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# INDIANA CANALS

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Culvert No.100 over Burnett's Creek

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The following was written by Canal Society President Bob Schmidt as a script for Canterbury Green's boat tour of the historic St. Joseph River.

#### HISTORIC HIGHLIGHTS OF THE ST. JOSEPH RIVER

As all visitors to Ft. Wayne soon find out, this is a city of rivers. The St. Joseph, which we are on and the St. Mary's coming from western Ohio flow into the city to form the Maumee which eventually empties into Lake Erie. All of our rivers are relatively short, 100-150 miles, but they defined a most strategic location in the Northwest Territory and played a key role in the settlement of the midwest.

The Indian word for river is "SE-Pe". We find that word today in the name of one of our greatest rivers the Mississippi or "Big River". Our St. Joe was called by the local Indians "Wea Se-pe" or river of the Wea, one of the several Algonquin Indian tribes living in the area. Rivers were the highways for these native americans who lived along their banks. As much as 95% of all the travel was done via waterways.

Perhaps the first European to have visited the Three Rivers area was LaSalle, who may have passed through here in 1670. The French called the Indians they found here "Me Ah Me" and the waterway flowing into Lake Erie the "River of the Me Ah Me". After 1812 settlers shortened the river's name to Mau-mee.

During the past 250,000 years a series of six glacial periods have impacted this area. The ice mass came from the Lake Erie region and proceeded up the Maumee valley. These glaciers like a huge power shovel pushed rock, sand and debris into large ridges that are called moraines. A series of these moraines can be seen between here and Peru, In. The last of these glaciers ended in Ft. Wayne about 10,000 years ago forming the St. Joseph-St. Mary moraine.

The melting of the glaciers produced tremendous amounts of water. The river level was at least 50 feet higher than today. The water formed in front of the ice pack creating the

Maumee glacial lake and poured southwest through the Aboite marsh near Fox Island into the waters of the Wabash River, near Huntington. As the glacier retreated, the Maumee was formed. Both the St. Joe and St. Mary changed the direction of their flow from west to east into the basin left by the retreating ice. This geological phenomenon created a midwest "continental divide". Most of Indiana is drained into the Ohio/Mississippi system except for this extreme area of northeastern Indiana which drains into the North Atlantic. Only 5 feet separate the two drainage systems.

The St. Joseph flows between the St. Joseph/St. Mary moraine on its south bank and the Wabash/Aboite moraine to the northwest. It originates in Hillsdale Co., Michigan, which is about 20 miles from Fremont, IN., where Indiana, Michigan and Ohio meet. The elevation there is about 447 feet above Lake Erie. At this point it is only a small portage to the other St. Joseph River of Michigan which flows through South Bend and on to Lake Michigan at Benton Harbor. Our St. Joe today flows gently, dropping about 2 feet per mile, in a southwestern direction through Williams Co., Ohio, near Monpelier and on to Ft. Wayne a distance of slightly more than 100 miles. At Ft. Wayne the elevation is 197 feet above Lake Erie.

Who were the people that lived near this river? The Pottawatamie lived along its banks. The famous chief Metea located his campsite on the north bank of Cedar Creek where it empties into the St. Joseph near Cedarville. He played a key role in the attempt to capture Fort Wayne during the War of 1812.

Another famous person who is clearly associated with this river was John Chapman, better known as Johnny Appleseed. Today, many people do not realize that he was a real person. His eccentric lifestyle and his love for apples were later transformed into folklore. Born in Massachusetts in September 1774, his father was

a Minuteman in the Revolutionary War and fought at Bunker Hill. Johnny spent his early adult life in western Pennsylvania and continued west into Ohio in the early 1800s. Wherever he went he grew apple trees by the thousands. His travels on the frontier eventually brought him to Fort Wayne where he purchased land in 1834. One of the farms he owned had 42 acres with a nursery of 15,000 trees. You can see he was not a small scale operator as the folklore would lead you to believe. He died on March 18, 1845 at the age of 70 on the Worth Farm, which is documented in the local paper of the time. The question is which Worth farm?, and where was it located. There were Worth's on both sides of the St. Joseph. Some traditions place his death on the west bank near the Wabash-Erie feeder canal, but later evidence suggests it may have been the east bank near the Canterbury Green location. Is he really buried at the grave site location near the Coliseum? No, at best he is buried in that general vicinity on the Archer Farm.

The St. Joseph is not a large river in terms of length or volume of water, but it is of extreme importance to the development of Ft. Wayne. Why was it so important? It was not strategic for transportation. The French and British passing through Ft. Wayne from Detroit came up the Maumee and largely ignored the St. Joseph. It wasn't important to the famous "glorious gate" or portage from the Maumee to the Little River in Aboite Township. This portage was a distance of 7 miles and was the primary reason for the location of the Miami village of Kiskakon, sometimes called Kekionga at the junction of the three rivers. General Hamar and General Anthony Wayne recognized the strategic importance of this carrying place or portage. From 1790 to 1794 they fought to gain control of this key spot from the Indians and to locate a fort at the junction. Being a water source is the primary contribution of the St. Joseph to Ft. Wayne's settlement and growth. It provides twice the water flow compared to the

St. Mary's and its high banks of glacial till provide water storage capability.

After the Indian Wars of the 1790's and the siege of the fort in the War of 1812, the strategic military importance of the small fort village was rapidly declining. The economics of trade with the Indians was all that was left. The last soldiers left the fort in 1819. By 1828 the Indian Agency, a prime source of revenue for traders, was transferred to Logansport, IN. to be more centrally located with the Miami Indians. Fort Wayne only had a population of about 150 people in 1825. The government had opened a land office in October of 1823 which helped, but the primary stimulus for the growth of this city was to be the Wabash & Erie Canal.

George Washington suggested that perhaps after the conclusion of the Indian Wars, a canal similar to those being built out east could be constructed to open trade between the northeast and the Mississippi valley. Indiana had just become a state in 1816. It did not have the financial resources to build a canal, much less build one in a wilderness area remote from its population centers in the southeastern part of the state and along the Ohio River. By 1825 the Erie Canal in New York was completed from Albany to Buffalo. This stimulated canal building everywhere. In 1827 Congress authorized a land grant for canal building from the Auglaize River near Defiance, Ohio, to the mouth of the Tippecanoe River near Lafayette. This greatly expanded the original concept of a short canal connecting the portage area from Ft. Wayne to Huntington. The change was based on the realization that the Maumee was not navigable to Ft. Wayne.

The high point or summit level on this canal was at Ft. Wayne. Hence the city became known as the summit city. Today, we still see "summit" used in the names of a bank and over 40 businesses. Being at the high point or division between two drainage systems posed an

engineering problem since water doesn't run uphill. This geographic situation made the St. Joseph River extremely important. The high banks and heavy flow of water allowed the river to be used as a feeder for the canal.

After years of delay and political maneuvering the ground breaking took place February 22 (Washington's birthday), 1832, in the Bloomingdale area of Ft. Wayne. A contract was concluded for work on the feeder canal and a chief engineer, Jesse Lynch Williams, was hired to supervise construction. His grandfather of Lynchburg, Virginia, was famous for the establishment of the frontier term "lynch law". Eventually, Jesse Williams was responsible for all canal construction in the state of Indiana. He is buried in Ft. Wayne's historic Lindenwood Cemetery.

The feeder canal required a dependable, year round source of water for the Wabash & Erie Canal, to provide flow in both directions from Ft. Wayne, towards Defiance and toward Huntington. To accomplish this task Mr. Williams decided to proceed  $6\frac{1}{2}$  miles up the St. Joseph to a suitable site near the current River Bend Golf Course. Here in the fall of 1832 began the building of a wooden dam across the river. Unhewn trees from 50 to 70 feet long were placed lengthwise with the current of the river, with the tops upstream to catch all the sediment possible and to form an unbreakable barrier. The trees were placed on a base of solid sand and arranged in bench formation so as to give breaks for the falling water. On top of this foundation was built a crib of planks, which was filled with heavy stones, gravel and sand. On top of this was placed stone and brush. This massive structure when completed stood 17 feet high above the river bed and was 230 feet long between the abutments. We can see the earthworks on both sides of the river at this point. The reservoir flooded the area where the golf course is now located. A wooden guardlock controlled the water flow into the feeder canal.

The feeder canal was completed in the spring of 1834 and was filled with water in June of that year. Its route followed the west bank of the river, past the Indiana/Purdue campus and Canterbury Green, on to Archer Park, past the old Centlivier brewery, ending in Bloomingdale where it joined the main canal at the corner of Rumsey Avenue and Wheeler Street, near Lindenwood Cemetery.

The feeder was completed before the main canal had any place to go. The 4th of July has been a traditional time of celebration, especially for canal dedications. Many of the local citizenry were upset that their canal wasn't ready. One energetic citizen, F.P. Tinkham, seeing the situation, went to the woods, cut some trees and in two weeks built a staunch enough craft to begin the first canal boat trip. On the morning of July 4th many Ft. Wayner's took the 6½ mile excursion to the feeder dam. Here they spent the day eating, drinking and making merry. Returning home that evening they were a happy group of crawlers who had completed the first trip on the Wabash & Erie Canal. One year later on July 4, 1835, the canal was finally opened from Ft. Wayne to Huntington.

The Wabash & Erie was eventually completed from Toledo to Evansville, a distance of 468 miles. It was the longest canal ever built in the United States and only second in the world to the 1,000 mile Grand Canal of China. The Wabash & Erie connected with the Miami & Erie at Junction City, Ohio. This canal joined Ft. Wayne with Cincinnati and was the route used in 1846 to remove the Miami Indians to Kansas from the forks of the Wabash at Huntington. In 1853, twenty-one years after the first digging began, the connection to Evansville was completed. Only seven years later, in 1860, a section in southern Indiana north of Newberry was closed due to deterioration, floods and vandalism. In 1862 Evansville began filling in the canal within its city limits.

The canal was never a financial success for

its owners. The state of Indiana went bankrupt in 1839 and finally transferred the canal into private hands. The canal operated in the Ft. Wayne area until the late 1870s. In 1877 the feeder right of way was sold to the Ft. Wayne Power Company. Today the Indiana & Michigan power lines mark the old feeder canal which in some areas remains water filled.

The Fort Wayne Consolidated Railway Co. recognized the recreational potential of a trolley ride to an amusement park as a means to boost revenue. They leased the feeder towpath and purchased 250 acres of land one mile above the feeder dam near the current River Bend Golf Course. For one dollar you could take an evening ride from the Main & Calhoun station to the park. This area of the St. Joseph now provided: water recreation for a growing city, a dance pavillion operated by George Trier, water slides, steam boat rides, and high wire and balloon extravaganzas. It was the place to be in Ft. Wayne. On German day as many as 10,000 people would be there.

But just as the railroads eroded the economic base of the canal, the automobile undercut the revenues of the amusement park built on trolley ride fares. The park closed in 1919. Some of the attractions were later moved by George Trier to Swinney Park. There he operated Trier Park which closed in the early 1950s.

In the 20s when Ft. Wayne's well water sources proved to be inadequate to serve the growing city, Ft. Wayne again turned to the St. Joe to provide water to meet the city's needs. During 1925 under Mayor Hosey, a series of dams were built on the river and the Three Rivers' filtration plant of today was built to provide safe water.

The river today still provides recreational opportunities. In addition to this and other boat tours, Root's Camp & Ski has a canoe livery so that you can take a leisurely trip down Cedar Creek and the historic St. Joseph River.

Many changes have occurred in Ft. Wayne through the years, but the St. Joseph River due

to its steep banks remains remote and quiet. Listen to the sounds of the river as we travel along its waterway. You can still see deer tracks along its bank or see the quiet flight of a blue heron.

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#### MELANCHOLY ACCIDENT

One of the most serious and heart rending catastrophes that has ever fallen to our lot to record, took place on the canal, between this place and Logansport, on Saturday evening last, in which three men lost their lives. The circumstances, as near as we can ascertain them, are these: As the packet boat "Kentucky" was on her upward trip, a small breach occurred in the bank of the canal, caused from the heavy rains for several days previous and then falling, which the driver supposing he could pass, put the horses to their speed, which caused an increased motion of the water, and at the moment the boat came opposite the break, the bank gave way for some distance, forcing the boat entirely out of the canal towards the river, when the unfortunate sufferers became frightened and jumped off on the bank which also gave way, burying them beneath it. The boat, with the captain and crew and several passengers yet on board, was driven among the the stumps and trees towards the river, until broken in pieces, those on board saving themselves by clinging to trees until assistance could be rendered. The names of those drowned were Thomas Emerson, of Logansport, whose body was found on Tuesday last, and taken by his friends to Logansport and interred; Robert J. Griffin, a young man of Fort Wayne, whose body was found floating in the river opposite this place yesterday morning, has also been decently interred; the name of the third person we are unable to give.

#### CORONER'S NOTICE

An inquest was held on the 21st inst., on the body of R.J. Griffin, taken from the Wabash river, afloat at Delphi, Carroll county, Ind.,

supposed to have been drowned. Deceased was between the age of 20 and 30 years; had on a beaver cloth over-coat, black velvet buttons, and silk braid loops; blue-black dress-coat, red striped vest, black cassimere pantaloons, all much torn. The following articles were found on his person: one horn handled pen knife, one pitch pipe, five small keys, half an ivory rule, \$16 in money, one black morocco pocket book, and one map of the western States. Said deceased resided in Fort Wayne, Ind., and was lost from the canal packet boat Kentucky, near Logansport, on the 15th inst.

T.C. Hughes, Cor.C.C.  
Delphi, June 21, 1844.

The preceding articles were taken from the Delphi Oracle of June 22, 1844. Anyone know what become of R.J. Griffin's body and what was he doing on the canal boat Kentucky? This could be a short article for someone.

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With this issue of INDIANA CANALS we conclude the list of Wabash & Erie Canal mechanical structures as taken from the 1847 and 1853 Chief Engineer's reports. In the next issue there will be a short update list of known changes made to the structures after the 1853 report. It must be remembered that structure changes had also been made prior to the the 1847 report as structures built in the 1830s had already been rebuilt. In the update I will also include a brief explanation of some of the terms used throughout the descriptions. The brevity of descriptions for structures in the immediate area of Evansville is due to the fact that they were all constructed by the Central Canal. The CANAL SOCIETY is thinking of putting together a tour guide based on the structure lists. Use this winter to discover a few more canal structures and let us know about them. If you have photographs of structure remains, bring them along to the spring tour at Terre Haute so that we can see what's out there.

## WABASH & ERIE CANAL MECHANICAL STRUCTURES

Culvert No.183. One space 5 by 3 feet clear. There being rock in the bed of the branch no foundation timber was put. Length of culvert 156 feet. Top of culvert 18 feet B.

Culvert No.184. One space 8 by 2 feet clear. Length 142 feet. Top of culvert 14½ feet B.

Culvert No.185. One space 10 by 2 feet clear. Length of culvert 140 feet. Top of culvert 15 feet B.

Waste weir. This structure consists of, first, three sticks of foundation timber laid three feet apart, and timber abutments, built in the form of Ls. The lower side being stepped off to correspond with the slope of the embankment. The abutments are 60 feet apart. The top of the foundation is 6 feet below the bottom of Canal. The dam consists of hewn timber laid close together in a broken curve having a versed sine of 6½ feet. The two end timbers in each course of the dam are 24½ feet long, and the middle timbers 12 feet long. The dam is raised to 3 feet A. In front of the dam there is a course of sheet piling 4 feet long, and thence upwards the face of the dam is planked. In the middle of the dam at the level of the foundation there are posts framed in, leaving an opening 2 feet square, which is filled by a cast iron sliding gate, having an iron stem and worked by a screw at the top. A crib is built around the gate, raised to the bottom of the Canal, to prevent the earth from obstructing the gate. A large bank of clay and gravel and small stone is put in front of the dam. The foundation below the breast wall is planked, as also the wings of the abutments. The step timbers of the abutments are held out by round ties running into the embankment. Into the foundation and the top of the dam, posts are framed and capped, which support the tow-path bridge.

Road bridge No.142. Leading from Petersburg Ferry above Petersburg bluff.

Road bridge No.143. Leading from Petersburg to Wright's Ferry.

Culvert No.186, at Petersburg. One space 8 by 3 feet clear. Length of culvert 140 feet. Top of culvert 15 feet B.

Road bridge No.144; Petersburg; double track.  
Culvert No.187. Pride's Creek. Timber arch 22 feet chord. Ring 17½ inches deep. Length of culvert 105½ feet from face to face. Top of culvert 6½ feet B.

Culvert No.188. One space 6 by 1½ feet clear. Length of culvert 110 feet. Top of culvert 5½ feet B. Top and parts of sides planked with two-inch oak boards.

Road bridge No.145. Tow-path changed at this bridge.

Culvert No.189. One space 10 by 2 feet. Length 112 feet. Top of culvert 5 feet B. Covering and part of sides planked.

Road bridge No.146.

Culvert No.190. One space 10 by 2 feet clear. Length 112 feet. Top of culvert 6 feet B. Covering and part of sides planked.

Culvert No.191. Summit branch of Pride's creek. Two spaces 10 by 2½ feet. Length of culvert 100 feet. Top of culvert 5½ feet B. Covering and part of sides planked with two-inch oak boards.

Road bridge No.147. Road crossing on Patoka Summit.

Culvert No.192. Flat creek, first branch south of Patoka Summit. This culvert crosses the Canal at an angle of 60 degrees. The length of the culvert is 116½ feet. There are three spaces 10 by 3 feet. Top of culvert 2 feet B. The covering timber is bolted down by iron rods, passing through a timber under the foundation and one on top of the culvert. The top and sides of the culvert are planked. This culvert is not put in where it was located, and will always be troublesome, although there is a deep ditch cut from the lower side to carry off the water.

Culvert No.193. One space 10 by 2 feet clear. Length 101 feet. Top of culvert 3 feet B. Covering and part of sides planked.

Culvert No.194. One space 10 by 2 feet.

Lock No.66 of 7.9 feet lift. Walls 14½ feet high. Above this lock the water is 4½ feet deep, and below 4 feet, so that the difference of surface is 8.4 feet. Built on the crib plan, of timber.

Culvert No.195. Little Flat creek. Two spaces 10 by 3 feet clear. Length 136 feet. Top of culvert

14 feet B.

Culvert No.196. One space 8 by 3 feet clear. Length 140 feet. Top of culvert 15 feet B.

Culvert No.197. One space 8 by 3 feet clear. Length 150 feet. Top 18 feet B.

Patoka aqueduct, No.17. This structure consists of one middle span of 50 feet, and four other spans (two on each side) of 36 feet. The middle span is supported by two crib piers six feet thick, filled with stone, resting on foundation timber six feet below the water. The remainder of the trunk is supported by double bents, resting on foundation timber, placed in pits dug in the slope of the river bank. The abutments are of timber, resting on foundations six feet below the bottom of the canal, sheet piled and thoroughly planked. The superstructure is an open trunk 18 feet wide in the clear, and calculated for four feet depth of water. The chords rest on sub-chords on top of the piers and bents, supported in the middle by long braces footing in chords, needle beams and suspension rods. The middle span has double chords and double braces, one set of braces meeting in the center, the others being separated by a straining beam, three needle beams and three suspension rods on each side. The foundations and all the slopes up to the abutments are well protected with stones.

On each side of the Patoka there is a guard gate, the gates of the upper one facing up stream, and those of the lower facing down stream. They are to be used in case of accident at the aqueduct, to shut the water off both ways. Slide gates are provided in the side of the aqueduct trunk to let off the water.

Road bridge No.149, at Dongola. The tow-path changes here, the bridge being provided with additional track.

Culvert No.198. One space 4 by 1½ feet clear. Length 127 feet. Top of culvert 11½ feet B.

Culvert No.199. One space 9 by 1½ feet clear. Length 142 feet. Top of culvert 15 ¾ feet B.

Culvert No.200. Hurricane creek. Two spaces 8 by 2½ feet clear. Length 169 feet. Top of culvert 23½ feet B.

Culvert No.201. Small.

Culvert No.202. One space 9 by 2 feet clear. Length 131 feet. Top of culvert 12½ feet B.

Culvert No.203. Buck creek. Two spaces 8 by 3 feet. Length 153 feet. Top of culvert 19B.

Road bridge No.150. Dongola and Princeton road.

Culvert No.204. Key's creek. Four spaces 8 by 4 feet clear. Length 160 feet. Top of culvert 21 feet B. Side timbers secured by bolting post to them on the outside.

Road bridge No.151. Princeton road.

Culvert No.205. Small.

Culvert No.206. East fork of Lost creek. Two spaces 8 by 3½ feet. Length 124 feet. Top of culvert 10½ feet B.

Culvert No.207. One space 6 by 1½ feet clear. Length 103 feet. Top of culvert 4½ feet B.

Road bridge No.152. Francisco to Princeton.

Waste weir with two large gates, supported by iron bars, working from a center, at upper side of foundation, raised by chains and rollers. This structure is built of timber and plank upon the plan described next before Lock No.61.

Tumble in berm bank to let in branch. Culvert at this point impracticable.

Road bridge No.153. Boonville and Princeton.

Waste weir in berm side to pass water to and from the Pigeon Creek Reservoir.

Culvert No.208. Scaffold Lick. Timber arch of 16 feet chord. Ring 16 inches deep. Top of culvert 2 feet B. Length of culvert 96 feet from face to face. Crown of arch planked. As the water in the reservoir rises above the bottom of the Canal on both sides of this culvert, it was necessary to secure it from rising by iron bands. They pass through a stick of timber under the foundation, and are strongly keyed together. The bars are 2 by ½ inch, made in pieces from 4 to 6 feet long.

Road bridge No.154. Port Gibson, at lower end of the Pigeon Creek Reservoir.

Pigeon Creek Reservoir culvert, to admit water into the Canal from the reservoir, is built of timber upon the plan of the culvert for the Splunge Creek reservoir. There are four sliding gates for the passage of water. The foundation is rock, but not

being very hard, timber was put in upon it on the ordinary plan, and the whole planked on below the breast wall.

Waste weir at the west end of reservoir bank. This structure consists of timber abutments 66 feet apart, in the form of L's, with breast wall 3 feet high, and longitudinal foundation timbers 2 feet apart, filled in between and covered over with stone. On the breast wall there are posts against which the plank rest, raising to top water line of the reservoir, and upon which there is a wide cap, on which a man may walk, to remove the plank when a large discharge is required. From the waste weir there is a ditch to convey the water gently down to the level of the creek bottom. Across the Canal there is a road bridge about 30 feet long.

Lock No.67, at Port Gibson. Lift 7 feet, but the walls are raised 15 feet high, to guard against overflow, in case the reservoir should break into the Canal. The gates are raised to correspond with the walls. The lock is built of timber on the crib plan. Tow path bridge over the mouth of feeder from the reservoir.

Lock No.68. Near Port Gibson. Lift 7 feet, built of timber on the crib plan.

Culvert No.209. One space 9 by 2 feet clear. Length of culvert 103 feet. Top of culvert  $4\frac{1}{2}$  feet B. Covering and part of sides planked.

Lock No.69. Lift  $8\frac{1}{2}$  feet, built of timber on the crib plan.

Culvert No.210. One space 9 by 2 feet clear. Top of culvert 2 feet B. Length of culvert 94 feet. Covering and part of sides planked.

Culvert No.211. Snake run. Timber arch of 16 feet chord. Ring 16 inches deep. Top of arch 2 feet B. Length of culvert from face to face, 86 feet. Crown of arch planked.

Road bridge No.155. Warrington road.

Lock No.70, of 6.8 feet lift. Built of timber on the crib plan.

Culvert No.212. One space 10 by  $2\frac{1}{2}$  feet clear. Length of culvert 103 feet. Top of culvert  $2\frac{1}{2}$  feet B. Covering and part of sides planked.

Culvert No.213. One space 9 by 2 feet clear. Length of culvert 99 feet. Top of culvert  $2\frac{1}{2}$  feet B. Covering and part of sides planked.

Culvert No.214. Smith's Fork. Timber arch of 28 feet chord. Ring 21 inches deep. Length of culvert from face to face 86 feet. Top of arch  $1\frac{1}{2}$  feet B. Crown of arch planked.

Lock No.71, of 6 feet lift. Built of timber on the crib plan.

Road bridge No.156. Petersburg and Evansville Road.

Big Creek Aqueduct, No.18. This work consists of three spans of 26 feet clear between the bents and abutments. The trunk is supported by two double bents resting on foundation timbers in the bed of the creek, planked up and filled with stone, and two timber abutments, resting on foundation timber six feet below the bottom of the Canal. The back, sides, and wings of the abutments are sheet piled and well planked. The foundations are protected with brush and stone. The superstructure is a simple trunk, consisting of string pieces, posts, and caps, being 18 feet in the clear, and adapted to four feet water above bottom.

Lock No.72, of 6 feet lift; built of timber on the crib plan.

Road bridge No.157.

Culvert No.215, one space 9 by 2 feet clear. Length of culvert 96 feet; top of culvert  $2\frac{1}{2}$  feet B.

Culvert No.216; two spaces 10 by 2 feet clear. Length of culvert 96 feet; top of culvert  $2\frac{1}{2}$  feet B.

Lock No.73, of 6.8 feet lift; built of timber on the crib plan.

Road bridge No.158.

Head gates to pass water into the Canal from the Pigeon Creek dam.

Pigeon Creek Dam.

Culvert No.217. Timber, rectangular, submerged.

Culvert No.218. Timber, rectangular, submerged.

Culvert No.219. Timber, rectangular, submerged.

Culvert No.220. Timber, rectangular, submerged.

Culvert No.221. Timber, rectangular, submerged.

Culvert No.222. Timber, rectangular, submerged.

Road bridge No.159.

Waste weir at Newark, built on plan last described.

Culvert No.223. Timber, rectangular, submerged.

Culvert No.224. Timber, rectangular, submerged.

Road bridge No.160.

Culvert No.225. Arch of cut stone.

Culvert No.226. Rectangular, timber submerged.

Culvert No.227. Rectangular, timber submerged.

Culvert No.228. Rectangular, timber submerged.

Culvert No.229. Rectangular, timber submerged.

Culvert No.230. Rectangular, timber submerged.

Culvert No.231. Rectangular, timber submerged.

Road bridge No.161.

Culvert No.232. Rectangular, timber submerged.

Culvert No.233. Rectangular, timber submerged.

Culvert No.234, at Division street, in Evansville. This culvert is an arch of 5 feet chord(springing from abutments  $2\frac{1}{2}$  feet high, to correspond with a sewer in the city leading to the river) of cut stone masonry. The foundation is a pavement of stone 12 inches deep, settled into gravel. The ring of the arch is 12 inches deep, abutments 18 inches thick. The arch is plastered on top with hydraulic cement, and covered over with gravel. The culvert is 100 feet long, connected at both ends with a brick sewer built by the corporation of Evansville.

Bridge No.162, one mile above Evansville.

Bridge No.163, Walnut street in Evansville.

Bridge No.164, Locust street in Evansville.

Bridge No.165, Main street in Evansville.

Bridge No.166, Sycamore street in Evansville.

Bridge No.167, Vine street in Evansville.

Bridge No.168, Division street in Evansville.

Bridge No.169, Ingle street in Stockwell and Ingle's addition to Evansville.

Bridge No.170, Second avenue in Lamasco.

Bridge No.171, Third avenue in Lamasco.

Bridge No.172, Fulton avenue in Lamasco.

This ends the account of the mechanical structures on the Canal from Coal Creek to Evansville, including the feeders.