

**PROSPECTUS OF THE NEW  
YORK STEAM CABLE  
TOWING COMPANY, 1872**

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Prospectus of the New York Steam Cable Towing Company, 1872 by Various

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**VARIOUS**

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YORK STEAM CABLE  
TOWING COMPANY, 1872**



STATE CANALS.

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PROSPECTUS

OF THE

NEW YORK

Steam Cable Towing Company.

1872.

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WEED, PARSONS AND COMPANY, PRINTERS.  
1872.

# TRUSTEES

OF THE

## New York Steam Cable Towing Co.

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THE

# NEW YORK CANALS,

THEIR COMMERCIAL IMPORTANCE.

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THE canals and navigable rivers within the territory of the United States of America furnish channels for transportation unequalled, in extent and importance, by any country in the world. The canal system of New York alone is one of the most stupendous and important works of internal improvement of modern times. The "Grand Erie canal," and its branches, furnish artificial channels of water communication of nine hundred miles in length. And their connection with rivers and small lakes, within the State, makes the whole distance now navigated by New York canal boats nearly thirteen hundred and fifty miles.

These great inland channels connect, by the best and only feasible route, the Atlantic ocean, at New York city, with some nine thousand miles of natural waters in the great northern lakes. This great chain of lakes is also connected, by the Fox River improvement and the Michigan and Illinois canal, with the waters of the Mississippi river; thus affording an unbroken water highway from the Mississippi river, at two several points, to the great American metropolis, and thence to nearly every part of the world.

The commerce derived from the fertile and exceedingly productive States of the great northwest and the British Possessions already exceeds that of the entire ocean commerce of the United States. The agricultural and mineral resources of

this vast region is almost unlimited. Chicago, Milwaukee and Duluth have now become the greatest grain depots in the world. They are, also, the great distributing points for domestic and foreign merchandise, from which the northern States, Manitoba and the Hudson Bay Company draw their supplies.

#### THE ERIE CANAL—ITS PHYSICAL CONDITION.

The construction of the Erie canal was commenced in 1817, and formally opened in 1825. It is three hundred and fifty miles long, and, since the enlargement, seventy feet wide on the surface, fifty-six feet at the bottom, and seven feet deep. It connects the Hudson river at Albany and Troy with the waters of Lake Erie at Buffalo, in which it is carried over several rivers and large streams on hewn stone aqueducts of unequalled magnitude.

The total number of locks on the Erie canal is seventy-two, fifty-seven of which are double and fifteen single locks. Commencing at the head of tide waters on the Hudson river at Albany, it rises, by two double locks (110 by 18), twenty feet to West Troy, six miles; thence it is carried over a ridge of slate rock, by sixteen double lift-locks, to an elevation of one hundred and eighty-eight and one-half feet above tide-water to Crescent, six miles; thence to lock No. 19, nine miles level; thence to Schoharie aqueduct, by eleven locks, thirty miles; thence to Sprakers, fourteen miles level; thence to Lock No. 45, at Frankfort, thirty-six miles; thence to Utica, nine miles, where it reaches the summit, or Long level, extending from Utica to Lodi, lock No. 47, one mile east of Syracuse.

Except the lock of three feet lift at Utica there is a level, between Frankfort and Lodi, of sixty-four miles in length.

From Lodi the canal falls twenty-seven feet, by three double locks, into the Syracuse level. Here the Oswego canal enters the Erie and connects it with the waters of Lake Ontario, at the city of Oswego, thirty-eight miles, by eighteen single locks, 110 by 18 feet. From Geddes, two miles west of Syracuse, the Erie canal rises seven feet, and continues west, on the Jordan level to Jordan, fifteen miles. Here it falls eight feet into the Port Byron level, nine miles to Port Byron. At Port



Byron it falls eleven feet to the Cayuga marsh level, sixteen miles to Clyde. Hence, the distance from Geddes to Clyde is forty miles, obstructed only by two locks.

From Clyde to the east end of the level at Arcadia, fourteen miles, there are seven locks. Thence to Macedon, a level of twelve miles, where there are two lift-locks; thence to Pittsford, a continuous level of fifteen miles; thence to lock No. 66, at Brighton, five miles, four lift-locks.

From Brighton, three miles east of Rochester to Lockport, there is a continuous level of sixty-five miles. The canal increases regularly in size from Rochester west. At Lockport it is ninety-eight feet surface, seventy-nine feet on the bottom, and seven and one-half feet deep. Here there are five double combined locks, with an aggregate lift of nearly fifty-six feet.

From the head of the locks at Lockport to Buffalo there is a continuous level of thirty-one miles. On this level the canal passes through three miles of "rock cut," where the prism is sixty-two feet surface, sixty feet bottom and nine feet deep. From Pendleton, seven miles west of Lockport, to Tonawanda, twelve miles, the canal occupies the Tonawanda creek, which is two hundred feet wide and nine feet deep. Thence to Buffalo the canal is eighty feet on surface, sixty feet bottom, and nine feet deep at high water. It frequently occurs that, from low water in the lake, or by long continued easterly winds, heavily loaded boats are obliged to tow down the Niagara river, from Buffalo to Tonawanda. The canal is supplied with water from Lake Erie, to the Seneca river, one hundred and forty-two miles east of Buffalo.

The length of the principal levels on the Erie canal, from Buffalo eastward, is as follows:

From Buffalo to Lockport .....	81	miles	0	locks.
Lockport to Rochester.....	65	"	0	"
Pittsford to Arcadia.....	27	"	2	"
Clyde to Geddes.....	40	"	2	"
Lodi to Frankfort.....	64	"	1	"
Sprakers to Schoharie aqueduct.....	14	"	0	"
Lock No. 19 to Head of 16's.....	9	"	0	"
Total.....	250	"	5	"

#### CAPACITY OF BOATS—MODES OF TOWAGE.

The boats now navigating this canal carry from 200 to 250 tons burden, and are towed by animal power, at an average speed of about one and a half miles per hour, including lockages. These canals are in no sense a monopoly. They are open to all who may choose to use them, on equal terms. Hence, the towing of boats is managed in accordance with the interests or inclination of the owners. In most cases the owner of a boat keeps two teams, one of which is carried in a small stable in the bow of the boat, while the other is at work on the tow-path. These teams are changed at regular intervals, thus keeping the boat moving, day and night, to the end of the trip. The expense of keeping these teams, at Troy or Albany, while the boat is towed by steam to New York and back, is a serious drawback on the earnings of the season. To avoid this, and keep the animals constantly at work, towing companies have been formed, and stations established at suitable distances along the canal, with the necessary number of teams to tow such boats as may choose that method. The cost of towing a boat in these "lines" varies from thirty-five to forty-five cents per mile. It occasionally reaches fifty cents near the close of navigation.

#### TIME REQUIRED FOR LOCKAGE.

The time consumed in passing boats through the locks depends, to some extent, upon circumstances. For instance, the lifts are unequal, varying from six to twelve feet, and, as a general rule, heavily laden boats require more time than light boats, and more time is consumed in passing a boat through a lock in the night than in the day-time. From official tests made in 1867, at double lock No. 49 Erie canal, at Syracuse, it appears that fifty-six boats were locked in two hundred and eighty-two and one-half minutes; time consumed in each lockage varying from three to nine minutes; averaging five and two-sixtieths minutes. The general average for twenty-four hours was a fraction over seven minutes. The greatest number of lockages made in one day, in 1870, at Alexander's lock, three miles west of Schenectady, was two hundred and forty-two; averaging less than six minutes each. During the session of the late convention to revise our State Constitution and adapt its provisions to the improved condition of our institutions, a wide difference of opinion prevailed

in relation to the capacity of the Erie canal to accommodate the prospective business of the country. The following extract from State Engineer RICHMOND'S report to the Legislature of 1870, settled this question of capacity beyond further controversy. He says:

"Neglect and defective management have induced many to believe that the Erie canal lacks capacity to transport all the freight, that, at certain seasons, should naturally pass through that channel to tide water; that this is not true is clearly shown in the following:

"This question of capacity is determined by the number of lockages that can practically be made in a definite time. The management of the locks upon the Erie canal have never received the attention to which they are entitled, being indifferently manned, and without mechanical auxiliaries, so essential in crowds. It is shown by the examples that a boat can be passed in four minutes through a single lock, while the average time for the largest month in 1862 was nine and two-third minutes. The following examples will more clearly illustrate:

"No. 1. Experiments were made in 1848 and 1849, with a single enlarged lock in good repair, and full attendance, with the following average results:

For boat to enter lock, snub and shut the gates.....	1½ minutes.
To open valves, and empty the lock.....	1 "
To open the gates and get the boat out.....	1½ "
	4
Total average time consumed.....	<u>4 minutes.</u>

"This result would give 360 lockages in twenty-four hours, at a single lock, and 720 at double locks, calling the movement from tide, one-seventh of the tonnage going to tide water and the average length of the season of navigation 230 days; it would make the annual capacity of the Erie canal equal to 9,360,000 tons with single locks, and 18,720,000 tons with double locks.

"No. 2. Experiments were made with a single enlarged lock during the season of 1849, and eighty-two lockages were made in six hours, equal to 328 in twenty-four hours. This would give a capacity to the Erie canal of 9,052,800 tons with single, and 18,105,600 tons with double locks.

"No. 3. Previous to 1850, experiments were made to determine the number of lockages that could practically be made through one of the single enlarged locks for the purpose of determining the quantity of water that would be required for the maximum capacity of the canal. It was found that two hundred could be made with a single lock in