17,000, Tampico 7,000, Harriett Ann 1,300 along with 6,500 tons of fertilizer, Jag 2,500 along with 1,500 tons of fertilizer, Coal King, 15,000, and Hawkeye 18,500.

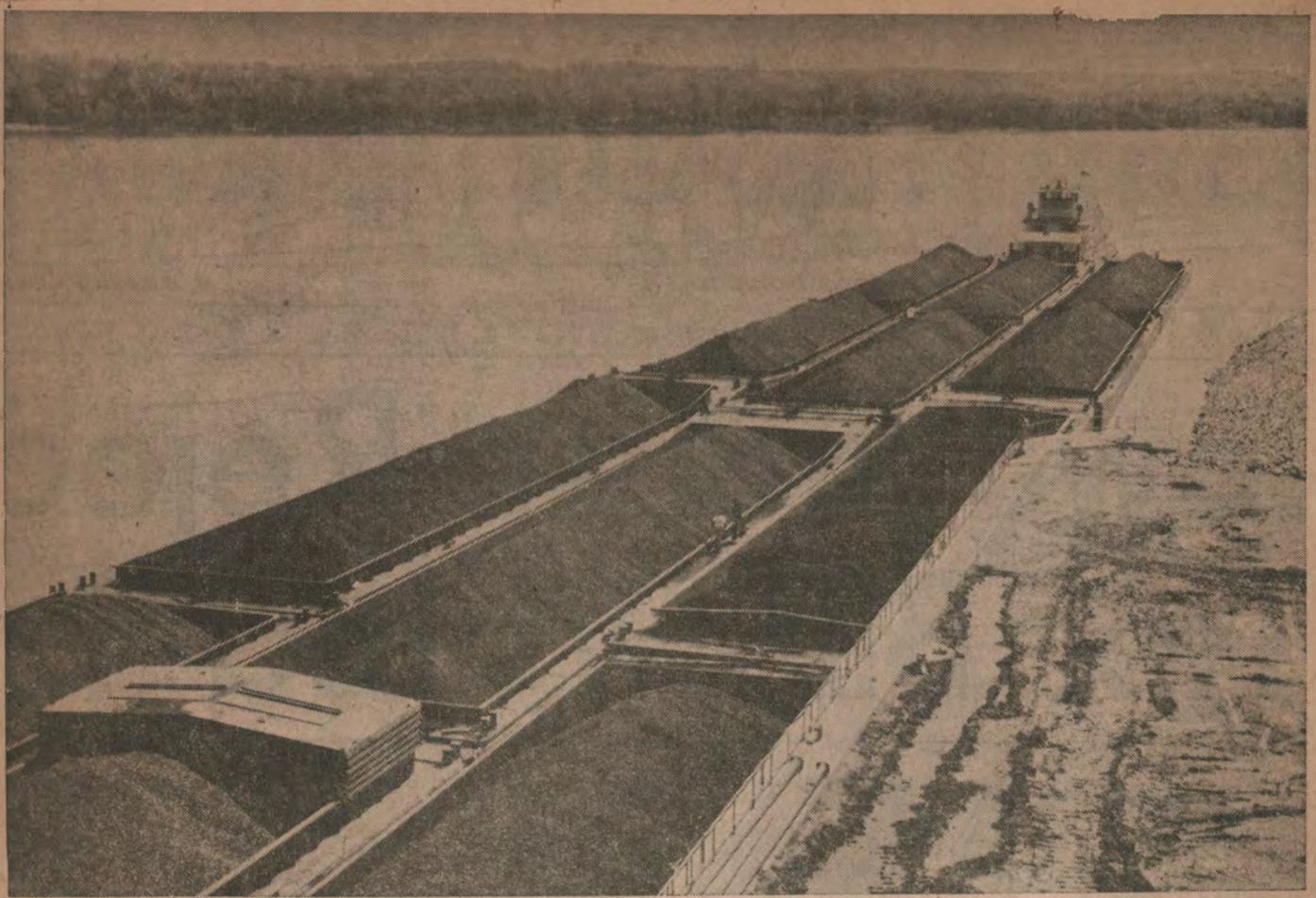
Upriver with oil products were the Suffolk 9,000, La-Cross Socony 12,000, Bull Calf

6,000, Delta Cities 11,000, and E. B. Ingram 8,000.

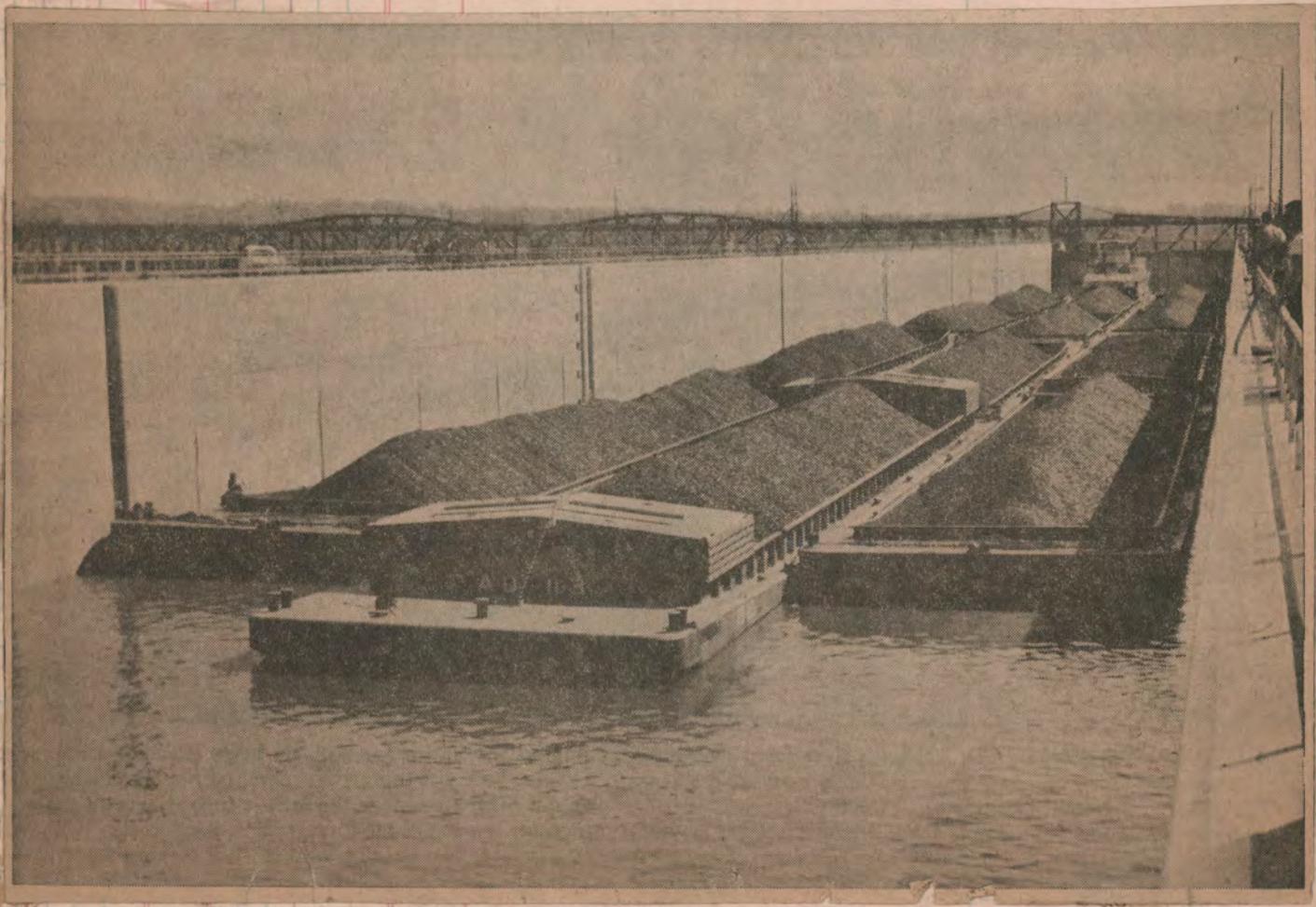
Grain Shipments

Down with grain were, the W. S. Rhea 4,600 tons along with 3,600 tons of scrap iron and 3,600 tons of soybeans, Agnes S 4,500, Sam Houston 1,100, Prairie States 3,600 along with 1200 tons of steel, Kakoda 11,200, and Harriett Ann 5,200 along with 2,200 tons of soy bean oil. The Southland came down with 2,300 tons of scrap iron and 500 tons of merchandise

Through the lock empty were the Manito, Delta Cities, Fleetwood, E. B. Ingram, Hortense B. Ingram, Bull Calf, Southland and Marilyn M.

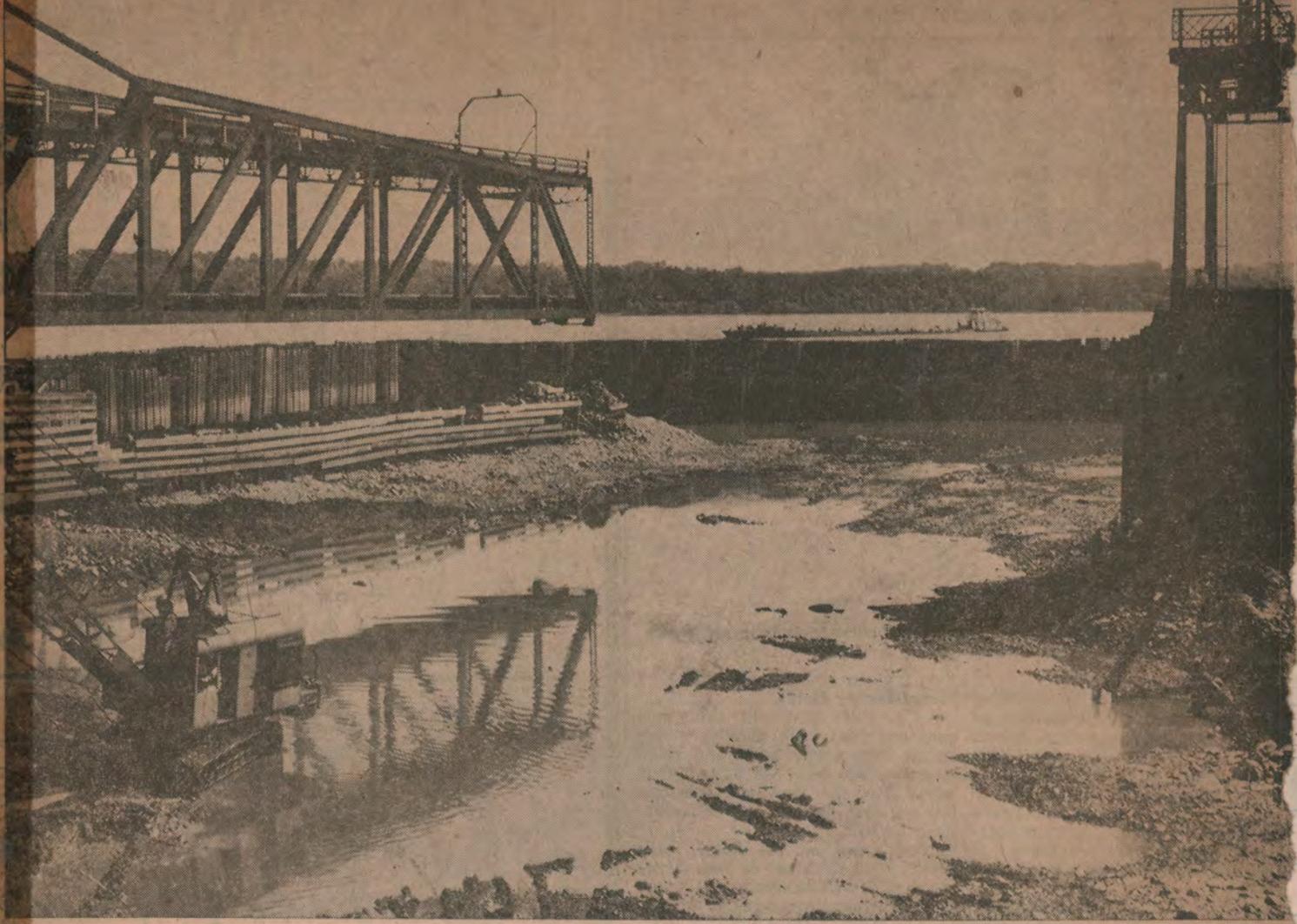


May 1, 1957 - pg #2
(New Lock)



"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

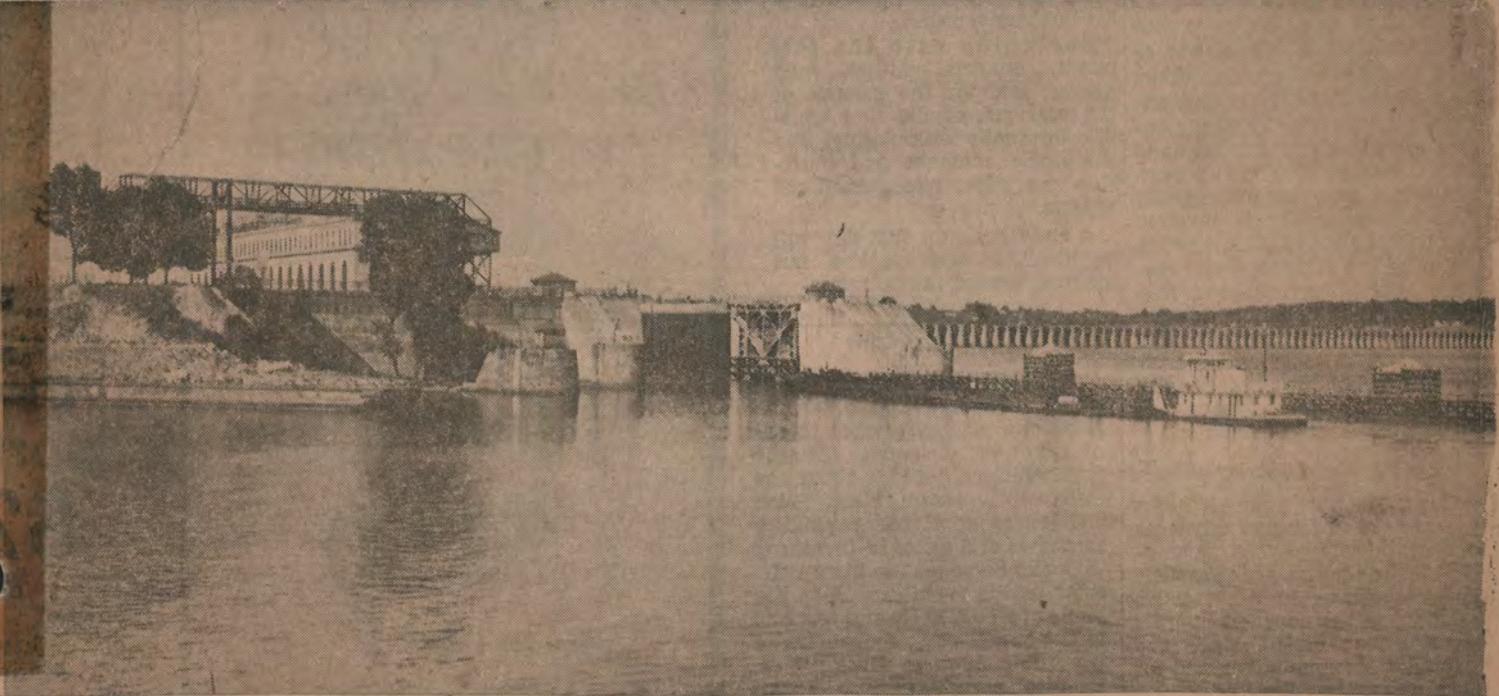
Mary 11 1917 - 1918 (New Lock)



—Daily Gate City Photo

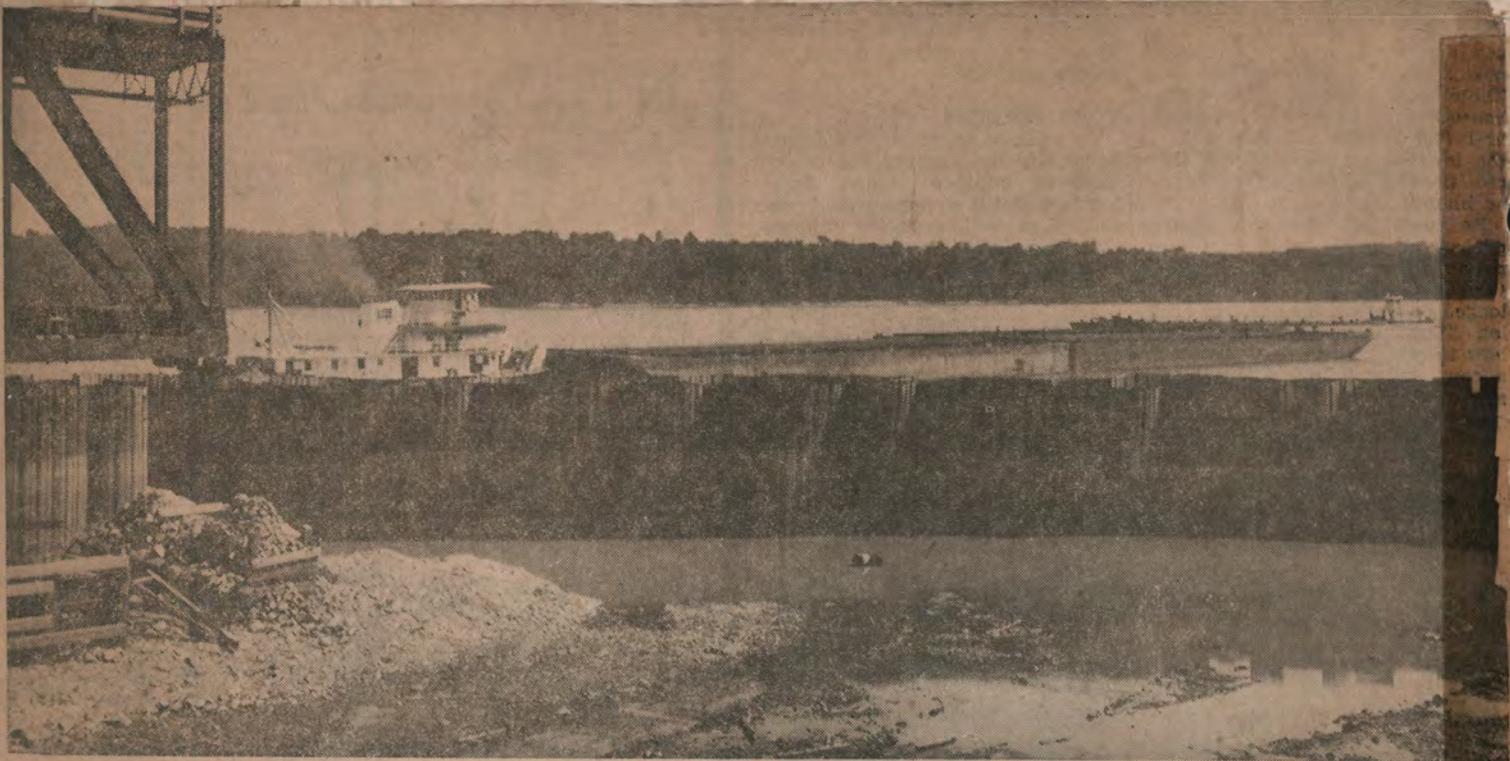
COMPLETE VIEW OF CHANNEL UNDER INNER DRAW SPAN of the Municipal bridge is afforded by this picture of the unwatered cofferdam. This is the channel which towboats will use when the new 1,200 foot lock is completed. The picture was taken from the top of the upper cofferdam cells looking down river.

—Daily Gate City Photo.



—Daily Gate City Photo.

TOWBOAT ANNA LEE PUSHING OIL BARGES was seen in miniature at the far right of the picture at the top of the page. Here it has reached the lock where the gates have swung open for its entry. The picture was taken from the top of the cofferdam.



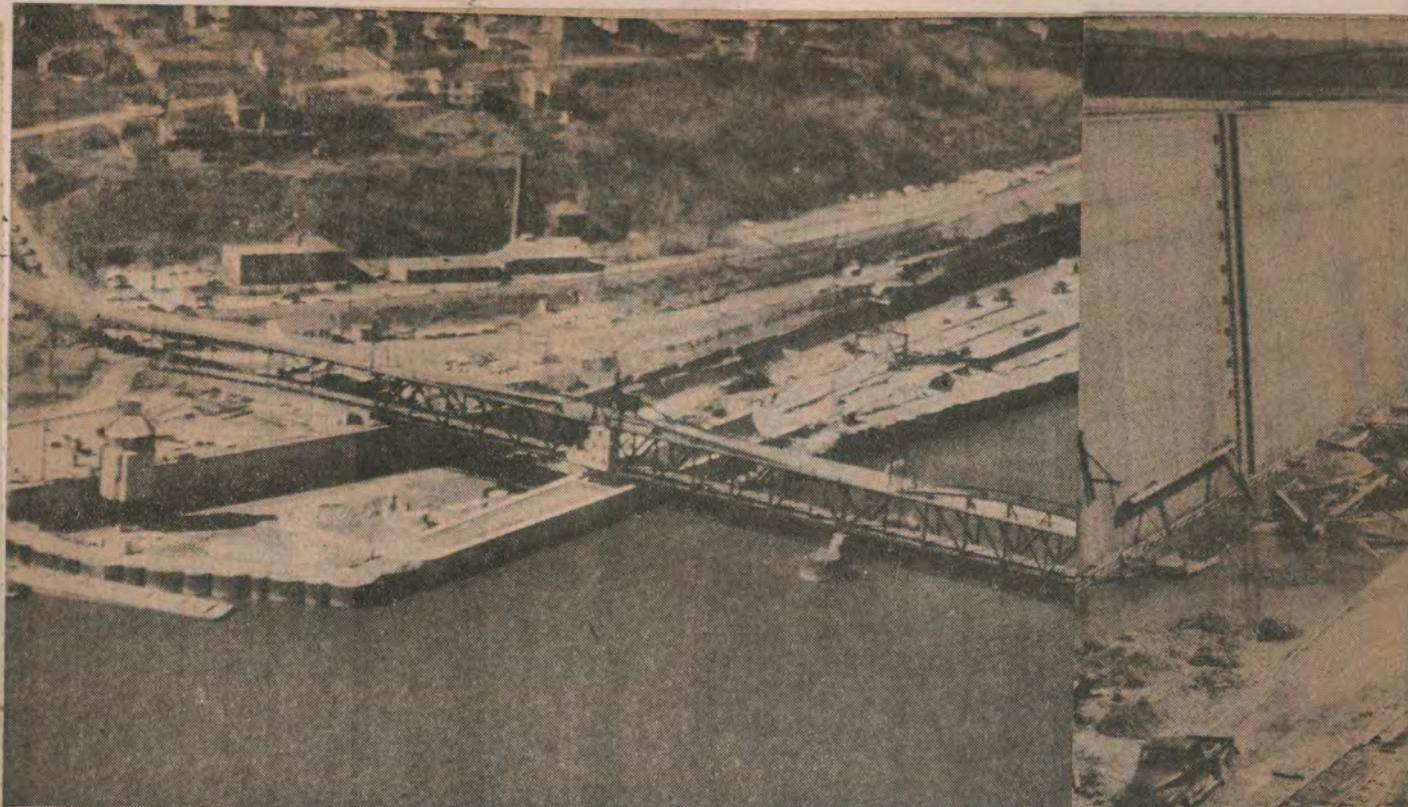
SOME ONE OF THESE DAYS, possibly as soon as three years from now, the towboat heading downriver in the background will make a much quicker trip through the unwatered channel in the foreground, now surrounded by a steel cofferdam for the construction of the new lock guide wall. At the far right is another towboat waiting its turn to maneuver through the presently restricted outer bridge span.

182



NOW HIGH AND DRY AND OF NO FURTHER USE is the old timber cribbing which kept towboats from banging into the shore and protected the bridge and piers. The pivot pier will be completely encased in concrete with the construction of the new lock guide walls. The picture was taken from Victory park.

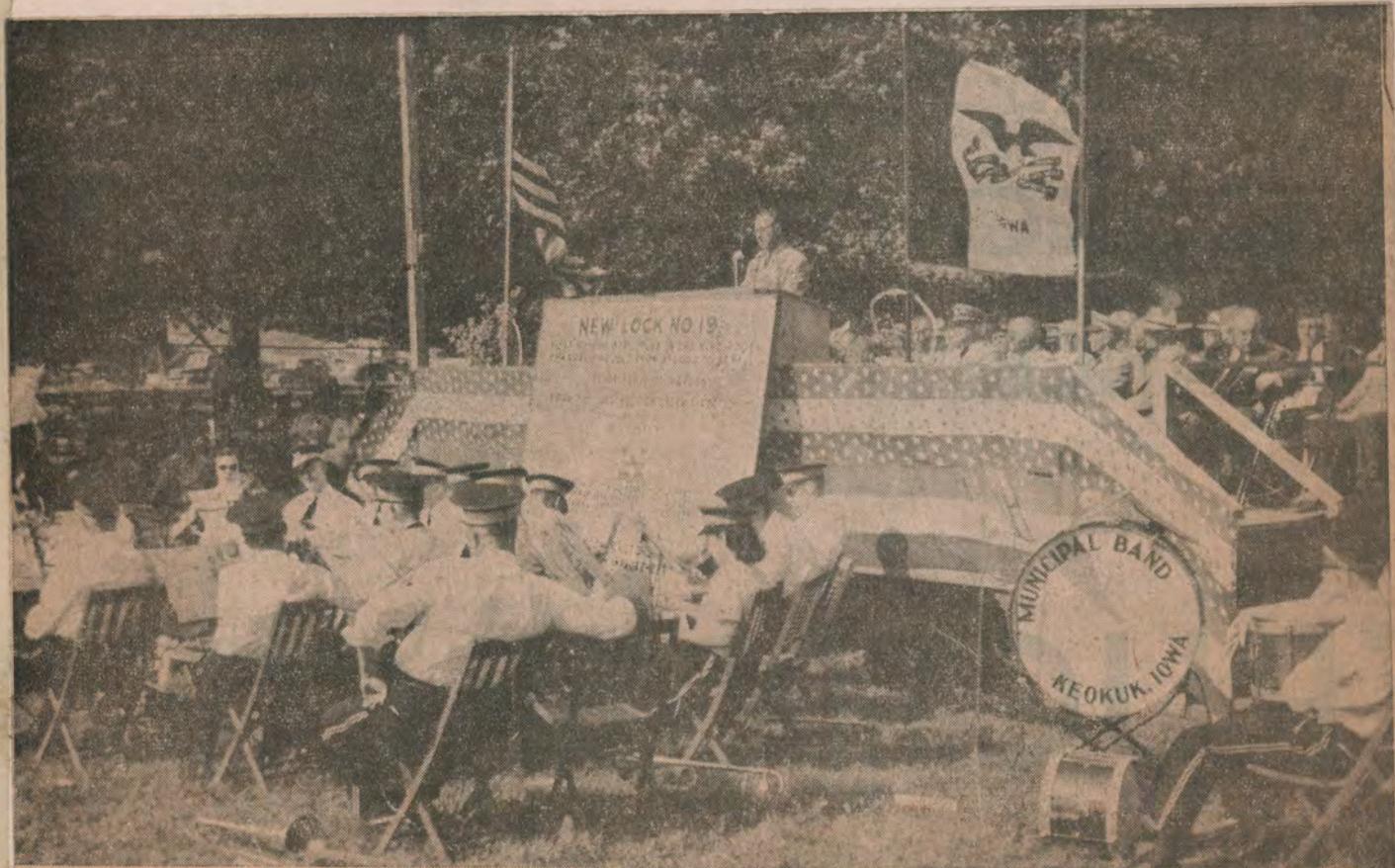
—Daily Gate City Photo



AN AERIAL VIEW OF CONSTRUCTION ON THE LOCK D

The Daily Star City Keokuk, Iowa
SATURDAY, AUG. 17, 1957

183



LOCK DEDICATION SCENE WITH MUNICIPAL BAND MEMORIAL D. Y 1953

KEOKUK LOCK PLANS RUSHED BY ENGINEERS

PERSONNEL IS INCREASED TO HANDLE WORK

Actuated by a desire to rush the completion of plans for the new lock on the Mississippi river at Keokuk, personnel in the design section of the U. S. Army Engineers in Rock Island has been increased recently.

Designers have been working for some time on the new structure which will replace the old lock here and final work on model tests for the new filling and emptying system to be employed is being completed at the present time in the hydraulic laboratory at the University of Iowa.

The present lock, built many years ago, is not regarded as adequate to take care of the large tows which are so prevalent with the increase of traffic on the Mississippi.

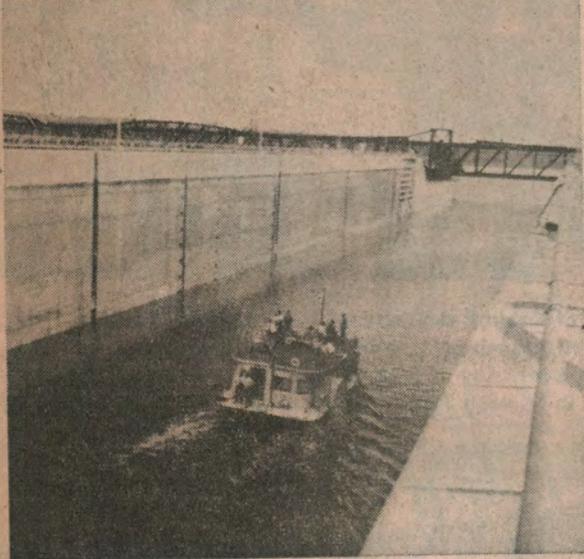
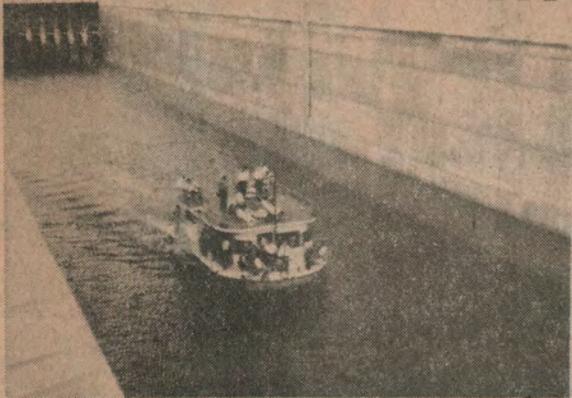
\$3,500,000 Project.

In a recent statement, Col. E. E. Gesler, district engineer in charge of this section of the river, said that construction of the new lock and dry dock could be started within 60 days of the date that the necessary money is appropriated. The project as planned will cost \$3,500,000 and since no funds are now available it must wait appropriation by congress.

As tentatively planned the new lock will be 110 by 600 feet and is to be built parallel with the present lock in the space now occupied by the dry dock. This will necessitate the construction of a new dry dock on the west side of the old.

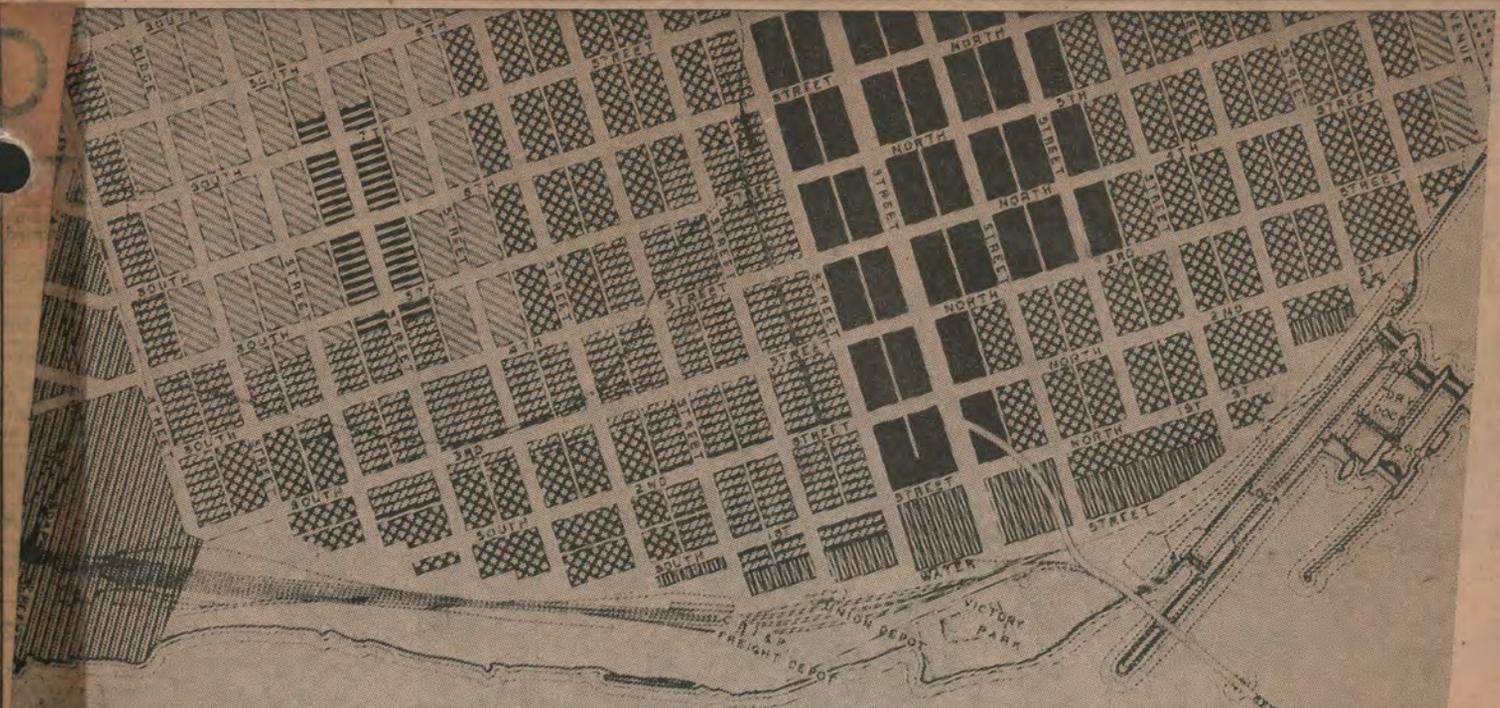
To provide for proper lock approaches changes will also have to be made in the draw span of the Keokuk and Hamilton bridge and a considerable amount of channel excavation will also be done. It is estimated that the entire project will take from one and a half to two years to complete.

Feb. 26, 1959



A GOOD-SIZED BOAT as individually owned pleasure craft go, Gerard Huiskamp's houseboat, the Dolphin, appears as tiny as a water-skater within the towering walls and long chamber of the new Keokuk lock when it took a group of visiting press, radio and television representatives on a preview tour August 9. In these pictures, taken from the top of the wall by Al Weber, the boat has descended to the level of the lower river and is side-wheeling its way through the opened miter gates shown in the bottom photo.

"THE GREAT DUST HEAP CALLED HISTORY"
R. L. BICKEL
KEOKUK, IOWA



KEOKUK, IA., GATE CITY AND CONSTITUTION-DEMOCRAT WEDNESDAY, JUNE 23, 1954

SIX ACRES OF NEW LAND will be created on the Keokuk river front from the foot of Johnson street to the C. B. & Q. round house within the next three years as the J. A. Jones Construction Co. fills in this area with waste material from the new lock excavation. The new shore line will extend into the river from 300 to 150 feet and cover a distance of 3,000 feet. Victory park will be expanded to four blocks in length and plans call for a new small

boat harbor 400 feet by 100, sit for a sewage disposal plant at the outlet of the main sewer and an area 1500 feet in length at the lower end of the fill for industrial plant sites. The above map shows the fill area in the unshaded portion from below the bridge and new lock entrance to the heavily shaded area where the roundhouse is located.

—Harland Bartholomew Zoning Map

Lock Excavation to Provide City With 3,000 Feet of New Riverfront

Assurance has been received by the city council and Planning Commission that the J. A. Jones Company, contractor for Stage II of the 1200 foot Keokuk lock, that waste material from the excavation will be deposited along the river front to create about 8½ blocks of new park, industrial and municipal building area.

The fill, made up of rock and earth rising to a height well above flood level, will extend from about the foot of Johnson street to the Burlington round house.

300,000 Cubic Yards.

In the deepest part, the new ground will extend the shore line from its present location for a distance of some 300 feet into the river and when completed the area will have a total length of some 3,000 feet with a maximum width of 300 and a minimum of 150 feet from the present railroad tracks to the new shoreline.

Army engineers have informed the Planning Commission that some 300,000 cubic yards will be available as waste material for this purpose and, when landscaped and equipped with drives, will give Keokuk one of the most beautiful fronts on the entire river.

Owned by City.

The Planning Commission, through its planning engineers, Harland Bartholomew and Associates of St. Louis, already has made tentative plans and drawn up a proposal indicating how this new area can be

used to the best advantage of the citizens of Keokuk. It will be entirely owned by the city.

The area of the former park, beginning at the bridge and extending downstream almost a block, is the entrance to the new lock and from here on down to about Exchange street the river frontage will be required exclusively for docks entering the lock. As a consequence this section of the front can no longer be used for mooring boats or similar usages.

Four Block Park.

Therefore the new plan calls for the conversion of this portion of the river front, from the bridge on to Bank street, a distance of four blocks, into a new and much more beautiful Victory park. It will be landscaped with several small and partly hidden parking areas, close to Water street, sufficient to park some 50 cars.

Plans also call for a small boat harbor, complete with protective seawall, located between Exchange and Bank street with a small park area adjacent to the railroad tracks which will provide a parking area for some 40 automobiles. The boat harbor will extend upstream from the last mooring cell below Bank street for a distance of some 400 feet with a width of more than 100 feet. A launching apron will be built at the Bank street end.

The protective wall will be constructed adjacent to the mooring piers on the river side to enclose the harbor and a boat house is pro-

jected on the land side at such time as conditions warrant its erection.

Sewage Plant.

Since the new City Plan calls for the eventual construction of a sewage disposal plant, this will be located on the new fill between the Northwestern Seed Co. and Palean street which will be directly above the present outlet of the main sewer.

By extending the shoreline, it is now possible to locate this plant at the sewer outlet whereas at the time of the sewer survey last year the plant had to be located on the only available site in that area, some distance down stream, or below the Hubinger plant. This would have necessitated the expenditure of some \$240,000 for a tunnel and accessory apparatus to carry the sewage to that remote location for treatment and disposal.

Saving of \$150,000.

Under the new conditions made possible by the fill, location of the plant at the actual sewer outlet will save the city at least \$150,000. It thus is evident from this one consideration alone that the shoreline extension which is to cost Keokuk nothing actually will be worth more than \$150,000.

If river traffic warrants it, the city will be able to build a municipal dock, probably somewhere upstream from the sewage treatment plant. This area also can be made available to suitable agents, acting for the city, to develop such a dock.

In addition to these projected installations, some 1,500 feet of new river front will remain and this, the Planning Commission says, will be ideal for some new industrial developments.

Ample Transportation.

Transportation is available bordering the sites on the fill for both truck and rail lines and four different railroad facilities can be made equally available in the area. In addition there is river transportation, right at the door, as well as an unlimited supply of water.

The community, through its forward planning, will provide sites for future homes, all other requisites for industry are present both here and the surrounding area. Limitless water and power are available and by properly explaining such advantages, the Planning Commission believes, Keokuk should be able to obtain new industries which will be an asset to the community and in no way injure the present industrial picture. By proper, united community action, it says, the new river front development can be a tremendous asset to Keokuk.

Start Monday to Raze Buildings In Boatyard for 1200 Foot Lock

Work will start next Monday on the demolition of three buildings in the government boat yard to clear the site for the new 1200 foot Keokuk lock, Norman Allen, resident engineer, said today.

Vale of Davenport has been awarded a subcontract by the general contractors, McCarthy Improvement company of Davenport, for this work.

Includes Office Building.

Buildings to be torn down include the brick office building which has housed the U. S. Corps of Engineers here since its completion in 1914, immediately after the construction of the power house and dam. For years it was the headquarters of Major M. Meigs.

Also to be razed are two frame buildings, the carpenter shop and the saw mill.

No Blasting Till Summer.

Allen said today that there will be no blasting on the lock site until after the coffer dams have been constructed for actual work on the lock. A start will be made on the coffer dams some time before April 1 and blasting operations will not get under way until mid-summer.

This work is under the first phase of the lock program which eventually will cost about \$18,000,000 and require several years to complete. Congress appropriated \$1,000,000 last year to get the project started.

The lock will occupy much of the present site of the boatyard, this side of the present lock and guard walls will extend beneath the draw of the Municipal bridge. Only one other lock on the river, that at Chain of Rocks above St. Louis, will be as large.

Carthy explained that the construction company plans to go about the blasting job a little more subtly than the government did when it blasted out the channel and cracked plaster in many part of town.

Make Test Blasts.

McCarthy says that test blasts will be set off first to determine a safe charge. Seismographs will measure the intensity of the vibrations, and the results of that test will be compared with a Bureau of Mines chart which will determine a safe charge. All during the actual blasting the seismographs will be placed around town to measure the intensity of the shock, and definite precautions will be taken to guard against cracked plaster and broken windows.

"But, of course," McCarthy added, "there's not a thing we can do to prevent the noise."

Dynamite will be used in the charges, and the whole job will take very little of the powerful explosive. The rock, about 26,000 cubic feet of it, will be crushed and used for road construction or thrown into the river, downstream from the project.

Pour Concrete in August.

Pouring the concrete walls will begin in August, and the job will be completed by the first of the year, according to McCarthy's schedule. The unorthodox structure with the stilted pulley belt running up to it, is a giant cement mixer. Rock, and cement are added through the conveyor belt, water is pumped into it, and up to 100 cubic yards, of concrete hour can be hauled away.

The structure is not fully assembled yet, but workman are making rapid headway. The giant machine is operated from a switchboard panel. The raw ingredients are loaded onto the conveyor belt many feet away, and are lifted into the machine. The finished product is shot into trucks from a huge funnel. In all, 23,000,000 cubic feet of the concrete will be needed for this half of the lock project.

Visitors Forbidden.

When the guide walls are poured and hardened, the cofferdam will be disassembled; all the steel sheets will be ripped out, and the tons of dirt used to fill them now, will be leveled along either side of the walls to provide a basis for landscaping.

Visitors are forbidden from the area now, and until the whole project is complete. The park is not off limits to curiosity seekers, but the rest of the area is. No security measures are involved; the company just doesn't want anybody falling into holes or getting hurt in any other way. So far, none of the construction workers has been injured, either.

Cofferdam Area at Bridge Now Unwatered for Lock Approach

By JULIA HUISKAMP

According to the big, ruddy-faced Irishman named Tom McCarthy, who is supervising the first part of the Keokuk lock project for the McCarthy Improvement Co., of Davenport, work on the 1,200 foot lock is going pretty much as per schedule.

The sprawling scene and mammoth production figures concerning water to be pumped, dirt and concrete to be hauled and dug and dumped and made, are scaled down to realistic proportions in the tall Irishman's office.

\$1,600,000 Project.

He is in charge of getting the first \$1,600,000 project done on time. His tools for the job are 50 construction workers, many of them local, and a big concentration of heavy construction equipment. He has been in this business for 15 years and has an uncanny way of pulling facts and figures about a job out of thin air.

The confused scene scaled down to McCarthy's terms looks something like this: This project will enlarge the bridge clearance to 150 feet, but the extra clearance won't be of any use to boats until the lock proper is complete, which will be another 3 years in McCarthy's estimation. Boats now are using the outer, restricted bridge span.

A great deal of work has already been finished on the present job though.

31 Separate Cells.

The cofferdam which is made up of 31 individual cells has been completed, and approximately 10 billion gallons of water have been pumped out of the 150,000 square feet it encloses. The unwatering operation was completed in four days, but a certain amount of pumping will go on to drain out seepage water until the concrete walls are poured. The area once stood 12 and 14 feet deep in the Mississippi river, is now bone dry in most spots. Three or four feet of water stand in one corner.

When the water was pumped out, a large quantity of fish, tasty game fish and the other varieties, too, were trapped in the enclosure. State conservation officials gathered in most of the game fish and either dumped them back into the river or saved them for stocking purposes.

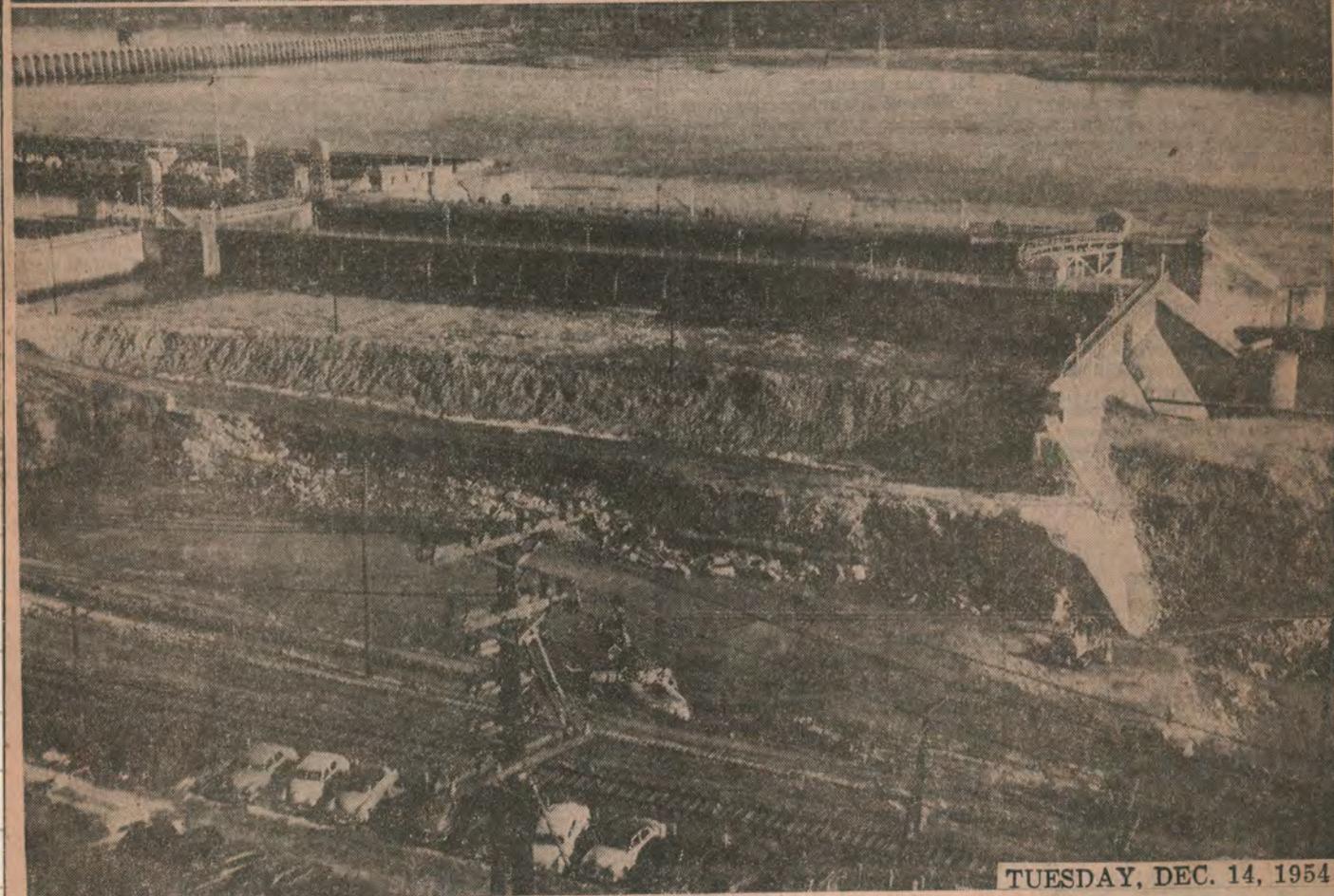
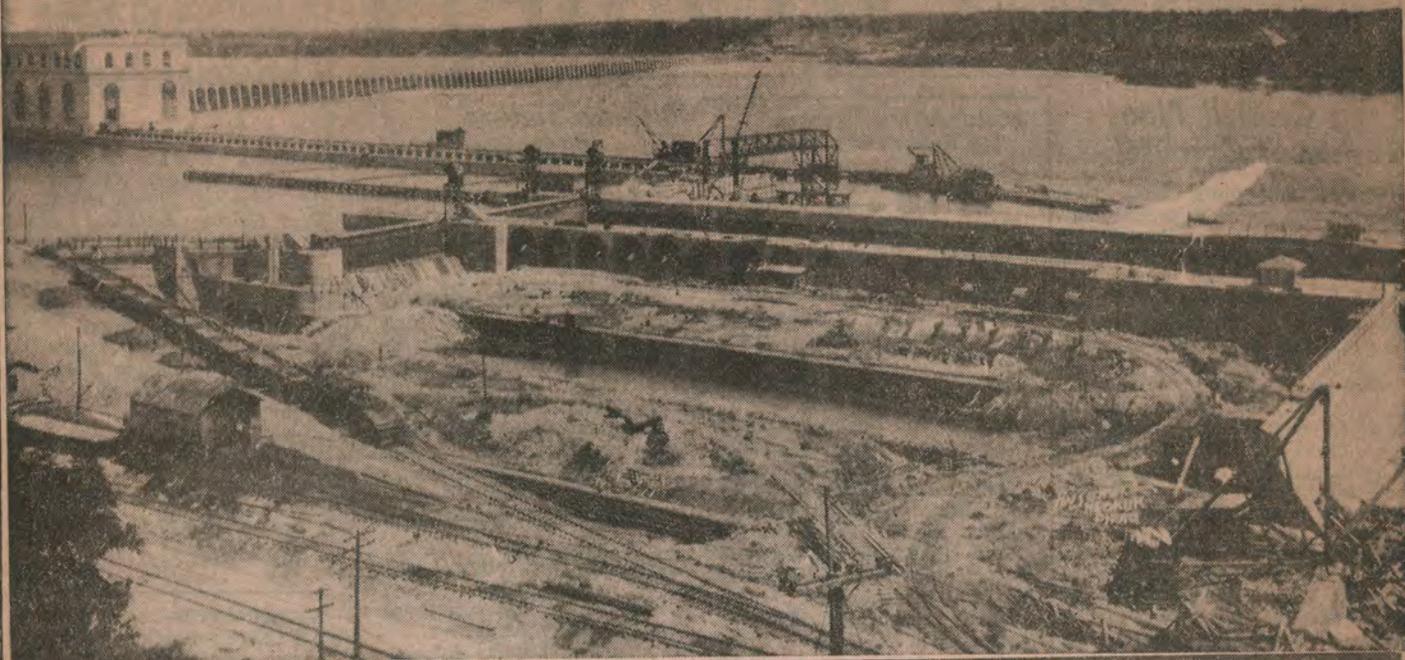
Cells Filled with Dirt.

Each cell in the cofferdam is a small monument to the science of engineering. A total of 100 steel sheets, 30 feet long, go into each cell and represent a big advance over the timbers used formerly. The cells are driven into the rock bed beneath the river by a pile driver and, when completed, 1,200 cubic feet of dirt is dumped into each. The cells are interlocking, thus making the whole structure more or less watertight. It was started in mid-April and completed by the second week of this month.

The next job will be to blast from four to five feet of solid rock from the floor of the enclosed area. Mc-

186

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK IOWA



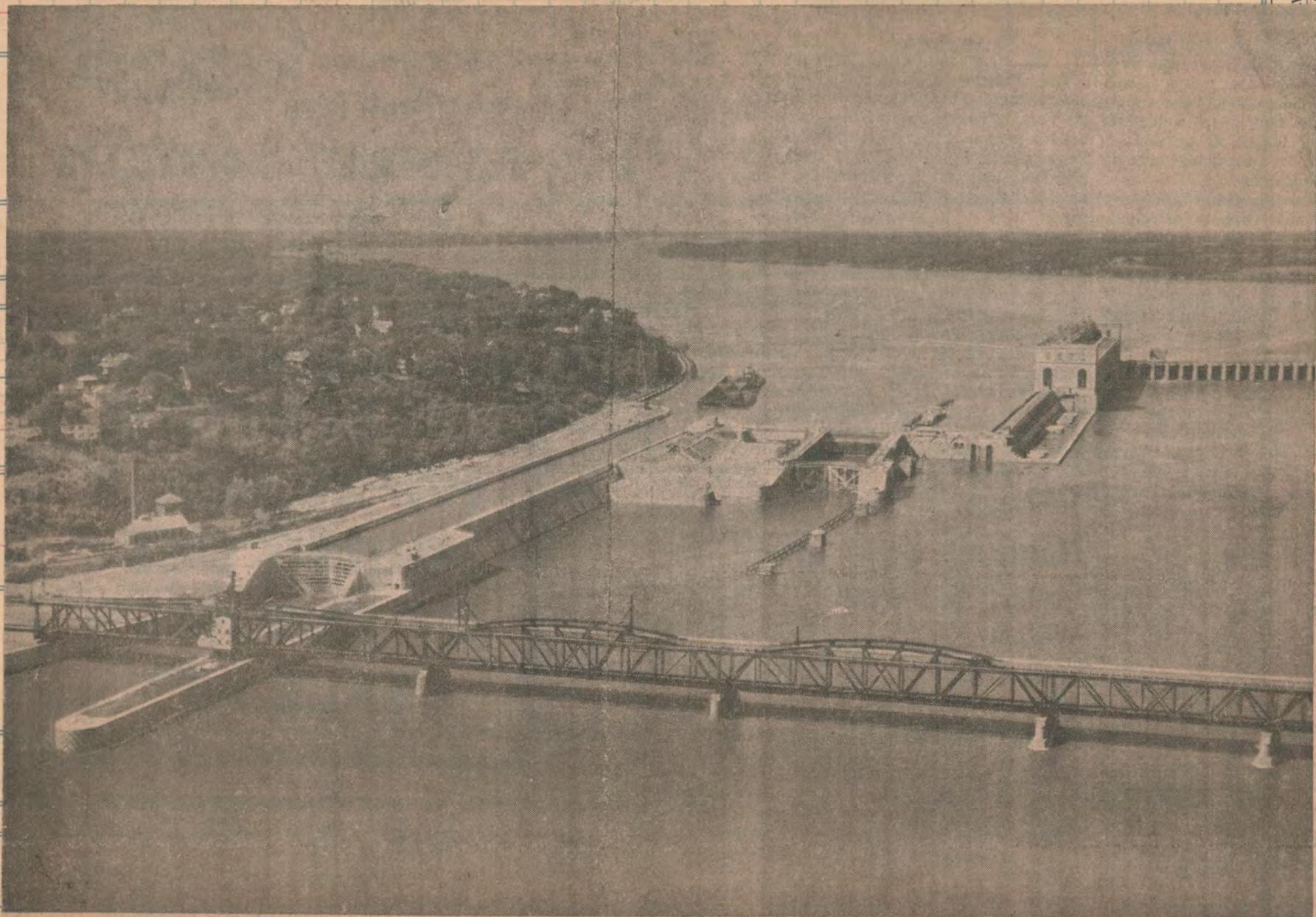
TUESDAY, DEC. 14, 1954

A RESURRECTION HAS OCCURRED in the old government boatyard where the J. A. Jones Construction Company is at work on the second stage of the new 1200 foot Keokuk lock. The rock wall of the old Des Moines rapids canal, deeply, and supposedly forever, buried during the construction of the original lock in 1910-13 has re-emerged into the daylight as a result of excavation for the new structure. The upper picture, taken by the late H. M. Anschutz during the original const. .tion shows a portion of the

rock canal wall in the center foreground with a railroad dump train pulling alongside. The lower picture is of the same scene today with a part of the wall running along the railroad tracks in the foreground and the opposite wall of the old canal in the ridge just this side of the drydock. Difference in construction methods is illustrated by the many railroad tracks in the upper picture and the dump trucks in the lower. The old Anschutz picture is the property of Wilford Beaty. —Anschutz and Gate City Photos

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SHIPPING AID—Towboat heads into upper end of huge new 13½ million dollar government lock on the Mississippi at Keokuk. New lock, 1,200 feet long, dwarfs the old 358-foot lock (right center) built with the dam

and Union Electric Co. powerhouse (right) in 1913. Separating the new and old locks is the government drydock in which many river boats have been repaired.

189

OUTLINE PROGRAM FOR CELEBRATION

Executive Committee Has In General
Way Made Plans for the Dedication of the
Dam.

BIG DAY IS PLANNED

Entertainment Will be Provided for
the Thousands of People Who
Will be Attracted
Here.

Outline of Celebration.

Morning, August 26.

Parade I. N. G., escorting notables to government grounds near lock.

Meeting of Illinois, Missouri and Iowa official representatives in middle of dam.

Formal dedication with speech-making on government grounds.

Official christening of Lake Cooper, with speech.

Noon.

Luncheon to noted guests.

Afternoon.

Continuation of dedication exercises and soldiers parade.

Opening of M. V. P. B. A. regatta.

Night.

Fireworks from ice fender of power house and water pageant from the Illinois shore to the Iowa shore and return.

The executive committee of the water power celebration has arranged in a general way for the program for the day of the formal dedication of the dam, August 26, as outlined above.

On the day of the dedication there will be men of national note here to take part in the dedicatory exercises and the celebration is certain to attract thousands of people from the tri-states.

Nothing will be left undone by the committee on arrangement for entertainment of high class during the entire day for the people who will be here. There will be attractions galore outside of the main feature, the celebration, each one designed to interest a different class of people.

Notables Are Invited.

Because of the fact that congress will remain in session all summer and the Mexican trouble the committee does not expect President Wilson will be here. When he was asked by a committee last spring he said that his duties might make it impossible to accept the invitation and as he could spare only a few hours at the Gettysburg semi-centennial and could not decide to go until a day before he will probably not be able to accept the invitation of the three governors. It is hoped however, to have Vice President Marshall or Secretary of War Garrison here and they will be invited. Governors Dunne, of Illinois; Clarke of Iowa; and Major of Missouri have been invited and the committee is reasonable assured that they will attend. Former Speaker Joe Cannon has also been invited with other men of national fame.

Either the Fifty-Fourth regiment or a battalion of the national guard will be here for the celebration. Efforts are being made to get the entire regiment and if it is impossible to do so the battalion, comprised of four companies will be brought here. At Hamilton it is expected that a regiment of the national guard will be encamped there during that week and special dispensation will be granted them to escort the Illinois executive across the river.

The Big Day.

On the morning of the celebration there will be a parade and reception of notable visitors. It is planned to have the Missouri and Iowa visitors meet the Illinois officials in the middle of the dam and then come back to the Iowa side on the government grounds near the lock where the speaking will be.

It may be that the dedicatory exercises will not be held until afternoon but this cannot be decided until a few days before the celebration. If they are in the morning there will also be exercises in the afternoon and at noon there will be a luncheon given the notable guests. The regatta will also be open in the afternoon.

At night there will be a fireworks display on the river that will attract great crowds. It will be the most elaborate ever shown in this city. In addition Hamilton people are working on a pageant. They expect to have several barges with floats on them all pulled by a steamboat. The boats will be drawn from the Illinois shore to the Iowa shore and back again.

Crowds Here All Week.

A great many visitors are expected here all week because of the home-coming and regatta. J. Albert Kiedaish, secretary of the celebration committee, this morning sent by request twenty cards to a former resident in St. Louis which are to be sent to his friends whom he says will surely be here at the home-coming. The regatta for the three days will also attract a large crowd, especially since the entries of several of the fastest

boats in America have been received.

The Fifty-Fourth regiment band and the Keokuk Citizens band have been engaged for the celebration and other bands will be secured. There will be band concerts on Main street all during the day.

Arrangements have been made for visitors to see the power house at certain times during the day of the celebration. They will be allowed to cross the new lock, the uncompleted part and along the ledge outside the power house and onto the dam. From the place where they pass the power house it will be possible to look in through the doors and windows and see the entire workings of the generator room of the mammoth plant.

The Gate City.

WEDNESDAY, AUGUST 2, 1871.

ACCIDENT AT THE LOWER LOCK.

A Man Horribly Mangled.

A horrible accident occurred at the Lower Lock Tuesday afternoon, resulting in the serious and probable fatal injury of a stone cutter named James Stack. The unfortunate man was engaged in receiving instructions from the foreman near one of the derricks. As the men were swinging it around the rope which supports the boom gave way. Unluckily for him, Stack was in a stooping posture directly beneath it. The derrick was loaded with a huge piece of rock. The boom, which is a piece of timber about 12 or 14 inches square, fell with terrific force upon the man, mangling his body in a most horrible manner and producing injuries from which it is scarcely possible for him to recover. Four of his ribs were fractured, his hip dislocated, hip bone fractured, and a very severe compound comminuted fracture of the leg below the knee. He was extricated from his perilous condition and conveyed to the College Hospital. Here Doctors Hughes and Sanford were engaged from three o'clock until half past six rendering the necessary surgical aid in dressing the wounds. Although they have done everything within the range of human skill for the man, they say there is little possibility of saving his life.

Stack is a single man, is from Chicago, and has been employed upon the work only about a week.

Mr. Wm. Gabriel, the foreman, who was giving Stack his instructions at the time, barely escaped a similar fate. He had also been stooping over and had just straightened up. The boom struck him on top of the head and knocked him senseless. Had he been occupying the same position as a moment previous he would undoubtedly have lost his life.

Workmen engaged upon the public works here cannot be too cautious, not only in guarding against accidents to themselves, but in preventing accidents to others as well.

RUSSIAN EXPERTS AT KEOKUK PLANT

Members of the Royal Commission
Arrived Here Saturday Afternoon
to Visit Greatest Hydro-
Electric Plant.

WONDERFUL, IS VERDICT

Officials of Mississippi River Power
Company Greeted the Engineers
From the Land of the
Czar.

Another list of notables was added to the already large list of official visitors to the Mississippi River Power company's plant at Keokuk, Saturday afternoon, when the members of the Royal Russian commission arrived in Keokuk from St. Louis and spent the afternoon here. The greatest water power plant in the world was the object of their visit to Keokuk, and they were greatly interested in everything they were shown in connection with the big plant in the Mississippi river at this point.

Those who composed the party were General A. W. Sapognikoff, T. R. A., Captain P. A. Mozosoff, Captain T. Giffard, R. F. A., Captain W. W. Ozanowsky and Professor B. A. Bakmeteff. The commissioners arrived in Keokuk early in the afternoon and were met by representatives of the Mississippi River Power company. In automobiles they were taken to the plant a half mile north of the station.

The government reservation was visited, and the Russians were much interested in it. Then they were escorted to the power house.

"It is wonderful," was their verdict as they viewed the big generator room, and were shown all of the workings of this great hydro-electric project.

The Royal Russian commission is in charge of all military matters on behalf of the Russian government in the United States, and its personnel is largely made up of prominent engineers of the czar's domains.

The commission had been in St. Louis on some business connected with their work and had expressed a desire to visit the Keokuk plant. Arrangements were made for their reception and every courtesy was shown them.

"I want to say," said Judge Logan, "that Mr. Cooper is not entitled to all the credit for the building of this dam. There is another, not here tonight, and that is Mrs. Cooper. I sat in a room in his home one day when he was blue. 'I don't know where to turn,' he said, 'I am almost at the end of my string.'"

"Are you getting discouraged, Hugh?" his wife asked.

"Yes, I am," he said "I have spent about all I have. I don't care for myself but I cannot go on and pauperize you and the family."

Then a true heroine answered, "Hugh, mortgage this house, sell every bit of property you have, spend the last cent. We will go back and start life over again in a cottage before we will give up the fight."

Cooper kissed his wife and said, "Fanny, that dam will be built."

"And it is built," said Judge Logan.

"I heard two men discussing the dam the other day," said C. M. Rich, "and one of them was a little under the weather.

"Who built that dam up there?" said the latter one.

"Why, Cooper," was the reply, "And it will last six thousand years."

"Well," said the other, "that is some dam. That guy sure put Keokuk on the map to stick, all right."

Hazen I. Sawyer told a story on a Keokuk booster. The local man had been praising the dam to a stranger and the stranger remarked, "But what I don't see, is why you don't make Keokuk a seaport town."

"Why, how could we" asked the Keoman.

"Well," he answered, "if you are as big suckers as you are blowers you can draw the Gulf of Mexico right up to that dam."

Dr. G. Walter Barr told of a former Keokukian who thought he saw C. R. Joy in a cab in London. The man rushed to the cable office to send a message to Keokuk to find out Mr. Joy's address. After he had written the message the clerk remarked, "You can save two words there. Just leave off the U. S. A. and Iowa. Everyone knows where the Keokuk dam is."

"When Mr. Cooper first went to work on the Illinois side," said Wm. Ballinger, "I am told that he was out in his old clothes on the job when some man came up and asked for Mr. Cooper.

"I am Mr. Cooper," was the reply.

"But I mean the big Mr. Cooper," said the other, "the one that is going to build the dam."

Finally Mr. Cooper convinced the man that he was really the "Big" Mr. Cooper and the other replied, "Well, I'll be d—— if you look like it."

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

Bridge Represents Earliest River Work

Keokuk's first river facility, earlier than the old government canal, was the bridge across the Mississippi which now is owned by the city and operated by a commission.

Although the bridge was projected as early as 1865 when articles of incorporation were drawn up and approved under the name of the Hancock County Bridge Company, it was not until Tuesday, April 19, 1871 that the first locomotive and cars actually crossed the river and in the interim it had undergone two changes of name.

Reincorporated

The original name was soon abandoned and in January of 1866 an organization known as the Keokuk and Hamilton Mississippi Bridge Company was incorporated. In 1868 the word Mississippi was deleted and the company known merely as the Keokuk and Hamilton Bridge Co. existed until the bridge was acquired by the city through payment of \$775,000 in first lien revenue bonds from toll collections.

In March of 1867, Colonel Otley of the Des Moines Valley Railroad was employed to conduct preliminary surveys for locating the bridge with the assistance of J. S. Smith and under the direction of T. C. Clark, engineer in chief of the Quincy Bridge Co.

Grant Right of Way

As a result of the survey and estimate of costs, preliminary plans were drawn up and submitted to the city officials of Keokuk who, on May 25, 1868 passed an ordinance granting the right of way across the levee. Final plans, estimates and reports were submitted to the directors of the bridge company in June of that year and the project was under way.

Contract for construction was let to the Keystone Bridge Co. of Pittsburgh, Penn., a Carnegie subsidiary, on December 6, 1868 for a cost of \$850,000.

Longest Draw

Work on the structure was under the personal supervision of Joseph S. Smith, resident engineer in charge of sub-

continued to do so until 1915 when the bridge was remodeled to provide a new draw span

(Continued on Page 12)

structure: Walter Katle, in charge of erecting the bridge, assisted by F. S. Kaufman, foreman of the 10 permanent spans, and Frank Reeder, mechanic and foreman of the steam engine and hydraulic works.

At the time it was built and for many years thereafter the bridge had the longest draw span on the river, measuring 160 feet on the square and 376½ feet from center to center.

All on One Level

At the outset wagon (later automobile) and pedestrian traffic shared one level passage with the railroads and as well as an elevated roadway for vehicular and pedestrian traffic. At the same time the present viaduct was constructed with its approach at First and Main streets instead of at the foot of Blondeau as was formerly the case. The new draw was first opened March 26, 1916.

First passage of the bridge by a locomotive and cars was on April 19, 1871 when an engine pulled two cars of bridge company officials and invited guests across the new structure.

Piers Strengthened

In the last few years all of the old stone piers were unwatered and encased in reinforced concrete anchored deep in the bed rock. Two years ago a new, direct approach was built by the state of Illinois to bypass the old dike road which was subject to flooding in high water.

Last year the bridge commission tore out the old wood roadway and replaced it with modern steel grid flooring, at the same time adding steel beams in support so that today the bridge puts no limitations on the weight of big trucks other than those in force on highways. Modifications of both approaches also were made to facilitate the flow of traffic.



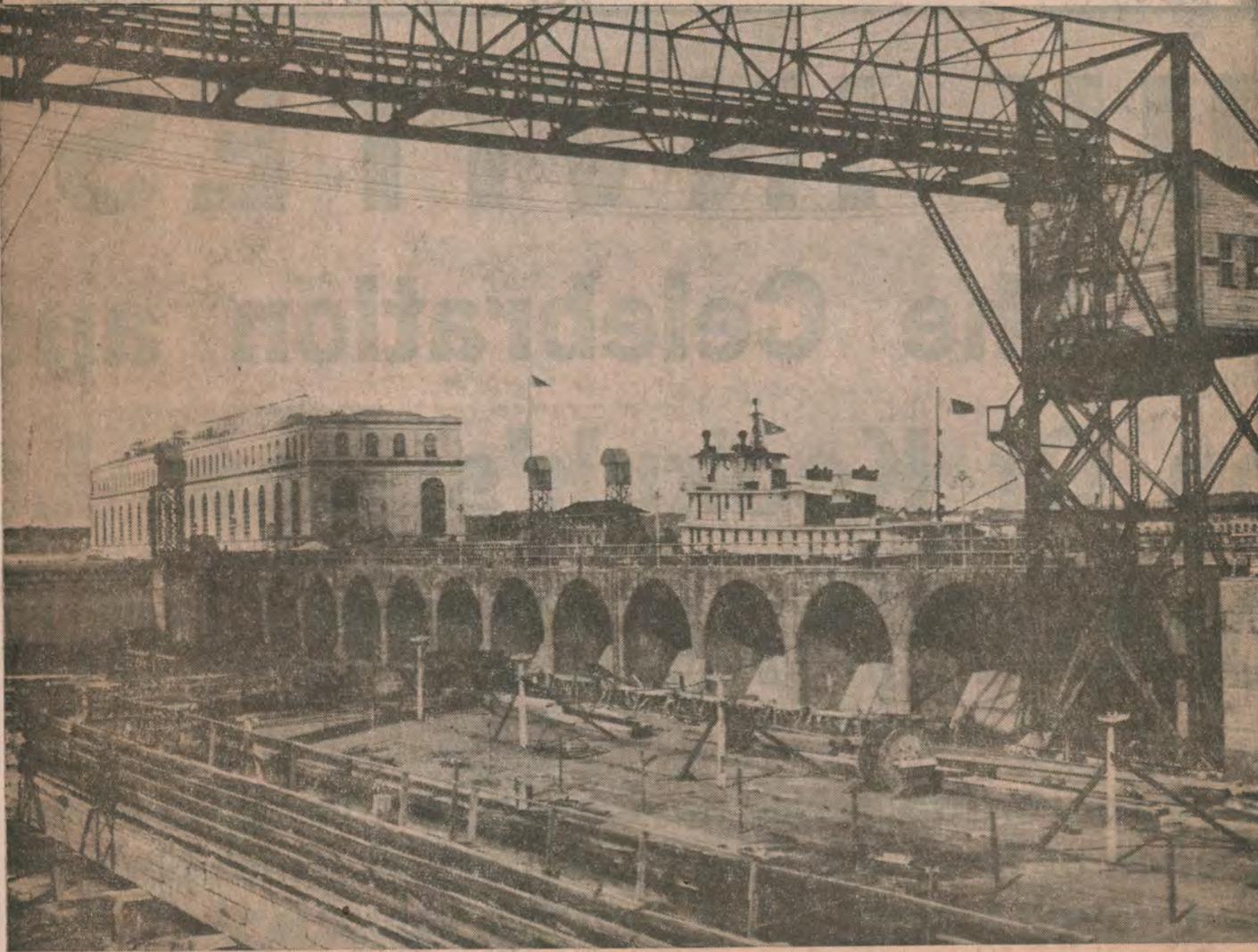
DEWEY SHORT, assistant secretary of the army, will be one of the two principal speakers at the dedication of the new lock next Monday, August 19 at 3 p. m.



MAJ. GEN. EMERSON ITSCHNER, chief of the U. S. Army Engineers, Washington, D. C., will be one of the principal speakers at the lock dedication ceremony in Victory Park Monday afternoon at 3 o'clock.

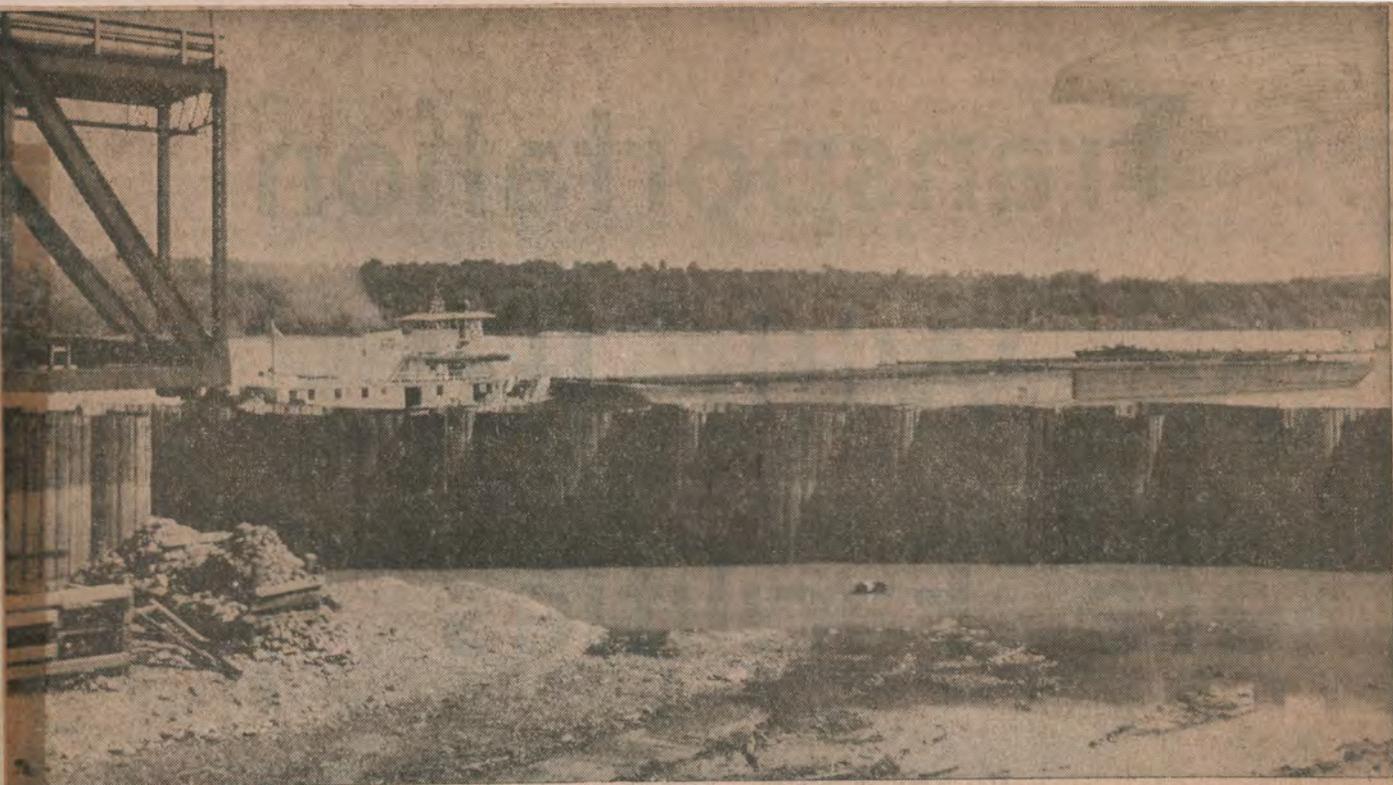


DIRT REMOVAL IN AREA OF NEW LOCK IN SPRING OF 1954



IN LATE FALL OF 1954, the J. A. Jones Construction Co. Charlotte, N. C. started building forms for the concrete work on the new lock are shown here.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL, KEOKUK, IOWA

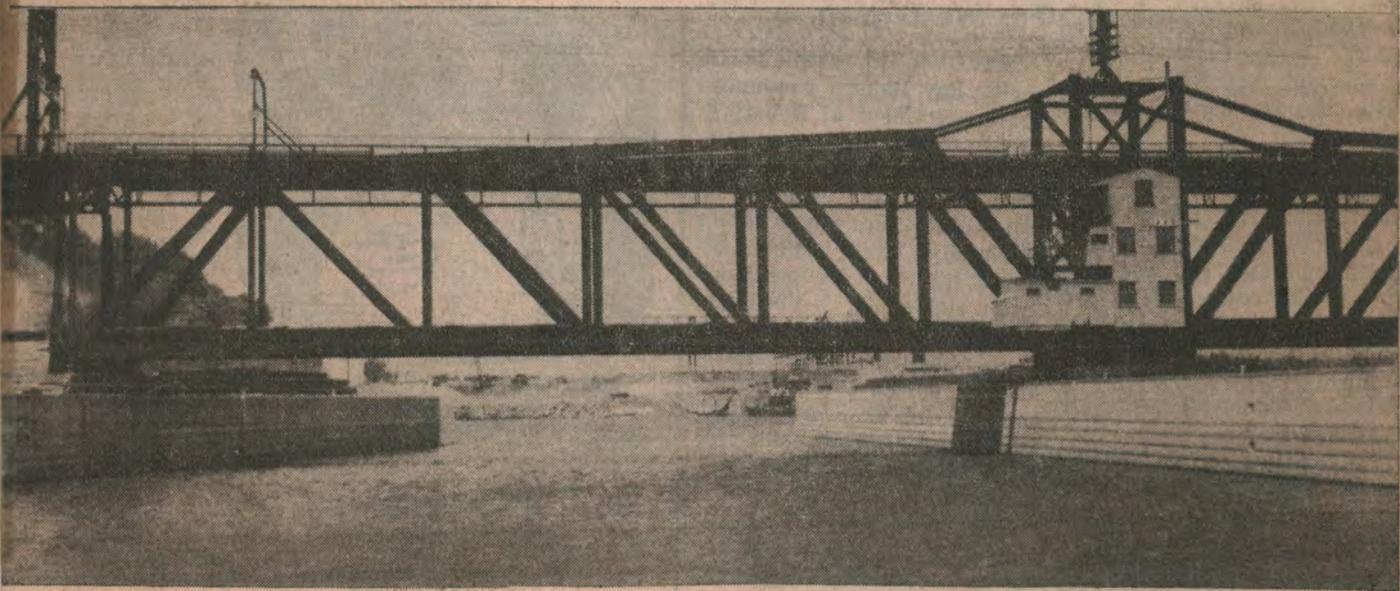


DURING STAGE I of the lock project, the McCarthy Improvement installed these huge steel cofferdams to un-

water the area beneath the Municipal bridge. A towboat can be seen going downriver in the background.

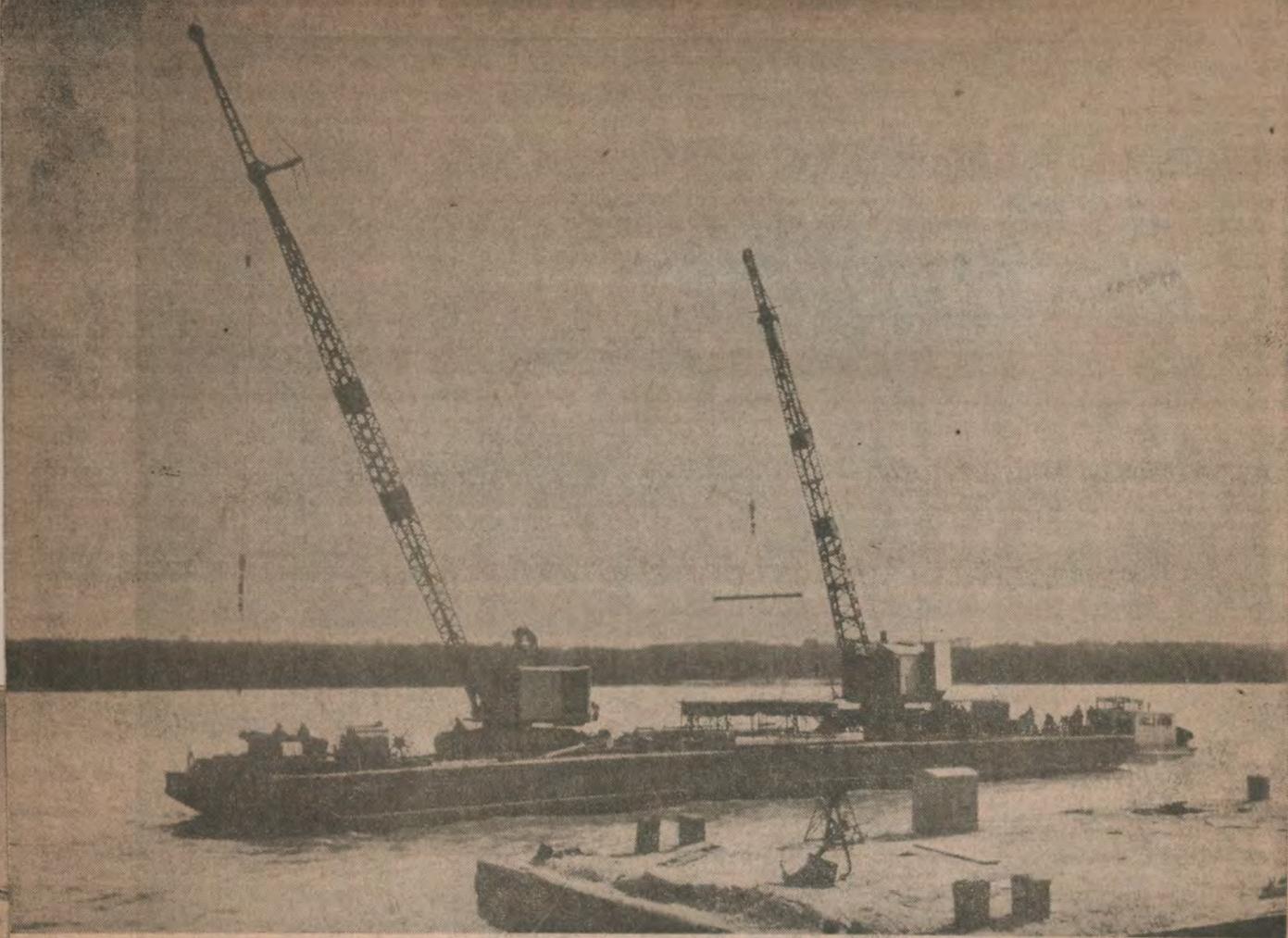


SCENE OF OLD LOCK IN OPERATION AND COFFER DAMS UNDER CONSTRUCTION

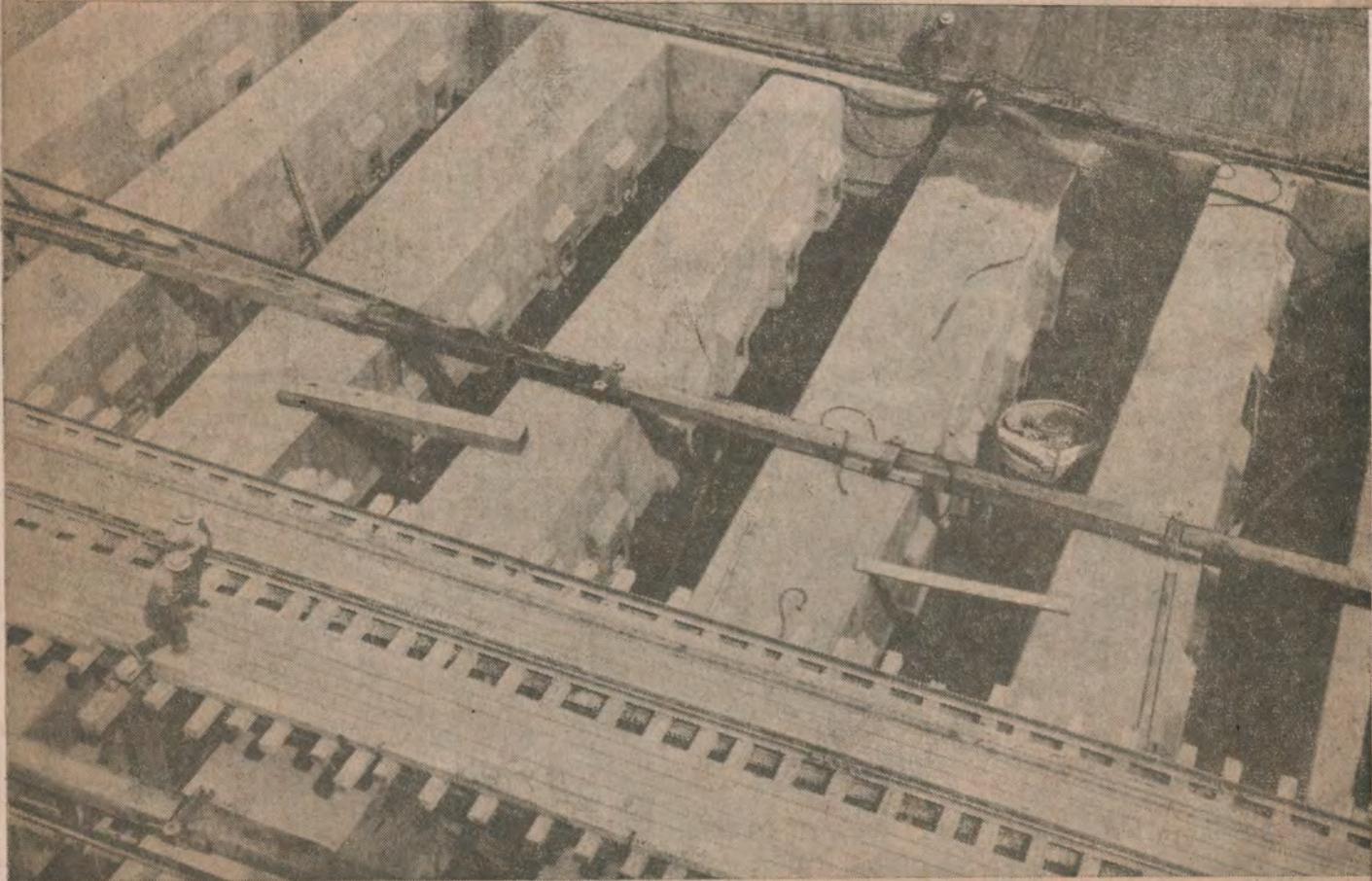


WHEN LOWER GUIDE WALLS of the new lock were built in the first phase of construction, the pivot pier of the

municipal bridge on which the draw swings, was encased within one of the massive walls.



DREDGING OPERATIONS for the lower approach walls to the new lock was handled by the two cranes towering from the barges moored in the channel during the fall of 1953 as recorded by this Gate City picture.



IN AUGUST OF 1956, the Jones company was installing six feet deep inlet and exit valves in the floor of the lock chamber which is criss-crossed with huge concrete beams like a grid.

"THE GREAT DUST HEAP CALLED HISTORY"
 R. J. BICKEL KEOKUK, IOWA

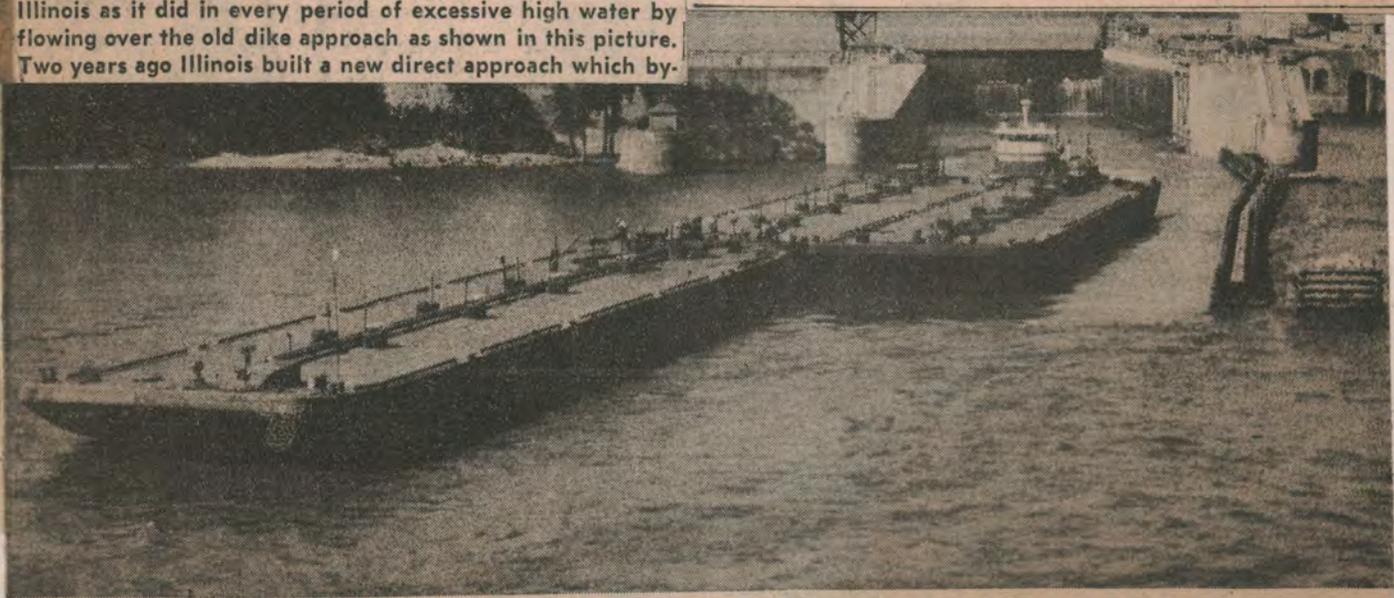


FAR CRY FROM KEOKUK OF TODAY is this representation of the little settlement at Puckeshetuck, foot of the Des Moines Rapids as it looked in about 1849. All that remains are the distinguishing bluffs rising steeply above the river.

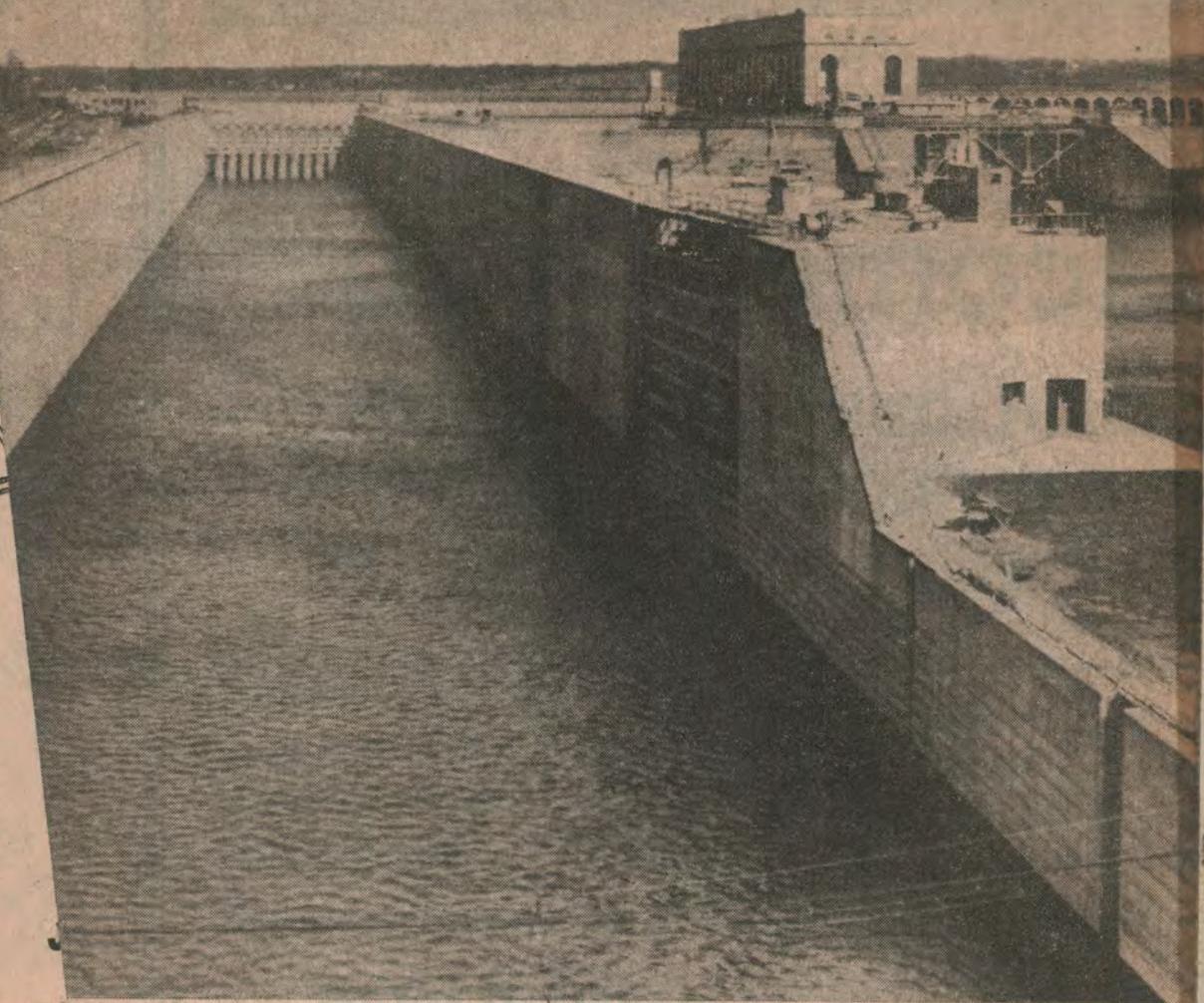


SUBJECT TO ITS UPS AND DOWNS in floods and during low water, the Mississippi can no longer cut off traffic to Illinois as it did in every period of excessive high water by flowing over the old dike approach as shown in this picture. Two years ago Illinois built a new direct approach which by-

passes the picturesque dike, now a recreation and fishing area.



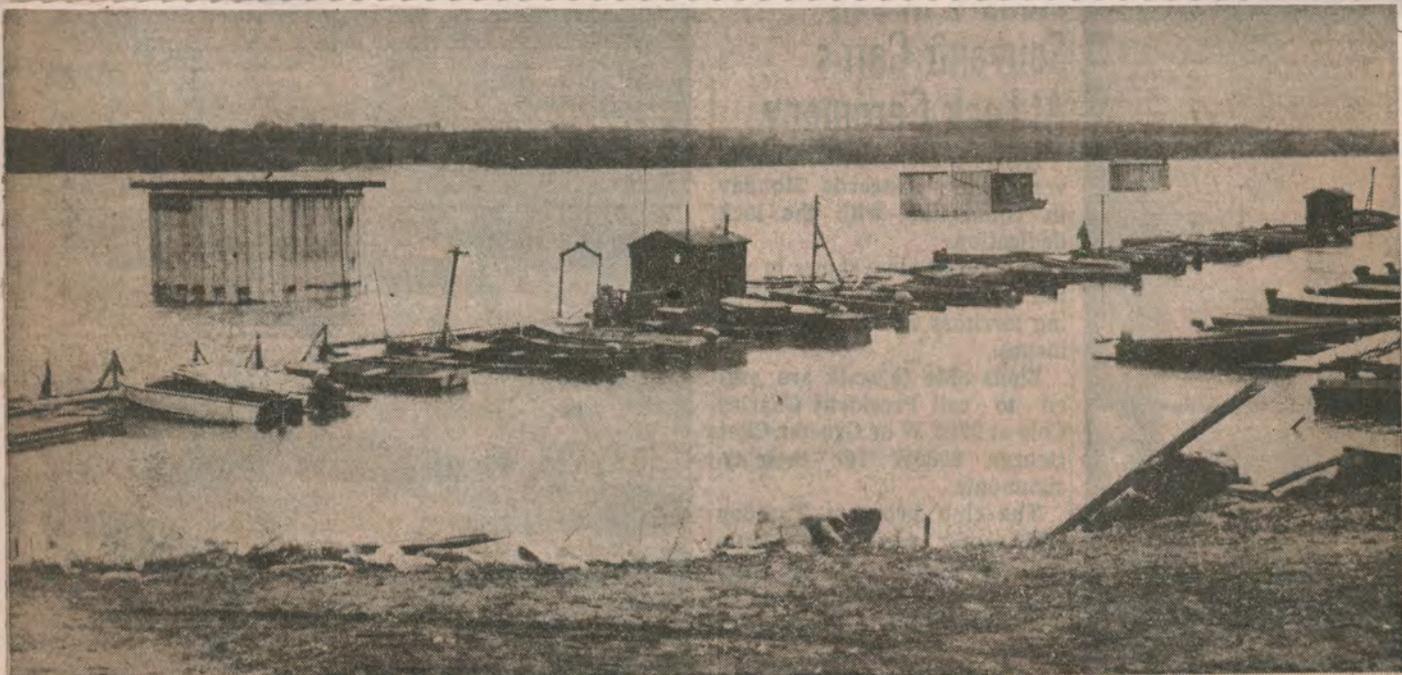
TOWBOAT EMERGING FROM OLD LOCK WITH CONSTRUCTION OF NEW NOT STARTED



y
g
more
. . . and to live!
TENSTEIN
Safety

presented this appearance
elevation with the lower

mitre gates folded into the walls and the upper vertical gates raised to
full height.

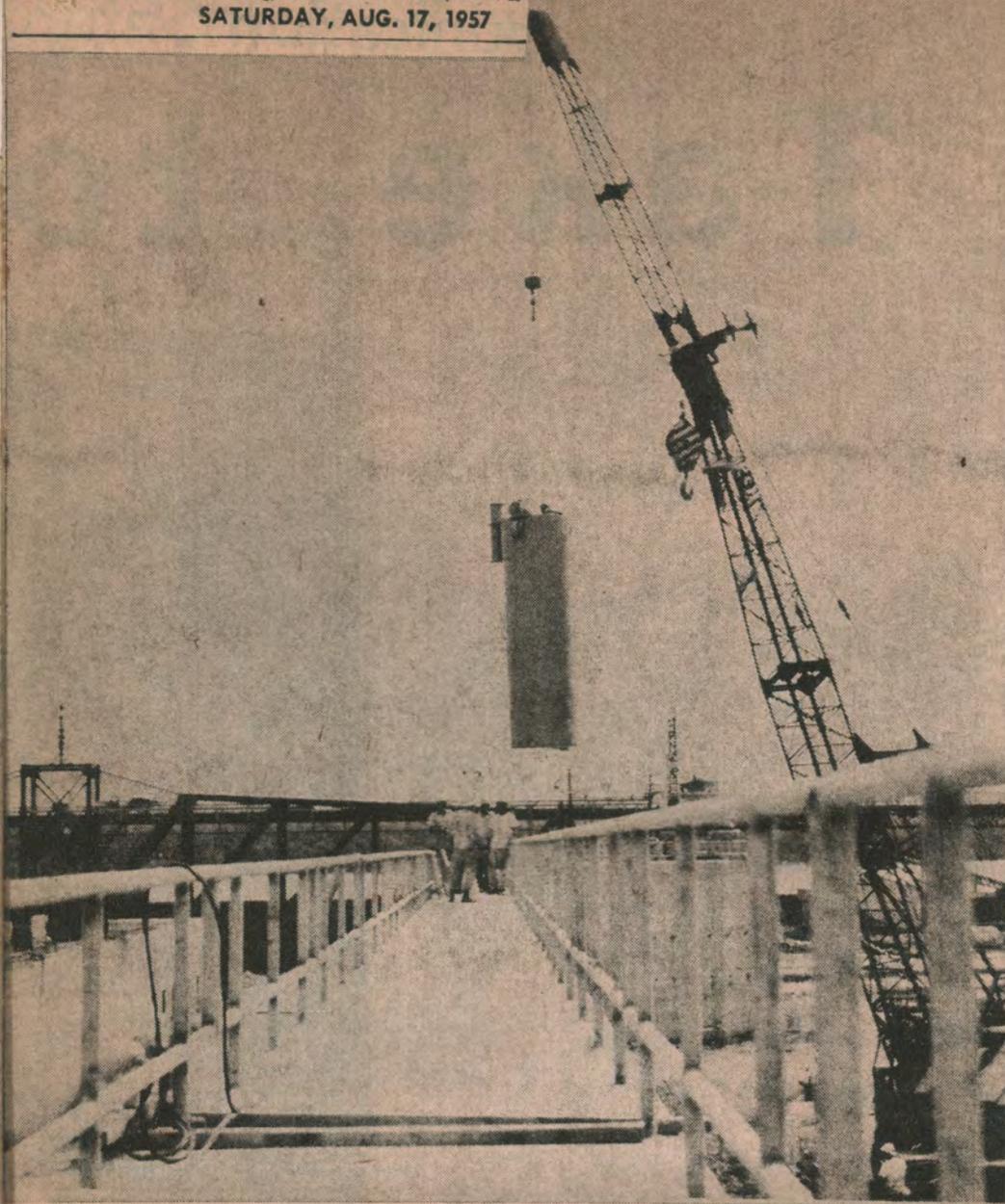


WITH THE SOIL FILL built up along the riverfront below
the lock, Hum Howard's boat and fishing dock had to be

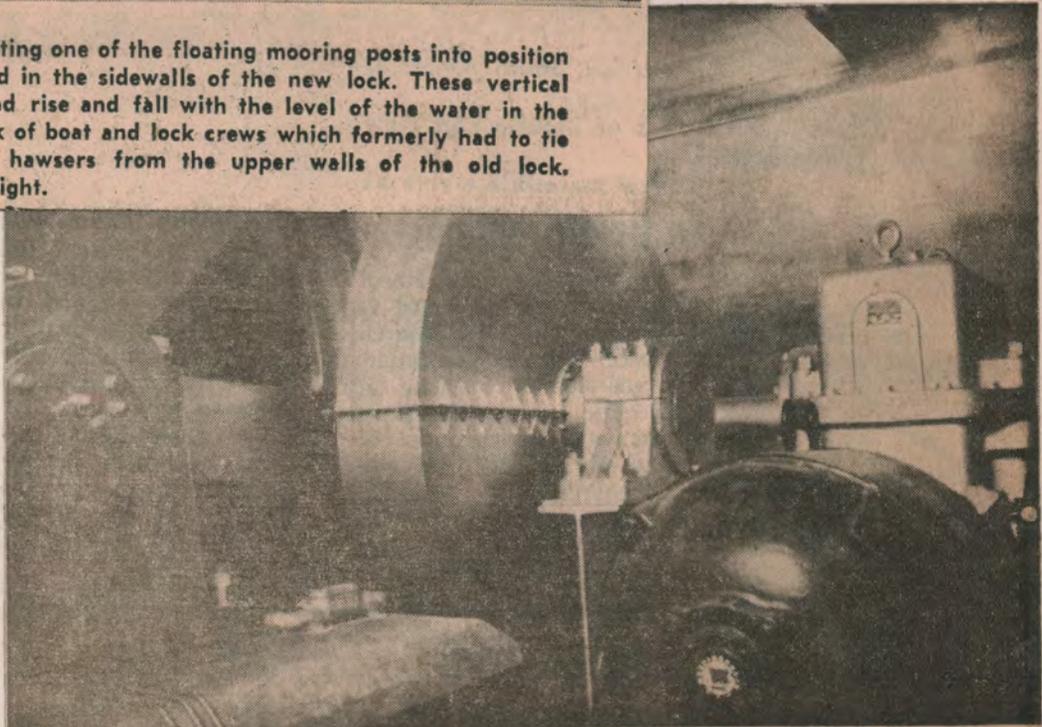
moved from its original position further down the river.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

199



BIG CRANE at the right is lifting one of the floating mooring posts into position so that it could be installed in the sidewalls of the new lock. These vertical pontoons fit into the walls and rise and fall with the level of the water in the chamber, facilitating the work of boat and lock crews which formerly had to tie up the boats with big rope hawsers from the upper walls of the old lock. The posts are illuminated at night.



ONE OF GIANT VALVES within walls of new lock which permits the water to drain out of the chamber.



PRELIMINARY DEDICATION of Keokuk lock was on Memorial Day of 1953 with work in progress by the McCarthy Improvement Company. Principal speaker was the late Governor William Beardsley of Iowa shown here with Capt. William Talbot of the National Guard in Victory Park on that occasion.



WITHIN THE MASSIVE WALLS of the new lock are corridors extending the full length from machinery rooms at either end.



ELECTRICAL BRAIN of the new lock is this switchboard from which one man can operate everything except the lower gates. Standing at the switchboard is Pete Harvey, electrical foreman for Evans Electric Co. of Omaha which installed the electrical equipment.

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

New Lock, Dam and Powerhouse Gigantic

Paul Bunyon, whose stamping ground was a bit further north, would feel right at home on the Keokuk riverfront where, since the completion of the new lock, everything is built according to the gigantic scale in which he gloried.

Keokuk's dam and powerhouse, for 44 years the biggest on the biggest river, now are joined by the biggest lock, twice as large as any other on the upper Mississippi and having a higher lift than any other on the waterway.

38.2 Foot Lift

Because of the dam and the head of water it must maintain in lake Keokuk for the generation of power, the lock must raise barges and towboats at low stages a total of 38.2 feet from elevation 480 in Navigation pool No. 20 below to 518.2 in the pool above. Usual lift in other locks on the upper river is no more than 10 feet.

Quick Filling

The lock chamber itself is 1200 feet long and, since almost all tows are less than that, only one lockage is required for even the largest of 17 or 18 barges. All other main locks from St. Paul to Alton are 600 feet in length and as a result many tows require double lockages. Only lock comparable to that at Keokuk is the Chain of Rocks above St. Louis.

As a result of its efficient system, the lock can be filled or emptied in about nine minutes, the same time required to fill or empty one of the 600 foot locks with a 10 foot head. Therefore the new lock handles about seven times the quantity of water as one of the 600-foot locks in the same time.

The old lock, which it replaces but which will be retained for emergency and auxiliary use for small craft, has been one of the most serious bottlenecks on the upper river. Only 358 feet long, but as wide as the new, three or four lockages were required for the longest tows. In addition its filling emptying systems are very slow with about 18 minutes required to fill the chamber. On the basis of a study

made in 1951, the average tow required three hours and six minutes to pass through the old lock. It now takes the largest less than 30 minutes.

9,300 Tons in 1913

When the old lock was completed in 1913, it handled 9,300 tons of traffic, mostly packet steamers. In 1950 it was called on to pass 312 small boats and 1,189 commercial tows carrying 4,117,000 tons of cargo. Last year a total of 6,287,000 tons passed through the antiquated structure.

In addition to its outmoded size and slow operation, the old lock was nearing the end of its economic life and deterioration of the concrete around gates and valves has been the principal item in the high maintenance costs in recent years.

Repairs Costly

In its first 20 years major repairs averaged \$1,500 a year.

In the next 10 years they reached \$2,600 a year. Between 1947 and 1951 it was necessary to spend \$19,500 a year for major repairs and in 1952 a total of \$256,000 was spent for removal of bad concrete around the miter gate anchorages and for strengthening the anchorages.

Construction of the new lock, costing approximately \$13½ million, about \$5 million below the original estimate, has been carried out in four phases.

Start in 1952

Work started in November of 1952 under Stage I with the McCarthy Improvement Company of Davenport the contractor. This provided for the construction of a lower land wall, lower river wall and rock excavation of the lower lock approach. These guide walls pass through the municipal bridge and encase the drawspan pier.

The stage II contract was let to the J. A. Jones Construction Company of Charlotte, N. C., in April of 1954. This was the main contract and provided for the lock proper and esplanade area which was virtually completed last winter.

Other Contracts

Stage III contract was for mechanical and electrical equipment and this went to the Oilgear Company of Milwaukee, Wis. Stage IV involved the installation of the power, control and lighting systems and was awarded to the Evans Electrical Construction Company of Omaha, Nebr.

The J. A. Jones Company is responsible also for work on the esplanade and parking areas and landscaping. All work was under the personal supervision of Norman E. Alton, residential engineer for the Corps of Engineers.

Long Guide Walls

Although the lock chamber

itself is 1200 feet in length the walls extend much farther below and above. The lower land wall is 605 feet long, the lower river wall 532 and the upper land wall 2337.

The upper guard gate is 116 feet wide and 21 feet high and the weight of its moving parts is 210,000 pounds. The upper service gate is 117 feet wide and 27 feet high with the weight of its moving parts 225,000 pounds.

Giant of the gates is the lower miter gate with two leaves, each 61 feet wide and 52 feet high. Each leaf weighs 376,000 pounds for a total of 752,000 pounds of 376 tons.

Little Power Needed—

Gravity Both Fills and Empties New Lock

Despite the breath-taking size of the new Keokuk lock, 1,200 feet long by 110 feet wide and containing more than 5 million gallons of water when filled, it both fills and empties by gravity and no power is required aside for the opening and closing of the gates and valves.

The upper gate is used to supplement the intake culverts by lowering it slightly and allowing the water to spill over its top from Lake Keokuk above.

Huge Culverts

It is equipped with lock wall culverts, 14 feet 6 inches by 17 feet at filling and emptying laterals, Tainter valves in the wall tunnels 14 feet 6 inches by 15 feet 6 inches, eight streamlined intake ports in the upper service gate sill, 9 feet 6 inches by 15 feet; 20 tapered concrete culverts with many perforations built across the floor of the lock chamber and connected to the large wall culverts for filling.

These tapered culverts, plus the stub culvert discharge the water from the chamber into 12 tapered culverts outside the chamber and thence into the lower river when the lock is emptied.

Little Disturbance

Because of the many intake openings, the huge chamber is

filled with little visible disturbance of the water in sharp contrast to the old lock in which the water seethed upward in big boils which subjected small craft to severe shaking.

Operation of the lock in passing traffic from one level to the other—a difference of 38.2 feet at low water stages—is as follows:

Upstream Passage

With the water level in the lock at the lower pool stage and with the upper gates and all Tainter valves closed, a boat going upstream may enter the chamber through the open lower gates which fold into the lock walls.

The lower gates are then closed and the upper filling Tainter valves opened. These allow the water to flow through the intake ports in the sill of the upper gates, through the culverts in the lock walls, through the tapered lateral culverts in the lock floor and out into the chamber.

The lock will fill to the level of the upper pool in about 10 minutes. The upper gates are then opened, permitting the boat to proceed upstream.

Reverse Process

For passing boats down stream it is only necessary to reverse the operations, that is, after the boat has entered the

Communication Setup Complex in New Lock

Opened to traffic for the first time on May 14 of this year, Keokuk new 1200 foot lock, twice as long as any other on the Upper Mississippi, requires a complex communication as well as operating system.

With machinery rooms below the top of the lock wall at each end, galleries in the walls connecting the machinery rooms at each end and other galleries crossing beneath the lock to connect the two walls by a subterranean passageway, two internal communication systems are used.

Voice Paging

A voice paging system has 21 indoor speakers carrying to the machinery rooms and galleries. Nine outdoor speakers carry instructions to lockmen on top of the walls as well as to tows entering the lock.

In addition an internal telephone system provides five permanent stations which can be called by selective ringing and 42 stations where phones can be plugged into the system.

Communications with places distant from the lock are also available through two channels. Regular commercial telephone service is available and a ship-to-shore radio permits two-way conversations with tows approaching the lock and with the government plant.

Special Devices

Tows approaching the lock contact the lockmaster, Don

Pullen, by radio and inform him of the expected time of arrival. The lockmaster then informs the pilot of other vessels in the vicinity and possible delays in entering.

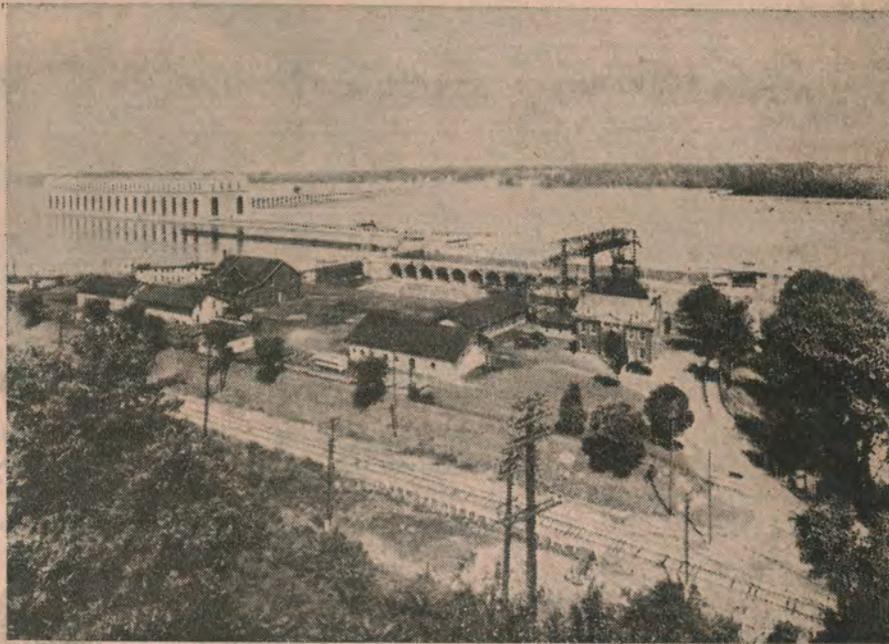
Special signaling devices are also available. A large air horn located on the lock is used to signal tows when to enter or leave. A small boat signal is

located downstream from the lower miter gates. These gates will tower about 45 feet above the downstream water level and small boats approaching from the downstream side could easily come in below the gates without being seen by the lock force. A signal button can be pressed by the small boat operator so that the lock force will be informed of his presence.

Fire Alarms

An emergency signal is also

installed. Special fire alarm buttons are available at each control stand. It is considered that the only place where a large fire can occur is on a tow in the lock chamber. With the alarm buttons at the control stand where the lock operator is on duty, a signal can be given immediately in the event of fire. Two sources of water will be used to fight fires, one from the city of Keokuk and one from a pumping system installed at the lock.



KEOKUK BOAT YARD as it looked July 20, 1945 in a Corps of Engineers photo.

The brick building at the right, designed like a home, was the office of the engineers for many years and the other buildings were shops, etc., for the boat yard crews. They were torn down to make way for the new lock which occupies much of the area.

lock the upper gates and filling valves are closed, the lower emptying valves are opened and the water flows from the chamber through the lateral culverts, wall culverts and out the discharge culverts.

When the water reaches the level of the lower river, the miter gates swing open and the boat is permitted to go on downstream. Emptying time is about nine and one-fourth minutes.

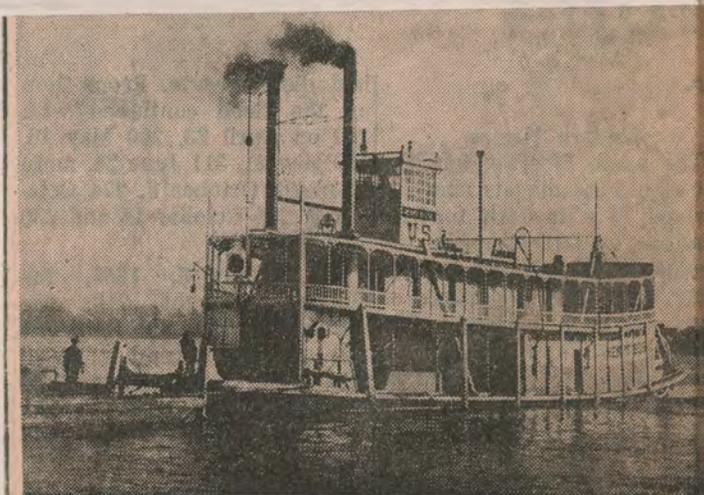
Guard Gate at Bridge

Immediately upstream from the upper service gate of the lock, is another submersible verticle lift gate which serves

as an emergency gate in case of failure of the service gate. This guard gate is provided with seals so that it can function as a part of the unwatering system.

In addition it serves as a bridge in the roadway to the drydock, the existing lock, both on the river side of the new chamber, and to the power house of the Union Electric Company.

The old drydock will be continued in use on a limited basis and the old lock will be used for auxiliary and emergency purposes. At present it is being used for small craft.



MANY STEAMERS have been sunk on the Mississippi river since the Virginia chugged her way upstream to open navigation, and among those submerging here was the Henry Bosse which sank on the Keokuk river front August 19, 1913.

"THE GREAT DUST HEAP CALLED HISTORY"
R. J. BICKEL KEOKUK, IOWA

Ceremony Will be Preceded by Colorful Parade at 2 O'clock

Started in the fall of 1952 and opened to traffic for the first time on May 14 of this year, new lock No. 19 at Keokuk, twice as long as any other on the Upper Mississippi at 1,200 feet, will be dedicated in brilliant ceremony studded by high army brass next Monday afternoon at 3 o'clock.

The event, coming within three days of the 80th anniversary of the opening of the first "bottleneck" to commercial traffic on the Mississippi (the dedication of the old government canal around the Des Moines Rapids here August 22, 1877), will be held on the riverfront at the foot of Main street, just below the lock in Victory Park.

Guest Speakers

Principal speakers during the ceremony will be the Hon. Dewey Short, long time congressman from Missouri who now holds office of Assistant Secretary of the Army for civil and military affairs; Maj. Gen. Emerson C. Itschner of Washington, D. C., Chief of Engineers; and Gov. Herschel C. Loveless of Iowa.

They, together with other distinguished visitors, will be entertained earlier in the day at the Keokuk Country Club, starting at 11 o'clock with a hospitality hour and followed by a luncheon at noon.

Bands, Drum Corps

At 2 o'clock a festive parade, sparkling with the music of three bands and measured cadences of two drum and bugle corps, will march down Main street from Fourteenth and proceed to the riverfront for the dedication.

It will be headed by the Senior high school marching band, sharpened by a summer of study and drill, and include the combined Bonaparte-Selma band, the Quincy, Ill. Debanters, girls drum and bugle corps of the Veterans of Foreign Wars, and the Quincy Trojans, drum and bugle corps of the American Legion.

Also in the line of march will be units from Keokuk veterans groups, two units of Keokuk baton twirlers, Keokuk Saddle Club riders and Com-

pany C of the Iowa National Guard.

Army Personnel

Army personnel here in addition to General Itschner and Short comprises, Brig. Gen. L. J. Rumaggi, division engineer of the North Central division; Lt. Col. G. E. Galloway, Missouri division engineer; Capt. P. T. Boerger, aide to General Itschner; Lt. Col. John L. Wilson, district engineer at Rock Island; H. Gordon Hanson,

(Continued on Page 18)

chief technical liaison officer, North Central division and Richard A. Hertzler, chief civil functions office of the Assistant Secretary of the Army.

The group will be met at the Burlington airport Sunday by the Hubinger Company plane and flown to Keokuk.

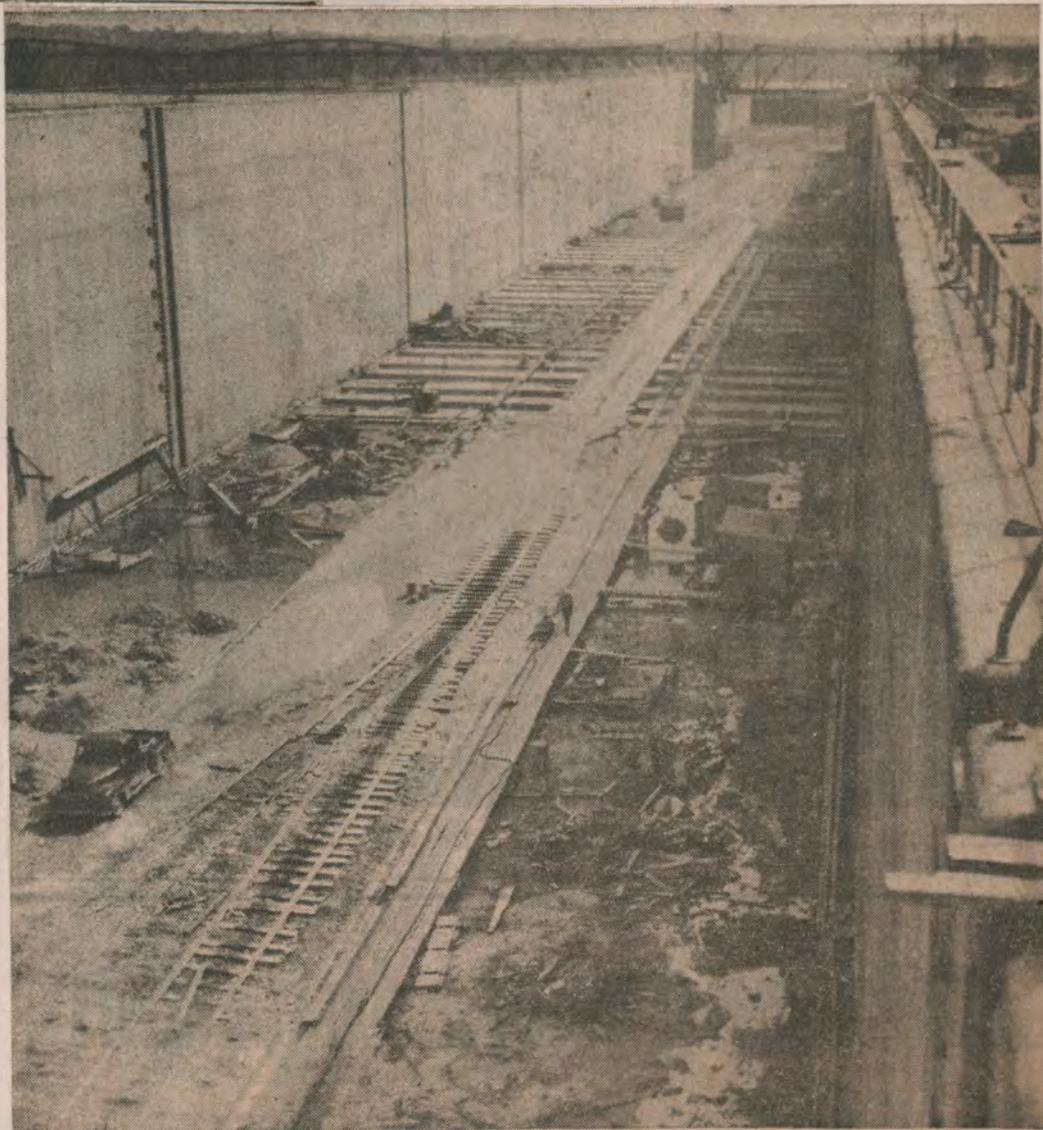
Weissenburger Emcee

Roy L. Krueger, co-chairman with Walter A. Miller for the lock dedication, will open the ceremony in Victory park with G. L. Weissenburger serving as master of ceremonies. The Keokuk Municipal band, directed by Elmer Dickson, will open the program with the Star Spangled Banner, and the Rev. Omer Kiefer will give the invocation.

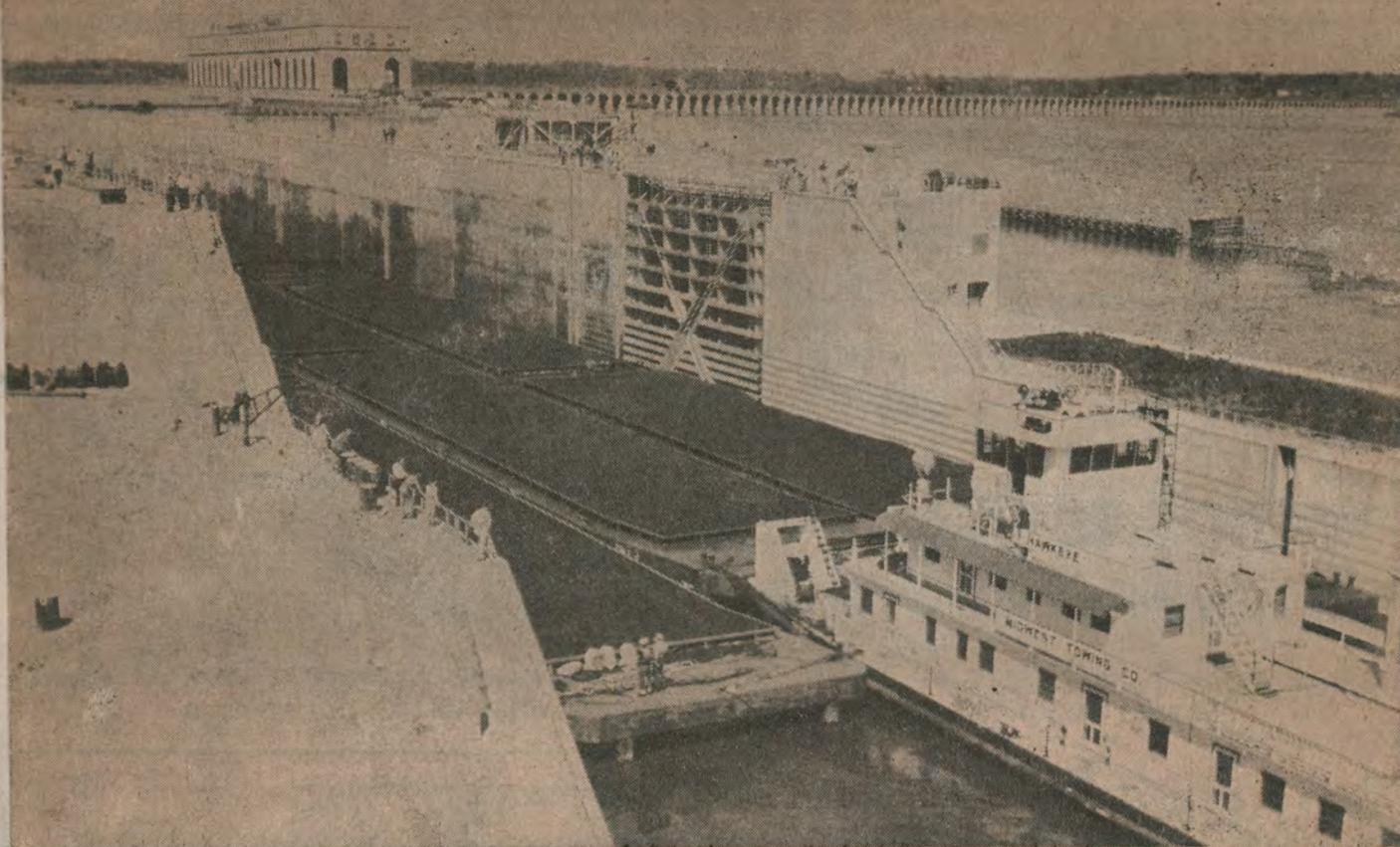
The welcome will be given by Mayor James F. O'Brien and after the introduction of guests, Governor Loveless will officially open the new lock. General Itschner will speak

on "Opening a Gateway" and Dewey Short on "Men of Vision" after which Krueger will make closing remarks. The benediction will be given by the Rev. Roy W. Pfaff after which the band will play God Bless America.

The U. S. Corps of Engineers will hold open house at the new lock throughout the day, from 9 a. m. to 6 p. m. with guides available to conduct visitors throughout the structure.

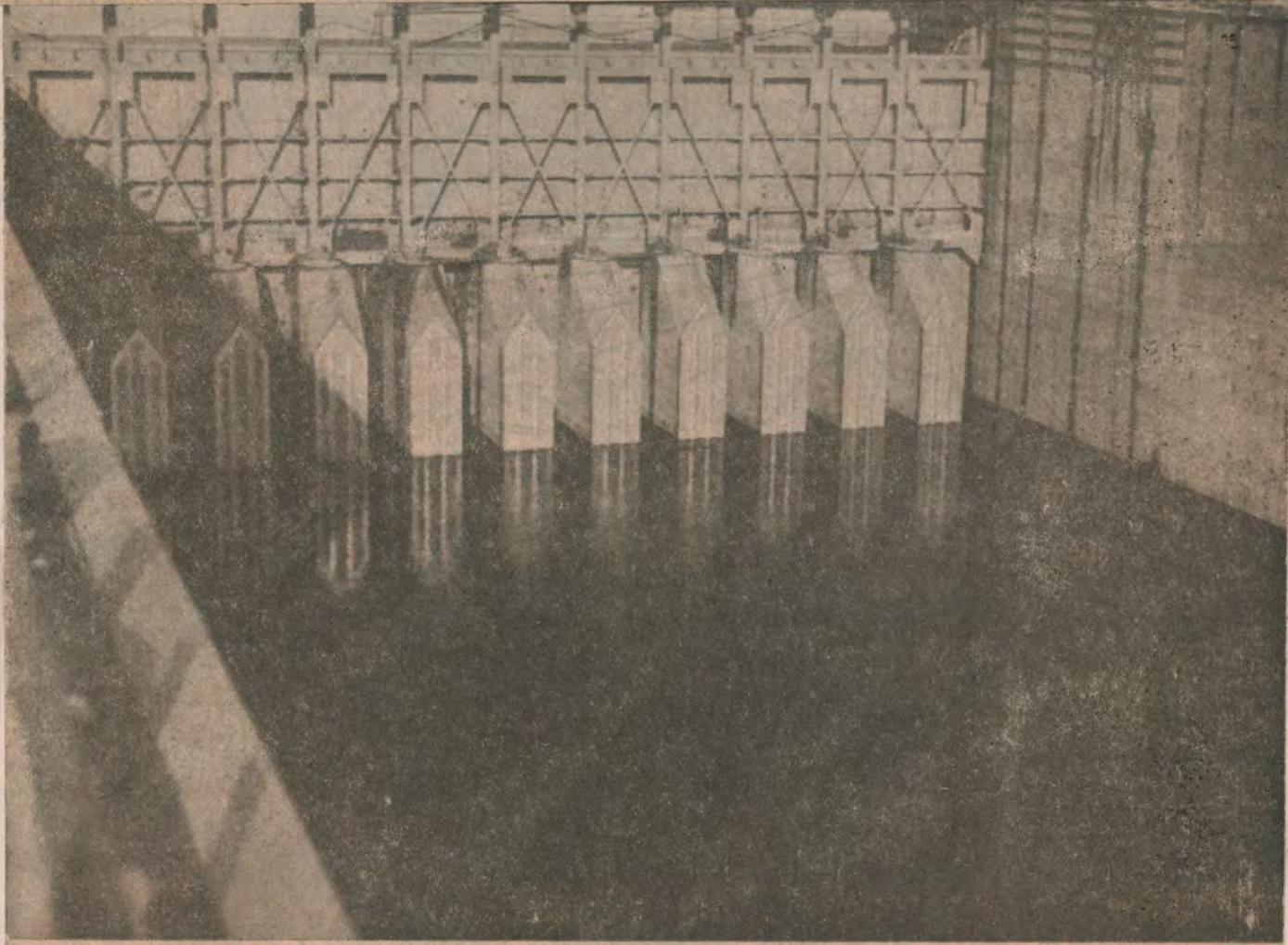


DURING AUGUST of 1956 completion of Keokuk's new lock was close at hand although concrete was still being poured in the mammoth chamber. The tracks down the center were for the crane and railroad to bring concrete.



GETTING THE JUMP on all other towboats the new Keokuk lock was the Midwest Towing Company's Hawkeye. Although the lock did not officially open for traffic until

May 14, the Hawkeye, a new boat with its tow of 18,500 tons of coal on 12 barges, was taken through because of temporary operational difficulties in the old lock.



Upper Submersible Gate on the New Lock

THE GREAT DUST HEAP CALLED HISTORY
R. J. BICKEL KEOKUK, IOWA

Bridges & Rivers Index

- Brewer, C.W.H. 163-164
 Bridges, Sam G. 123, 148
 Bridgman, General A. 7, 24, 115-116
 Bridgman, William 38
 Broeckert, Don 50
 Brown, Mr. 35
 Brown, D. 175
 Brown, H.T. 130
 Brown, Capt. Jos. 164
 Brown, Joseph 114, 163
 Brownell, W.A. 116, 121
 Brunat, H.A. 58
 Buchan, R.L. 125
 Buchanan, William C. 163-164
 Buckeye Foundry & Machine Shops 113,
 145, 161
 Buel, Hamden 115-116
 Buell, Ed 8
 Buena Vista Ferry 61-62, 67, 72,
 76-77, 79-80,
 82-83, 87, 92
 Bulman, E.E. 136
 Burger, Mrs. 70
 Burk, John 123, 147
 Burke, Arthur E. 39
 Burkitt, William 116
 Burley Steam Drill 166
 Burnham, Major A.H. 20
 Buss, John 5, 47
 Bussey, General 114
 Califf, C.C. 130
 Califf, J.A. Jr. 130
 Cameron, James 29, 47, 110, 129
 Cameron-Joyce Construction Co. 55
 Campbell, Alderman (1871) 61
 Canal-Mississippi River (see
 Keokuk Canal)
 Cannon, Joe 191
 Carl, A. 17
 Carnegie, Andrew 1, 12-13, 21-23,
 29, 31-32, 34, 37,
 40, 62, 86, 88
 Carnegie, Mrs. Andrew 36
 Carpenter, John 40
 Carpenter, John R. 33, 161
 Carrell, Dale E. 38, 58
 Carroll, James 22
 Carter, Capt. A.J. 163-164
 Carowallo, Joe 136
 Case & Van Wagener Stone Quarry 122,
 147
 Casley, Harold 47
 Cassaing, E.H. 164
 Celleyham, M.P. 61
 Chamberlain, E.C. 164
 Chamberlain, F.B. 164
 Chapman, N.C. 164
 Charnier's Saloon 70
 Chase, Mr. 164
 Chassaing, J.H. 163
 Chicago, Burlington & Quincy R.R.
 (C.B. & Q.) 18, 37,
 56, 81, 85, 88, 113,
 121, 162, 185
 Chicago & Rock Island R.R. 33
 Child, Richard Washburn 134
 Christensen, C. 130
 Christy, J.P. 70
 Clapp, S.F. 85
 Clark, Ben W. 163-164
 Clark, James 165
 Clark, Dr. O.T. 130, 175
 Clark, Sam M. 29, 81, 110-111, 114-
 116, 129, 163
 Clarke, Govenor 131, 191
 Clarke (or Clark), T.C. 7, 23, 25,
 32, 193
 Clarke, Thomas 40
 Clemens, Mollie & Samuel 190
 Clendenin, H.W. 115
 Cole, John H. 1, 8, 29, 32, 79, 86,
 110, 129
 Cole, Nathan 114, 164
 Cole, Miss Ora B. 58
 Collier, Alex 116
 Collier, D.A. 110, 129
 Collins, Mr. 164
 Collins, W.B. 29, 63-64, 71-72, 74,
 76, 110, 129
 Colter, Jake 7, 24, 28
 Columbus, Chicago & Indianapolis Central
 R.R. 40
 Comegys, C.P. 111, 116, 121, 137, 139, 161
 Comstock, C.B. 141, 149
 Conklin, Alderman (1871) 61
 Connable, A.L. 65, 72, 81, 116
 Connell, Dan 123, 148
 Cook, H.D. 130
 Cook, William 130
 Cooke, Clifton 90
 Cooper, D.P. 130
 Cooper, Elizabeth & Agness 109
 Cooper, Hugh L. 29, 109-110, 125-135,
 139, 192
 Copeland, Hugh 69, 92
 Corey, C.P. 136
 Cory, C.P. 136

Bridges & Rivers Index

- Covered Bridges 1-4
 Cox, James F. 16
 Craig, John H. 64-65, 72-74, 81, 116
 Craig, N.E. 130
 Craig, Theodore A. 133
 Crane, Fras. W. 163-164
 Crawford, Mr. 12
 Crestensen, Dr. 136
 Crickett, Mr. 81
 Cross, Rev. 164
 Crowe, J.C. Jr. 130
 Cruger, Mr. W.H. 12, 16
 Cunningham, W.H. 12, 16
 Curtis, J.L. 62
 Curtis, Samuel R. 63, 99, 153, 159, 167,
 Curtis, T.C. 7, 23, 32 190
 Cuzzins, Mr. & Ella 164
- Dadant, C.P. 11, 29, 139
 Dadant, Robert 47
 Damon, C.P. 164
 Daniel, W.B. 136
 Daugherty, J.F. 71, 73-74, 76, 84,
 86, 92, 110, 116,
 129
 Davidson, Commodore 113-116, 135,
 162-164
- Davidson, J.M. 114
 Davis, Anne 136
 Davis, C.F. 116
 Davis, Frank W. 110, 129
 Davis, J. 141
 Davis, J.B. 130
 Davis, James C. 29, 33
 Davis, Sam 84
 Dawson, H. 130
 Dawson, M.D. 125
 Decker, A.C. & Mrs. 136
 Delahoyde, H.R. 178
 Delaplin, J.W. 86
 Delaware Bridge Co. 85
 Demple, George A. & Vivian 136
 Denholm, John 130
 DeSantis, Camille 130
 Des Moines Rapids (Mississippi River)
 31, 33, 99-107, 112-115,
 119-124, 135, 137-147,
 149-151, 153-168, 187
 Des Moines River Bridge 8, 22, 25,
 31-32, 55-92
 Des Moines Valley R.R. 17-18, 23-
 24, 32, 40, 88,
 193
- Devaney, T.F. 130
 Dickinson, L.E. 175
 Dickson, Elmer 203
 Dike Road 1, 5, 48, 50, 53, 88, 197
 Dimelow, H.K. 130
 Diver, Mrs. James B. 58
 Dodd, H., W. 114
 Donnell, W.A. 63, 65, 68, 81
 Douglass, William 99
 Downing, James F. 114
 Drake, General F.M. 61
 Drummond, Miss 136
 Dull, J.J. 99, 101, 154-155
 Dull & Williams 124, 148, 163
 Dunlap, W.H. 116
 Dunlavey, E.F. 90
 Dunlevy, A.C. 164
 Dunn, John W. 164
 Dunne, Gov. 131, 191
 DuPont, I.E. & Co. 90
 Durham, Capt. C.W. 114-115
 Dutcher, J.V.W. (or I.V.N.) 163-164
- Eagle Mills 70
 Earl, B.F. 38
 Ebersole, E.A. 38-39
 Ecker, J.D. 136
 Edmunds, Judge G. Jr. 73-75
 Edsell, R.D. 1, 32, 35-39, 41, 130
 Edwards, Capt. 81
 "Effie Afton" (steamboat) 33
 Egan, Father 178
 Eichelberger, T.W. 116
 Eicher, E.C. 57-58
 Elder, J.F. 136
 Elliott, N.S. 163
 Elliott, R.S. 164
 Enders, August 123, 148
 Estes, J.C. 71, 75-76, 84, 92
 Evans Electric Co. 200-201
 Ewing, Dr. H.E. 178
- Fanning, Elizabeth 136
 Farrar, Capt. William F. 164
 Fascinato, Mr. 58
 Faulkner, H.S. 130
 Ferguson, A.C. 178
 Ferguson, William 17

Bridges & Rivers Index

- Ferry Boats (Keokuk-Hamilton) 1,
7-8, 15-16, 20, 27, 32
- Filley, O.C. & C.I. 164
- Findley, Paul 30, 46
- Finegan, Thomas 123, 148
- Finley, Col. G.A. 40
- Fitch, George 135
- Fitzgerald, Frederick 123, 148
- Flanagan, W.E. 130
- Fletcher, Dan 120
- Flood (Ice gorge-1883 Des Moines
River) 69-70, 87
- Floyd, Major J.G. 153, 159
- Ford, Tim 84
- Forker, M.A. 141
- Frederick, H.G. 130
- Freeman, Col. Delbert B. 178
- Fries, Edward H. 178
- Fulton, James 136
- Fulton, James M. 1, 32, 39
- Fyffe, John 7, 24
- Gabriel, William 137, 191
- Gallagher, Jas. 71, 76, 86, 92
- Galland, Washington 14
- Galland (town) (see Nashville)
- Galloway, Lt. Col. G.E. 203
- Gamble, George P. 125
- Gamble, W.T. 130
- Garrett, J. Tracy 57
- Garrison, Secretary of War 191
- Garrotte, P.A. 164
- Gay, Ross 58
- Gebhardt, Mrs. Dixie Cornell 58
- George M. Verity Museum 125-126
- Gesler, Col. E.E. 184
- Gibbons, John 71-72, 75-76, 116
- Gibson, S.A. 130
- Gifford, Capt. T. 192
- Gilles, R.G. 141
- Gillette, Senator 38
- Gillmore, R.H. 116
- Gillmore & Anderson 72
- Gilman, Theodore 1, 34, 86
- Gindele, J.G. 100
- Githens, Dr. William 118, 144
- Givin, John 7, 24, 69
- Glaser, F.G. 136
- Golden Eagle 114-116, 162
- Good, Misses 164
- Gordon, R.S. 29
- Gordon, Samuel 118
- Gossett, Mrs. Lillian A. 36
- Grant, James 163
- Gray, D.W. 136
- Gray, T.P. 136
- Greene, J.H. 116
- Gregg, Andrew 164
- Gregg, Cephas 33, 163
- Gregg, Thomas 144
- Griffey, F.L. 136
- Griffin, A.L. 13
- Griffith, Capt. James F. 9-13
- Griffith, Jos. 112
- Griffith, Capt. Thos. H. 164
- Griggs, T.V. 22
- Gross, D.A. 178
- Guiles, James 130
- Haarstick, H.G.C. 163
- Hagerman, James 66, 72, 116
- Hagley, A. 123, 147
- Hagny, A. 81
- Hain, Col. F.K. 116
- Hale, O.C. 116
- Hall, J.W. 130
- Hamill, L.A. 29, 110, 129, 136
- Hamill, Smith 16, 63, 116, 136
- Hamilton, Mr. 164
- Hamilton, F.W. 78, 80
- Hamilton, Illinois 5, 118
- Hancock County Bridge Co. 7, 23, 39, 193
- Hanson, H. Gordon 203
- Hardesty, Alderman 61
- Hardin, E. 63, 116
- Hardin, Mrs. John R. 109
- Harding, S. 130
- Harrington, Dan 141
- Harrington, Timothy 175
- Harris, Lt. Gov. 57-58
- Harrison, Alderman 61, 116
- Harrstick, H.C. 164
- Harter, W.J. 136
- Harvey, Pete 200
- Hassell, George 136
- Hassett, Robert 70
- Hatton, Frank 114
- "Hawkeye" (1957 towboat) 179, 204
- Heinck, Madame Schumann 127
- Henderson, W.W. 164
- Henegan (or Hannigan), William & John 99,
101, 118, 145,
154, 160
- Henke, Kenneth Jr. 46

Bridges & Rivers Index

- Keokuk Canal (Des Moines Rapids)
31, 99, 107, 111-115, 117,
119-121, 124, 137, 139-
141, 145-146, 153-166, 203
- Keokuk Dam & Powerhouse 109, 126-
136, 139-140, 191,
201-202
- Keokuk Dry Dock 111, 141-145, 149-152
- Keokuk Electro-Metals Co. 126
- Keokuk-Hamilton Bridge 1-54,
86, 91, 162-
163
- Keokuk-Hamilton Bridge Co. 1,
3-4, 7-8, 10-13,
16-18, 23, 26,
31-40, 44, 86,
193
- Keokuk Harbor 111
- Keokuk Municipal Bridge 37-54
- Keokuk Northern Barge Line 114, 120, 162
- Keokuk Steel Casting Co. 126
- Keokuk Water Power & Canal Co. 144
- Ketcham, V.O. 130
- Keystone Bridge Co. 7, 20, 23-24,
26-27, 29, 32, 40,
68, 193
- Kiedaisch (or Kaidaisch), J. Albert
135-136, 191
- Kiefer, Rev. Omer 203
- Kilbourne, David W. 7, 16, 24,
112, 138, 167
- Kilbourne, Edward 83, 112, 167
- Kilbourne, George E. 7, 24, 112, 138
- King, Roy 136
- Kingston, R.E. 130
- Kirby, E.B. 163
- Kirkwood, George 17
- Kiser, H.C. 38
- Kittle, Capt. J.W. 71-74, 76,
84, 92, 121-122
- Klapprott, Buzz 51
- Klein, Samuel 116
- Klepper, F.G. 136
- Knapp, Shephard 164
- Knies, Miss 58
- Knoff, A.F. 89, 97
- Koch, L.J. 38
- Kornfeld, Harry 130
- Kraschel, Gov. Nels G. 57-58
- Kritchell, J.C. 136
- Krueger, Roy C. 203
- Krummenacker, C. 130
- Laclede House 116, 123
- Lake Cooper 191
- Lamb, James 20
- Langdon, Add. L. 114
- Lawrence, Mr. 164
- Leathe, S. 164
- LeBron, Frank 130, 135-136
- "LeClaire" (1876 towboat) 1
- Lee, General Robert E. 33, 99, 118, 126,
145, 153, 159,
168
- Lee County (1875) 63, 68, 81, 85
- Lee County Historical Society 109
- Leighton, Col. William 1, 7, 16, 21, 24,
31-32, 86, 112,
115-116, 167
- Leindecker, John 61, 71, 73, 76, 92
- Leroy, E.E. 47
- Lewis, Deslie 58
- Lewis, Major 61
- Lewis, General Lewis A. 40
- Lincoln, Abraham 33
- Lincoln, Robert T. 40
- Linville, J.H. 20, 40
- Lloyd, Sam M. 130
- Lock #19 (Mississippi River) 168-173,
176-190, 194-
195, 196-209
- Locke, G.E. 136
- Logan, Judge William 29, 109-110, 129,
135, 139, 192
- Logan, W.A. 5, 36-37, 39, 41-42, 46-47
- Long, Fred W. 89-90, 93-97
- Louderman, H.B. 164
- Lourie, Bowman & Boyer 8
- Love, Henry K. 16, 112
- Love, J.M. 144
- Loveless, Herschel 203
- lowenstein, Frank 136
- Lowry, D.G. 86, 116
- Lucas, Mike 175
- Lyon, Gus 123, 148
- Lyons, T. 167
- Lytle, William 161
- M. & M. Railroad (also Glasgow Road) 61,
72
- Maas, Sheriff 90
- McAfee, J.W. 125
- McCarthy, J. 130
- McCarthy, Tom 186

Bridges & Rivers Index

- McCarthy Improvement Co. 131-132,
 186, 188, 195, 200-201
 McCoid, Moses A. 111
 McCrary, Mr. 141, 149
 McCrary, George W. 148, 163, 190
 McCrary, George W. 40, 123
 McDoel, W.H. 7, 24
 McDonald, Mr. 122, 147
 McDowell, Charles N. 163
 McDowell, Col. J.A. 61, 81
 McGavic, Willaim S. 144
 McGrim, John 123, 148
 McIntyre, B.F. 22
 McKenzie, Major 141, 150-151
 McKenzie, Alex 130
 McKenzie, Edna 136
 McKenzie, William 71, 76, 92
 McKinley, Leo 130
 McLean, Justice 33
 McLeod, A.A. 166
 McManus, E.W. 135
 McManus, E.W./P. 58, 163
 McManus, T.F. 136
 McNurtny, Mr. 27, 68
 Macomb, Col. J.N. 114-116, 118, 121,
 124, 145, 155,
 162
 McQuade, John & Sam 69
 Madison, Ed 5
 Mahan, Dulaney 57
 Mahin, John 114
 Major, Govenor 191
 Manley, T.J. 130
 Mannion, P.P. 164
 Mark Twain 31 (see also Clemens)
 Marsh, B.F. 139
 Marsh, R.O. 40
 Marshall, Maude 136
 Marshall, Vice President 191
 Martens, H.B. 141
 Martin, Thomas 38
 Mason, Charles 112
 Massengale, H.I./T. 163-164
 Matless, Leonard 136
 Mattison, John 47
 Maxwell, Elsa 190
 Maxwell, G.E. 38
 Maxwell, Robert 121
 Meeks, Edith 136
 Meigs, Cornelia 136
 Meigs, Major M. 33, 40, 111, 114-
 115, 118, 136, 141,
 145, 152, 167, 186
 Mekemson, Harold 47
 Melving, H. 164
 Merchants Exchange (1877-St. Louis) 116,
 163-164
 Merriam, B.S. 61, 80
 Metcalf, L.S. 164
 Middleton, Major 121
 Midwest Carbide 126
 Midwest Towing Co. 179, 204
 Miller, Mr. 71
 Miller, Mayor 124
 Miller, Samuel F. 144, 190
 Miller, Walter A. 203
 Miller, Walter J. 38
 Miller Construction Co. 5
 Mills, R.M. 130
 Mills-Ellsworth Co. 136
 Milspaugh, S.E. 136
 Miranda, Sherman 89
 Mississippi River Power Co. 136, 139-140,
 168, 175, 192
 Mississippi Valley & Western R.R.
 (M.V. & W.) 61-62, 80, 85
 Moffet, Andy 123, 148
 "Montana" (1877 steamboat) 112-116, 162
 Montrose Harbor (1882) 111, 113, 119,
 137, 145, 153
 Moore, A.R. 164
 Morley, Charles 22, 77
 Morris, Fred 69
 Motor Club of Iowa 46
 Mozosoff, Capt. P.A. 192
 Muir, Dr. Samuel C. 190
 Mundy, Carl L. 39
 Murphy, Mr. 26

 Nagel, John 135
 Nash, L.S. 116, 123
 Nashville (formerly Galland) 99-101,
 103, 105, 107, 113, 118-
 119, 122, 145, 153
 Navigation & Hydraulic Co. of the
 Mississippi Rapids (1866)
 112, 167
 Nelson, Charles 141
 Nelson, L.R. 178
 Nelson, Otto 123, 147
 Nevin, Mr. 164
 Newkirk, John 38
 Newman, Judge T.W. 71-72, 74
 Noble, Alice 136
 Nolan, F.A. 130
 Nolen, John 120, 123, 148
 Noline, August 123, 148
 Norman, Lloyd 39
 "Northwestern" (1877 steamboat) 114-116,
 162

Bridges & Rivers Index

- O'Blennis, John 69, 92
 O'Blennis, L.L. 22, 69, 87, 91-92
 O'Brien, James F. 91, 125, 203
 Ogilvie, George 7, 24
 Oilgear company 201
 Oren, Andrew 123, 147
 Atley, Col. 7, 23, 25, 32, 193
 Overman, Lewis C. Jr. 100, 104,
 137, 165
 Owen, Ephraim 124, 148, 154,
 163, 165
 Ozanowsky, Capt. W.W. 192
- Paddock, Mr. 164
 Pagett, David 118
 Palmer, Gov. 100
 Palmer, D.R. 130
 Park, Gov. 57
 Parker, S.R. 29, 139
 Parsons, B.H. 130
 Parsons, G.R. 61, 81
 Patons, Mr. 1
 Pattee, Peter 167
 Patterson, Col. William 63, 116, 144
 Patterson & Timberman 71
 Paul, J.B. 71, 73-74, 76, 84, 86,
 115-116
 Payne, Morrell 91
 Peck, Col. C.K. 116
 Pelgin, Philip 70
 Penney, W.H. 125
 Pennsylvania Central R.R. 17
 Perry, Col. C.H. 7, 16-17, 24
 Perry, Joe 130
 Petern, J.C. 188
 Peterson, Andrew 123, 147
 Peterson, Gus 123, 147
 Pettit, Mr. 17-18, 20
 Pfaff, Rev. Roy W. 203
 Phelps, Frank 114
 Phillips, Conductor 79
 Phillips, G.C. 70
 Pickett, Dorothy 27-28
 Pond, Alderman 61
 Pond, C.S. 136
 Potter, Peter W. 112, 114
 Poug, P.J. 130
 Prices Creek 149, 162
 Prices Creek Dock (see Keokuk Dry Dock)
 Prouty, N.D. 81
 Pullen, Don 202
 Pyle, N.H. 136
- Quincy Bridge Co. 23, 193
 Quinn, Mr. P.H. 15, 20
 Quinnett, Oliver 164
- Railroad & Wagon Bridge (Keokuk-Hamilton
 1865) 7
- Ralston, W.W. 70
 Rand, George D. 29, 110, 129
 Randle, D.W. 167
 Dandolph, Alderman 61
 Ray, George H. 164
 Ray, Wiley 138
 Reed, W.S. 164
 Reeder, Frank 7, 20, 23-24, 193
 Reeves, Mrs. Winona Evans 58
 Reid, General Hugh T. 7, 9-11, 16-18,
 24, 32
 Reid, R.L. 125
 Reily (or Railey), Branch 139, 161
 Reipe (or Riepe), C.C. 57-58, 90, 95
 Rich, C.M. 135-136, 192
 Rich, Lenore & Marian Lydia 136
 Richards, James 164
 Rickey's Point 122, 147
 River & Harbor Act 40, 118, 141, 145,
 151, 168, 173
 "Rob Roy" (1877 steamboat) 116
 Roberts, J.A. 136
 Roberts, J.R. 136
 Roberts, W.J. 110, 129
 Roch, David 123, 148
 Rodgers, H.N. 188
 Rogers, Capt. Charles 164
 Rogers, Fairman 11
 Rollins, L.F. 136
 Romjue, Milton A. 57-58
 Roosevelt, Pres. Theodore 139
 Root, Col. R. 111
 Rothert, H.W. 61, 80-81, 111, 114-116
 Rowland, D.P. 163
 Royal Russian Commission 192
 Ruddick, Alderman 61
 Ruddick & Schouten Cracker Factory 70
 Rumaggi, Brig. General L.J. 203
 Rust, Major H.A. 79
 Rutledge, G.W. 136

Bridges & Rivers Index

- Sacks, William 123, 148
 St. Louis & St. Paul Packet Co.
 33, 86
 St. Louis Board of Trade 9-11,
 18, 27-28, 164
 St. Louis, Keokuk & NorthWestern
 R.R. 71, 73-75, 78-
 79, 86-88, 92
 "Salina" (1855 ferry) 16, 27
 Salisbury, Dr. J.H. 105-106
 Sample, Hugh W. 112, 167
 Sample, Capt. Sam S. 61, 71, 74,
 76, 81, 84, 92,
 115-116
 Sample, W.S. 138
 Sample & Armitage Co. 7, 22-24, 32
 Sample, McElroy & Co. 113, 145-
 146, 161
 Samuels, Alderman 61
 Sandberg, O.W. 136
 Sanders, Mr. 35
 Sandusky 101, 105
 Sanford, Dr. F.D. 22, 77, 137, 191
 Sanstedt, C.W. 141
 Sapognikoff, General A.W. 192
 Sawyer, Hazen I. 192
 Sayller, Miss 58
 Schneider, Bert 130
 Schouten, Hubert 40, 46-47, 178
 Schoutens Bakery 70
 Schroeder, Robert 130
 Schwengel, Fred 125
 Scott, H.R. 125
 Scudder, John A. 163
 Secor, Zeno 16
 Security State Bank 136
 Selby, Paul 114
 Sellers, Morris 7, 24
 Sellers, M. & Co. 15
 Seville, Charles 47
 Shadle, Frank 141
 Sharlson, N.F. 123, 148
 Sharp, Judge 114
 Shaughnessy, Mike 123, 148
 Shaw, E.F. 130
 Shaw, G.J. 164
 Shearer, Mr. 164
 Sheble, Capt. Ed 163-164
 Sheldon, Mrs. Ralph M. 109
 Shelley, Col. J.M. 63, 116
 Sheridan, William R. 37, 39, 46-47
 Sherwood, Mrs. Roy 175
 Shields, Thomas W. 163
 Short, Dewey 193, 203
 Short, E.A. 130
 Shotts, H.M. 7, 20, 24
 Shryack, Lee R. 9-10
 Silver, John 123, 148
 Skinner, E. 17
 Smith, B.H. 71, 73, 76
 Smith, C.E. 130
 Smith, Charles 80-81
 Smith, D.K. 13
 Smith, E. 164
 Smith, G.W. 136
 Smith, H.H. 130
 Smith, Joseph 126
 Smith, Joseph S. 7, 9, 11, 15, 17-20, 23-
 26, 32, 40, 62, 72,
 88, 193
 Smith, Miss Mayme 136
 Smith, Ralph 144
 Smith, Wallace 22, 77
 Smith, Will G. 164
 Smyth, George B. 81, 116, 144
 Snyder & Johnson Construction Co. 55-57
 Soap Creek (7th Street) Bridge 93-97
 Sonora Quarry Co. (1870) 15
 Souther, Mr. 164
 Southern Iowa R.R. Contracting Co. 88
 Sparks, E.L. 58
 Spear, C. 123, 148
 Speck, Judge Charles 164
 Spence, John T. 29
 Stack, James 137, 191
 Stannus, Mr. 81
 Stanton, Mr. 100
 Stearne, Mr. 138
 Steifel, C.A. 164
 Stickney, Major 113-116, 119-121, 135,
 141, 145-146, 149, 151,
 156, 160-162
 Stoddard, John 17
 Stone, Sandie 80-81, 116
 Stotts, Coroner 22, 77
 Stotts Mill 100, 122, 147
 Strahn, Loren 47
 Stranahan, Harris & Co. 38
 Strawberger, Jas. 164
 Stripe, W.C. 121, 149
 Strong, Henry 16
 Sullivan, Peter 139
 Summer, A.A. 70
 Sutlive, Birdwell 35
 Sverdup, Parcel 38

Bridges & Rivers Index

- T.W. & W. R.R. 15, 24
 Taber, B.P. 29, 110, 116, 129
 Talbot, L.R. 130
 Talbot, William 109, 200
 Tate, M.E. 58
 Teasdale, J.H. 163
 Thanet, Octave 22
 Thayer, Judge 19
 Thomas, J. Faulkner 36-37, 39, 41,
 46-47
 Thompson (or Thomson), Edgar 18, 40
 Thompson, William 16, 44
 Thomson, Mr. 1
 "Tidal-Wave" (1879 steamboat) 120
 Tieke, H. 71, 76
 Tigerville 62
 Tillson, General John 61
 Timberman, William 65, 81, 86, 115
 Tobie, Charles E. 165
 "Toledo" (1869-ferry) 7-8
 Toledo, Peoria & Warsaw/Western R.R.
 7, 12-13, 16-17, 24,
 40 (T.P. & W.)
 Toledo, Wabash & Western R.R. 18,
 24, 40, 88
 Tolls (Bridge) 43-46, 85-86
 Tow Boats 16
 Traverse, J.H. 87
 Treat, Judge 164
 Trimble, Benjamin 122-123, 147
 Trimble, Palmer 136
 Tucker, G.C. 136
 Tweston, Fred 37
- Ulfers, H.A. 99-100
 Union Electric Power Co. 5, 47-
 48, 189-190, 202
 United States Corps of Engineers
 40, 139, 155, 167-
 173, 176, 179, 184-
 185, 201-202
 United States Dept. of Transporta-
 tion 46
 Union Iron Mills 15
 Utley, Joseph 100
- Vail, S.S. 116
 Vale, W.J. Co. 167, 186
 Valley R.R. 22
- Vanatta, E. 136
 Van Dyke, Capt. 68
 VanZant, Steve 91
 Vaughn, F.F. 130
 Vestal, Pearl Gordon 118, 144
 "Victory" (1879 steamboat) 120
 Vollmer Bros. Co. 41-42
 Volpe, John 30
 Voorhies, J.O. 86, 116
- Walker, Mr. 61
 Walker, Robert 125
 Wallace, R.R. 29, 139
 Wallbaum, A. 84
 Wallin, Jim 114
 Wanson, C.S. 123, 147
 "War Eagle" (1881 stamboat) 1, 3-4,
 15, 28, 32-
 22, 40, 86-
 87
- Ward, Mr. 8, 26, 91
 Ward, Jas. 163-164
 Ward, John L. 35, 38-39
 Warren, Lt. H.K./S.K./G.K. 99, 145,
 153, 159
- Warrington, S.S. 22, 77
 Watterman, S.J. 164
 Weber, Alois J. 109
 Weber, F.J. 29
 Weber, Marie 136
 Wees, Jack 136
 Weil, J.B. 29, 110, 129
 Weissenburger, G.L. 38, 90, 203
 Weldon, Ramon 125
 Wells, Guy 16, 61, 71, 75, 81, 112,
 116, 167
 Wells, L.E. 130
 Wells, Richard 131, 188
 Wells, Felt & Spaulding 119
 Wells, Timberman & Co. 154
 Welsh, Henry 123, 148
 Wempner, Capt. Albert 33
 Wetzell, Major 151
 Wey, Henry 114
 White, Fred R. 89-90, 97
 Widell Co. 89, 97
 Wiener, John A. 130
 Wild Cat Springs (Hamilton) 118
 Wiley (or Willey), O.S. 121, 139, 161
 Wilkinson, A.J. 116
 Wilkinson & Co. 70

Bridges & Rivers Index

- Williams, George 116, 123-124, 147,
155, 190
- Williams, I.C. 136
- Wilmering, F.A. 136
- Wilmering, Frank 37-39
- Wilson, General 10, 124, 145, 148
(see also Wilson, J.H.)
- Wilson, Mr. 114
- Wilson, J.H. 99-100, 104, 112,
121, 137, 139, 153-
155, 159, 162, 165
- Wilson, James F. 40
- Wilson, General James H. 40
- Wilson, James L. 16
- Wilson, Lt. Col. John L. 203
- Wilson, Scott 57-58
- Wilson, President Woodrow 191
- Winger Bros. Co. 136
- Witmore, A. 164
- Witmore, O.L. 104
- Wood, Gov. 83
- Wood, Jerry 3
- Wooley, William 136
- Worrall, Major J.B. 139
- Worrall, E.H. 20, 78, 100, 104, 113,
116, 120-121, 123,
148, 158, 161-162
- Wright, General H.G. 150-151
- Wright, John 130
- Wyatt, W.H. 69
- Wychrist, Andrew 123, 148
- Wyman, Dr. 116
-
- Yellow Banks (Des Moines River) 61-64, 67, 80, 82
- Yenawine's Mill 70
- Young, D.A. & William 136
- Young, John 1, 32
-
- Zimmer, Louis 175