

THE AERIAL FERRY BRIDGE OF DULUTH, MINNESOTA.

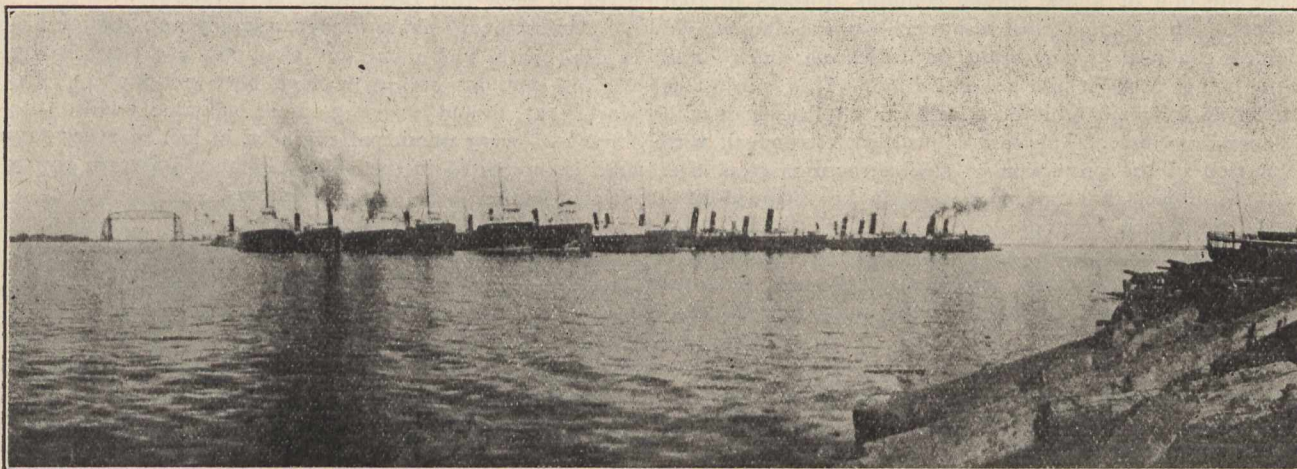
By B. C. Cundy.

The Aerial Ferry Bridge, of Duluth, is the only one of its kind in the world, and is a masterpiece of engineering and electrical skill.

To fully understand the need of this "bridge," one must first know something of the conditions which called for it, and also something of Duluth itself.

Duluth, "The Zenith City," needs no eulogy, since it is

and continued to serve the people until 1905. But the "Point" continued to grow, becoming more and more popular creating an imperative demand from the resident for better, quicker and safer transportation. The city also desired something cheaper, the steam ferry was costing them about eleven thousand yearly. The city engineer had presented to him plans for a draw-bridge, lift-bridge, and a roller bridge, but all failed to meet with the approval of the United States War Department, which demanded a method in no way impeding, or interfering with the commercial shipping interests passing through the canal. The suspended car transfer bridge at Rouen, France, was then brought to the notice of

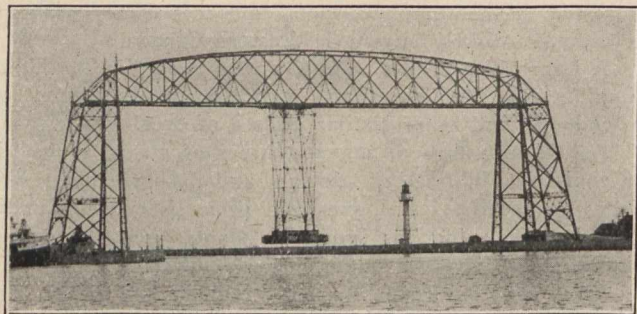


Congestion of Freighters in Duluth Harbor.

well-known by almost every one. At one period (the exact time of which is not known) the Great Lakes were many hundreds of feet higher than at present. Just when the waters decreased we do not know (we do know that they are still decreasing), but in doing so, they left a narrow strip of land jutting out from Duluth, called Minnesota Point. Previous to 1871, Duluth had no good harbor, her shipping had to be from the lake, her docking must be from piers, or natural warfrage of rock, and it may be in the memory of

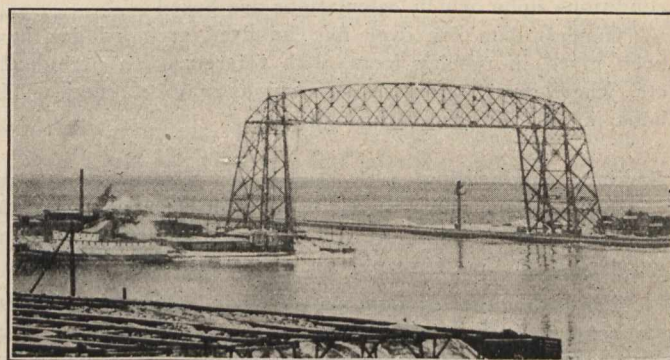
the city engineer in 1899, who thinking well of it got out plans adapting the general scheme to the requirements of the "Duluth ship canal." This was favorably received both by the city of Duluth, and the United States War Department. The State Legislature sanctioned a bond for the estimated cost of \$100,000 to commence erection in 1901.

The foundations contain 730 tons of concrete, in 8 piers, extending below the water level of the lake. After the piers were built, and various delays occurred, a contract was finally entered into (February, 1904) with the Modern Steel Structural Company, of Waukesha, Wisconsin, for a riveted steel tower, the ferry car to be supported by an inverted steel tower, 24 anchor bolts 2 inches in diameter fastened by means of large washers to the bottom of the pier hold the towers in position. The bridge has a clear height above the ordinary level of Lake Superior of 135 feet. This height was fixed by the "Lake Carriers' Association," thus permitting the highest mast to pass under. The truss at the centre is 51 feet, making the highest part of the bridge 186 feet above the water. The width centre to centre of trusses, is 34 feet



Duluth's Aerial Ferry Bridge.

some seeing a picture of Duluth, where a ship was tied to a tree on the shore. This manner of docking prevented ships from remaining long at Duluth, and in case of storm they were obliged to put out into the lake for fear of being wrecked on the rocks of the shore. In 1871 the idea was conceived of cutting a canal across Minnesota Point, and thus afford the shipping interest one of the finest and safest harbors. Later the United States Government adopted this canal, in 1901 it was widened from two hundred and forty feet to three hundred feet, and named "The Duluth Ship Canal," through which now passes annually about the same commercial tonnage that is carried through the famous Suez Canal. The cutting of this canal, converted Minnesota Point into an island, and the city accepted the responsibility of providing the inhabitants with means of communication with the main land, from 1871 to 1897 a row boat ferry was maintained, but during the year 1893-4, commonly known as the "hard times," it became popular as a summer camping ground, later on summer cottages were built. It was, therefore, impossible to accommodate this increase with the row boat ferry, and a steam ferry was put in use



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and the clear span is 393.75 feet. The car platform is 34 x 50 feet, and contains in addition to space for a street car and two waggons, two enclosed and glazed cabins, each 7 x 30 feet. The bottom of the car is elevated above the Government piers 6 feet, so that when the car is at rest, the whole length is over land, in no way obstructing navigation. The bridge contains 700 tons of steel and over 100,000 rivets. The car will carry at one time 125,000 pounds, which is equal