REPORT

OF THE

ASSEMBLY COMMITTEE

APPOINTED TO INQUIRE INTO THE

CONDITION OF THE BRIDGES

OVER THE

PASSAIC AND HACKENSACK RIVERS,

IN THE

COUNTIES OF UNION, ESSEX AND HUDSON.

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JERSEY CITY:
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1865.

REPORT.

In pursuance of their duties, the committee on bridges have examined into the condition, construction, and situation of the bridges, draws, and openings of all the bridges crossing the navigable waters between Hudson, Union, and Essex counties, together with the four bridges crossing the Hackensack river, in Hudson county.

From the observations of your committee, as well as from information derived from numerous navigators on these waters, we learn that there are serious objections to the construction of the draws and openings of the bridges examined by them; and that we are of the opinion that the openings in these bridges are quite inadequate to the wants and requirements of the commercial and navigating interests established above these bridges. Your committee would say that they find it to be the general opinion of navigators that a bridge with two openings possesses very little, if any, advantage over a single opening of equal width; that a single opening of one hundred feet in width is far better than two openings of eighty feet each in width.

That improvements in the construction of bridges, draws, and openings, have not kept pace with the times is very evident, at least in the bridges, draws, and openings examined by your committee.

The first bridge examined was the North Belleville bridge, crossing the Passaic river. This bridge is a wooden structure, having a sliding draw and one opening of thirty-six (36) feet in width. It has wings or fenders projecting from each side of the opening about thirteen (13) feet. The opening is located so near the west end of the bridge as to interfere with vessels lying immediately below the bridge, at the dock, from which is shipped large quantity of stone, for building purposes, amounting to seventy-five thousand (75,000) tons per annum. There are passing through this bridge to places above ten thousand (10,000) tons of freight. Formerly, ship-building was carried on extensively above this bridge, where vessels of five hundred (500) tons burthen were built. The whole structure of this bridge is in bad condition and unsafe for ordinary wagon travel, all parts of it of it being decayed, the braces in many places being rotted off and sprung apart. They have posted a notice* of its unsafe condition, a

* NOTICE.—Is hereby given that the travel over the North Belleville bridge is forbidden, except for foot passengers, as the bridge is unsafe and the company will not be responsible for any damage resulting from a violation of this notice.

JOHN KINGSLAND, Sec'y. ABRAHAM VAN RIPER, Pres't.

Nov. 9, 1864.

copy of which is herewith annexed. The draw is difficult to manage, it also being out of order, and requires seven (7) minutes to run it off. The opening of this bridge should be at least seventy (70) feet further to the east than the present opening.

The bridge at Belleville is also a toll-bridge for common travel, and a wooden structure, is nearly new and in good order; it has a pivot or turn-table draw with two openings; the width of the west opening is 44 feet 8 inches, the width of the east opening is 43 feet 10 inches. The centre pier, between the openings, upon which the draw swings, is 22 feet wide, and 134 feet 6 inches long, parallel with the river; the whole length of the draw, over all, is 114 feet 6 inches, which is turned off in one minute. The centre pier is at right angles with the current, and located nearly in the centre of the river; the openings are well planked up; the bolts and spikes are countersunk. The commercial interest of Belleville is considerable; some twenty thousand (20,000) tons of freight being shipped to and from it, which includes coal to the Jersey City Water Works, and copper ore shipped to New York and other places; this is done exclusively by sail vessels, several of which belong there. The police regulations at this bridge are good excepting adequate lights at night in the openings.

The Morris and Essex Railroad bridge, crossing the Passaic river at Newark, is a wooden structure, elevated some thirty (30) feet above low water mark. It has a pivot or turn-table draw with two openings, the west opening being 49 feet 2 inches in width; the east opening being 48 feet 9 inches in width. The centre pier upon which the draw swings is 38 feet 8 inches wide, and 170 feet in length, parallel with the river. The length of the draw is 146 feet over all, and is turned off in 2½ minutes. The openings are quite well planked up. Several accidents have occurred at this bridge to vessels, owing to its height and its nearness to bridge immediately below it, being only 850 feet distant, and the location of the draws or openings. The police regulations are very good with the exception of a want of sufficient lights in the openings at night. This bridge was built by the New Jersey Railroad Company, and has been transferred to the Morris and Essex Railroad Company.

The turnpike bridge is also a wooden structure for common travel crossing the Passaic river at Newark, on the line of the old turnpike to New York, which was originally the great highway from New York to Philadelphia. The original bridge at this place was the first in that section of the State, and was one of the greatest works of the times. It has been rebuilt several times and is now controlled by the New Jersey Railroad Company. It originally had a single opening the width of which was 24 feet, and was located near the west side of the river, and the only bridge crossing the Passaic river. This bridge is 850 feet below or south of the M. & E. R. R. bridge, and 1700 feet north of the New Jersey Railroad bridge; it has a pivot or turn table draw with two openings, the centre pier being nearly in the centre of the river. The east opening is 54 feet 6 inches in width; the centre pier is 37 feet 9 inches wide, the draw is 164 feet 3 inches

in length over all, the centre pier being something larger, running parallel with the river; the draw is turned off in 2 minutes. The west opening is entirely obstructed by a stone abutment and by piles, being the remains of the old bridge, and which no efforts have been made to remove. The draw of the old bridge, as stated, was originally a single draw, it being located so near the west side as to interfere with vessels lying at the Newark Lime and Cement Company's dock. One of these piers is the obstruction. A few years since this bridge was rebuilt and the draws were carried further to the east, to accommodate the Lime and Cement Co., and an agreement was entered into by the late J. P. Jackson in behalf of the bridge company and the Lime and Cement company, respecting this obstruction, a copy of which is herewith annexed. Your Committee are informed that several accidents have occurred to vessels by these obstructions. The opening being so near the centre of the river, so near the bridge above it, with high ground upon the west or city side of the river, upon which are high buildings, causing detention and liability to accident to vessels passing through. There are several large manufacturing establishments above this bridge together with lumber and coal yards and a saw mill, which require larger vessels for their works and can only be obtained with great difficulty and at increased freights. Were the east opening of this bridge increased in width to 100 feet, and the draw placed upon the east side of the present east opening it would greatly facilitate the manufacturing interest of that portion of the city above this bridge. The openings are well planked up, the police regulations are good excepting a want of sufficient light in the openings at night.

The New Jersey Railroad bridge, crossing the Passaic at Newark, is a modern structure, located 1700 feet south of the turnpike bridge, and 2000 feet north of their proposed bridge at Market street. This bridge is in barely ordinary condition; has one opening of 35 feet 10 inches in width, near the west or city end of the bridge, and is 40 feet from the face of the dock. It has a side sectional draw, the length of which is 67 feet 5 inches over all. The side section is 39 feet 10 inches long, the whole of which is moved in two minutes, so that the opening is free for the passage of vessels. There are wings or fenders to this opening sufficient to protect the bridge; the sides of the opening and wings are well planked up. Your committee are informed that this company propose to rebuild this bridge this season, and to change the location and style of the draw by putting a pivot or turn table draw, with two openings, in its place. It is generally conceded that this bridge should be rebuilt, and that the requirements of the commercial and navigating interest of Newark require the draw to be changed; and that it should be placed to the east of the centre of the river, and that the opening should not be of less width than 100 feet; and that there should be but one opening, with the same style of draw as is now used on the bridge. A large establishment above this bridge has several vessels running constantly to their works, besides several foreign vessels of square rig. On the north side of the bridge is a sunken boat, with 210 ton of stone, which no efforts have

been made to remove. There is also another and serious obstruction caused by a sewer discharging into the river, just above the bridge, which has already formed a bar or shoal full 40 feet out from the dock, extending some distance above and below the mouth of the sewer. The removal of these obstructions properly belongs to the authorities of the city of Newark, who, your committee is informed, are very negligent in these matters. The opening in this bridge is but a few feet wider at this time than when it was first built. It now prevents the passage of steamboats, that would be employed, if possible to pass it. The police regulations of this bridge are good, no fault being found by navigators, except a want of sufficient light at night in the opening.

The Plank Road bridge crossing the Passaic river 3½ miles below the city of Newark, through which all vessels bound to Newark and above must pass. This bridge is a toll bridge, used exclusively for common travel, being the shortest and most direct road to New York. It is a wooden structure, in ordinary condition, with a pivot or turn-table draw, with two openings, the centre pier being nearly in the middle of the river. The west opening is 70 feet 2 inches and the east opening 69 feet in width. The centre pier is 43 feet 5 inches wide and 277 feet long, running parallel with the river. The draw is 186 feet 6 inches long over all, and is turned off in two minutes. The upper or north end of this pier is detached from the pier, (to allow the passage of canal boats, as the bridge is between the entrances of the canal at the river, the west end of the bridge being just below the canal, while the east end being just above the canal) and extends 44 feet above or north of the end of the draw where the draw sets parallel with the river or centre pier. This fender or projection, which is in shape a triangle, is in a very bad condition; the two outsides should be planked up firm if it is allowed to remain in its present location, and the end towards the bridge should be stoned or planked up, as vessels descending the river and striking this projection in its present condition is liable to damage. The planking along the inside of the openings is bad; the bolts and spikes project so much as to chafe badly the sides of the vessels coming in contact with either side of the openings. On the south side and at the openings of the bridge are fenders or wings, on the upper or north side are none, a vessel striking this corner of the bridge is liable to do damage to herself and to the bridge also; the openings are set true to the current.

Several accidents have occurred at this bridge to vessels, and by those sailing upon this river much complaint is made at the police regulation on this bridge, at the frequent neglect of the bridge-tender at night to open the draw upon signal being given by the approaching vessel, and for the want of adequate lights at night in the openings.

Could the draws of this bridge be removed more to the east, dispense with one opening, place the centre pier upon the edge of the east flat, make a pivot draw with one opening to the west of 150 feet in width, would remove one of the great obstructions in nature's highway to the port of Newark. The tonage of Newark passing this

bridge in 1864 was 341,685 tons, valued at $9,898,850. The tonage from places above Newark was 105,000, making a total of 446,685 tons passing through this bridge, and yet this does not include a large amount which goes into the neighboring towns inland.

The plank road bridge, crossing the Hackensack river in Hudson county, is a continuation of the plank road mentioned above. This is also a wooden structure, the bridge being in ordinary condition, it has a pivot or turn-table draw with one opening, which is located in deep water. The extreme length of the centre pier is 165 feet in length, parallel with the river; the condition of the opening is very bad, indeed. On the north side of the bridge, that end of the pier is quite open and dangerous to vessels coming in contact with it. On the outside of the opening to the west there are no fenders or wing for protection to the bridge or to vessels, but loose piles, one of which is broken off and covered with water during a part of the tide. On the south or lower side of the bridge the extreme end of the centre pier is nearly square. A vessel approaching from the south, the tide being strong and striking this corner, would be liable to great damage. To the east and from the end of the centre pier are loose piles, for what purpose your committee are not informed, but presume them to be placed there to close the east opening, as they extend to the bridge beyond where the opening would be. The general condition of the west opening is bad, and requires immediate attention; the want of proper lights in the opening is much needed.

The New Jersey Railroad Bridge, crossing the Hackensack river, is a wooden bridge, in good condition. It has a half pivot draw, with one opening of 40 feet in width, which is near the west end of the bridge; the outer or swinging end of the draw is supported by iron rods reaching to the top of a pair of shears, and elevated upon the bridge and on the east side of the draw. This draw works very heavy and slow, owing to its peculiar construction, it requiring 3½ minutes to turn it off. The whole length of the projection or wings of this bridge is 180 feet; the opening is well planked up and is true to the current.

The turnpike bridge is 330 feet north of the above-named bridge, on the west side of the river, and is controlled also by the New Jersey Railroad Company. It crosses obliquely, so that the east end is but a few feet from the railroad bridge. There is not sufficient room between these bridges to work a vessel. It is a wooden bridge, with a slide-draw 99 feet 5 inches in length, over all, and takes one minute and a half to run off. The opening is 38 feet in width; the whole extension through this draw 100 feet, which includes the piers, upon which rests the Jersey City Water Works; this draw, or opening, is near the west shore; the opening is well planked up, and the whole structure is in good order.

The Morris and Essex Railroad bridge is three eighths of a mile north of the above-named bridge, crossing the Hackensack river. This bridge was built a few years since by the Newark and Hoboken Railroad Company. The bridge is in good order; it has a half-pivot draw, with one opening of 61 feet in width; the swinging end of the

draw is supported by iron rods suspended from the head of shears erected on the west side of the opening. Owing to the insecurity of this draw, a bent of piles has been placed in the opening from the east side, upon which the draw rests when closed. The arrangement for opening and closing the draw is of the rudest kind, being a single rope leading from each end of the centre pier to the end of the draw. The company propose to close this opening by a truss-bridge or span, and make two new openings further to the east, and have a pivot, or turn-table draw, with two openings, and are now progressing with their work, having a part of their timber ready. As the charter of this company requires but a 50 feet opening, your committee suggested to the engineer in charge, that one opening of 75 feet in width would be preferable to two openings of 50 feet each.

New Jersey Central Railroad bridge, crossing Newark bay from Elizabethport to Bergen, is a wooden structure of nearly two miles in length, and through which all vessels bound up the Passaic and Hackensack rivers must pass, as well as those engaged in the oyster business in Newark bay. It was completed in 1864, and is exposed to all the winds blowing from northwest to northeast, over an open water of five miles in length from the north, and averaging one and a half miles in width. It has a pivot or turntable draw with two openings of 83 feet in width each, the outside wings or fenders extend 53 feet from the bridge. The draw spanning this opening is made of cast iron is 216 feet in length over all, and is represented to weigh near 250 tons; it is turned off in 2½ minutes. The draw is set upon a pier 35 feet in diameter and 45 feet perpendicular, being elevated about six feet out of water at high tide; the width of the bridge is about 28 feet; the whole length of the centre pier is 280 feet; the line of this centre pier by compass is N.N.E. ¼ N., while the line of the channel of the bay is N.E. ½ N. The set of the tide while your committee was on the bridge was E.N.E., it being flood tide. Your committee are informed by those familiar with this location that the flood tide changes at different periods of its flow until it sets nearly on a line with the channel of the bay; this, however, is for a short time only, and then near the slack water of the high tide. The ebb tide runs nearly true with the opening, setting diagonally across the openings, so much so that a piece of wood cast into the water by one of the committee from the south end of the centre pier drifted south and east of the east opening, and passed under the bridge instead of drifting through the draws. The flood tide set from Staten Island Sound, passing from the southwest between Elizabethport and Shuter's Island, strikes the centre pier of this draw and forms a strong counter or eddy tide in the east opening. When the flood tide makes from the Kill Von Kull it produces the same effect in the west openings. The difficulties and objections to this bridge are many. It is not far enough to the north or up the bay: It is built obliquely across the bay, and the flood tide from Staten Island Sound runs nearly parallel with the bridge. The draws are not sufficiently wide for the free passage of vessels working up the bay in heavy weather, it being so near the oyster beds, known as the east and west oyster beds, and upon

which the general government have placed buoys. Steamboats with tows alongside and astern experience great difficulty in bad weather and at night.

Your committee is informed this obstruction is so great that the lighthouse board of the general government will not allow their vessels to pass through this bridge to replace the buoys and beacons established above this bridge, some of which have been displaced by the ice and the strong ebb tide running in the bay.

Your committee would state that they are informed that several vessels have been sunk at this bridge during the short time it has been built. Navigators complain that the openings are not far enough to the west; that it should be at least 120 feet west of the west opening; and if one of the openings was dispensed with, and the other increased to 150 feet in width, it would be far less of an obstruction than it now is. Your committee would further state that the centre pier is not set at right angles with the bridge. A vessel entering the east draw on the flood tide, with the wind westerly, has two tides, the flood tide and the eddy tide, which tends to partially turn her round in the opening. So with the west opening with the wind easterly. In the west opening the tide, running strong from the Staten Island Sound, tends to set the vessels on to the centre pier or extension. That part of the centre pier upon which the draw swings is stoned up, and has had some 150 ton of loose stone put along side it at the bottom this spring. The number of vessels passing this bridge, or at least passing the Newark Bay lighthouse, is reported to average 50 per day for nine months during the year 1864, by the lighthouse keeper, whose duty it is to keep a record of all vessels passing the lighthouse. These vessels are passing to and from the Passaic and Hackensack rivers to New York and other places. In addition to these are the vessels engaged in the oyster business, which do not go so far up the bay as the lighthouse, consequently are not taken into the account. Now, all these vessels have necessarily to pass through this bridge. The foreign tonage to Newark alone is 2,000 by vessels ranging from 114 to 312 tons. These are regular traders, as stated before. The actual number of tons taken to and from Newark, and ports above there on the Passaic river, amounts to 447,790 tons. Your committee have not ascertained the number of tons carried on the Hackensack river.

It would seem that this interest should receive some attention at the hands of this legislature, and that a limit should be put to the number and localities of the bridges, and the width of the draws, crossing these navigable waters. The commercial interests of Newark are increasing every year. They require large vessels, which need every facility for free and uninterrupted movements.

Your committee believe that when a charter is granted to cross any navigable stream, river or bay, that commissioners should be appointed by the governor consisting of men who are actual navigators on the stream, river or bay to be crossed, and who are familiar with the shores and set of the tides, to locate the manner such a bridge shall cross said river or bay and plan the draws in a manner so as to ob-

struct as little as possible the rights of free navigation; and that no bridge or viaduct crossing the Passaic river below the present N. J. R. R. bridge or Newark Bay should have more than one opening, and that to be of not less than 150 feet in width; and that no bridge or viaduct crossing the Passaic river above the present M. & E. R. R. bridge should have more than one opening, and that of a width of not less than 75 feet, and that in all cases there shall be but one opening.

Your Committee would also recommend that the North Belleville bridge company be required to rebuild their bridge within the next six months or remove it entirely within that time; and that the Turnpike Bridge Company at Newark be directed to remove the obstruction in the west opening of their bridge within the next three months; and that the plank road company be directed to replank the openings of their bridges and the piers within the next two months, and erect suitable wings. We would further recommend that any bridge to be rebuilt crossing these waters at Newark shall rebuild their draw or draws of not less than 75 feet in width and leave but one opening.

We would also recommend that a uniform system of lights be established for bridges which shall consist of large bright lights upon each side of the opening, sufficient to light the opening, and arranged so that they can be well seen by the approaching vessels.

Trenton, April 4th, 1865.

JOHN A. LANDELL,
JACOB BIRDSALL,
SIMON LAKE,
D. ANDERSON,
H. VAN BUSKIRK.

AGREEMENT.

Whereas, the proprietors of the bridge on the rivers Passaic and Hackensack are about to place a pivot draw of two openings of fifty feet each in their turnpike bridge on the Passaic at Newark, and it being more convenient for them, on account of a sunken stone pier to place the draw towards the westerly shore; and it being insisted and desired by the Newark Lime and Cement Company that such draw should be farther eastward, and at least one hundred and thirty feet from the westerly shore; but to construct the same there will require the removal of the said sunken pier of stone, which the said Bridge Company are willing to do, if the said Newark Lime and Cement Company will agree to pay whatever portion of the expense attending the removal of said stone pier, Abner S. Reeve, Stephen Gould, and Horace J. Poinerr shall determine they ought. Now, the said The Newark Lime and Cement Company hereby agree to stand by and perform the award in writing of said arbitrators, and pay, as aforesaid, whatever portion of said expense they shall determine that they ought to pay; and further, that in case such arbitrators shall be unable to serve, then such determination shall be made by any other three persons to be agreed upon, and in case of disagreement, by persons chosen, one by said proprietors or bridge company, one by said Lime and Cement Company, and the third by the two persons thus chosen. And further, said Lime and Cement Company agree to execute any other papers for such arbitrators which may be hereafter thought necessary.

November 4th, 1856.

The aforesaid agreement has been execued this day by the Newark Lime and Cement Company, and the Bridge Company, in consideration of the same, agree to construct the draws in the manner proposed in the foregoing agreement, provided they are not prevented by any legal proceedings against them, in opposition to such erection of said draws.

November 4th, 1856.

(Signed) JOHN P. JACKSON,
In behalf of the Bridge Company.