

# SCIENTIFIC AMERICAN

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## THE ARTHUR KILL BRIDGE.

We illustrate in the present issue the great draw-bridge spanning the Arthur Kill and connecting the States of New Jersey and New York. The inlet or strait which it crosses runs between Staten Island, which constitutes Richmond County, N. Y., and the opposite shores of New Jersey. The stream is about 600 feet in available width at the point where the bridge is erected. Were the shores of New York harbor to be inspected with a view to finding the best frontage for public stores and wharves, no better locality could be selected, as regards the water front, than the shores of Staten Island. But hitherto this region has not been available for these purposes for lack of railroad communication. The new bridge, which is designed to afford a way for the great trunk railroads to reach the shore in question, will, therefore, play a most important part in the development of the port of New York. Five to ten miles of additional water front, it is calculated, will be opened up by it. The Baltimore and Ohio, the New Jersey Central, the New York, West Shore, and Buffalo, with other roads, are among the probable users of the bridge.

The structure was erected by the Staten Island

Rapid Transit Company. It was authorized by act of Congress of June 16, 1886, and two years were allotted for its completion. On June 13, 1888, a party of engineers and promoters of the scheme visited the place, and the great draw was swung around from open to closed position, and the kill was crossed by a bridge for the first time only three days before the limit assigned by the charter.

The bridge, being owned by an independent corporation, will be open to traffic under similar conditions to those offered by the Poughkeepsie bridge. Any railroad wishing to use it can do so on payment of the regular tolls. This arrangement removes from it any aspect of monopoly, and tends to make it a public benefit in every sense.

Some very interesting litigation was evolved by the erection. The bridge, it will be noticed, is an interstate bridge, and was erected under Federal authorization. The plans and location were subject to the approval of the Secretary of War of the United States. He held them under consideration for nine months, and eventually approved them without modification. The work was at once commenced, only to be delayed an additional six months by an injunction. This was pro-

cured by the State of New Jersey, represented by Gov. Green, the proceedings being in charge of Attorney-General Stockton. On argument this impediment was disposed of in the United States Circuit Court by Justice Bradley. He decided against the injunction, holding that Congress had the constitutional right to regulate commerce, even though the States directly concerned might be opposed to its action. The decision has attracted much attention, and may yet be of much importance.

The two years allowed for the completion of the work were very seriously abridged by these causes, and the completion of the structure within the specified time, without any extension being asked for, is a matter for congratulation to all directly concerned in the work.

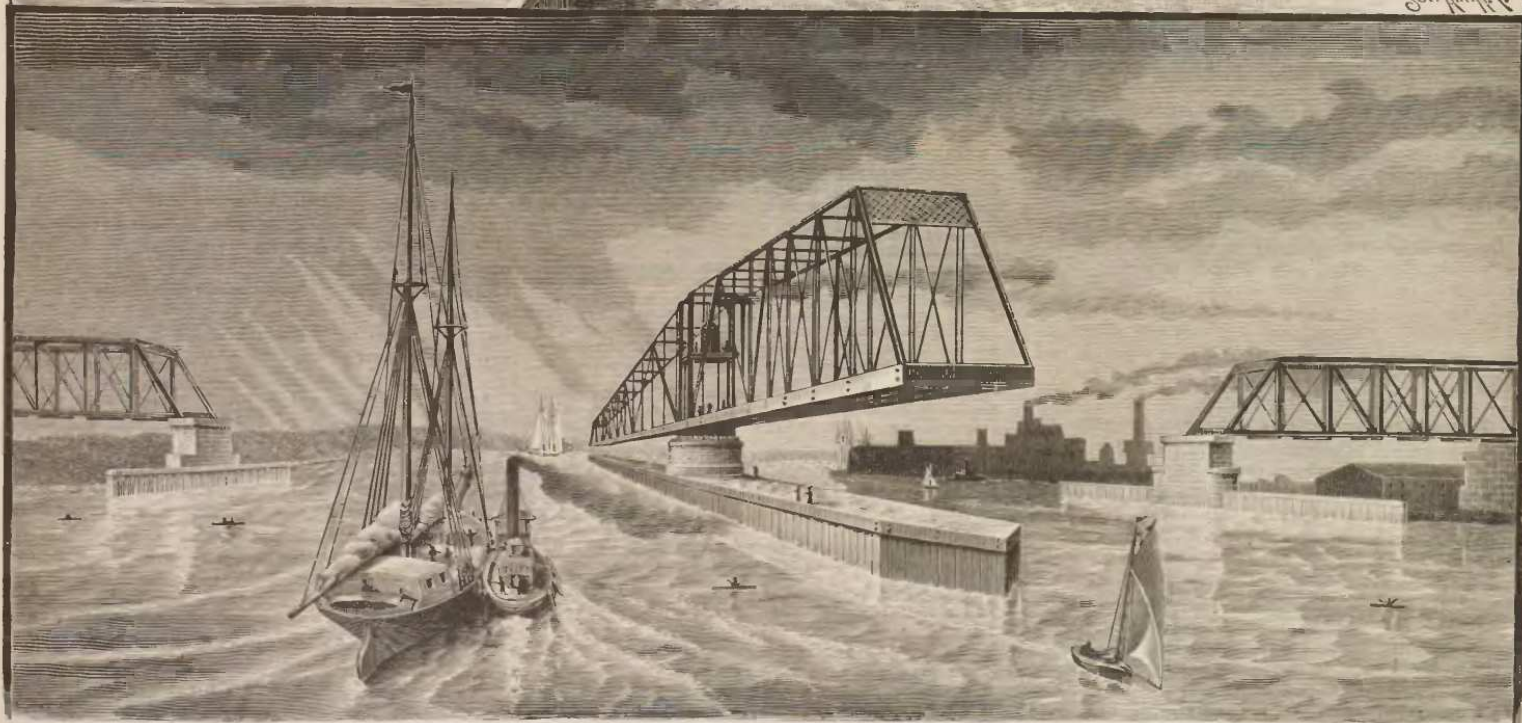
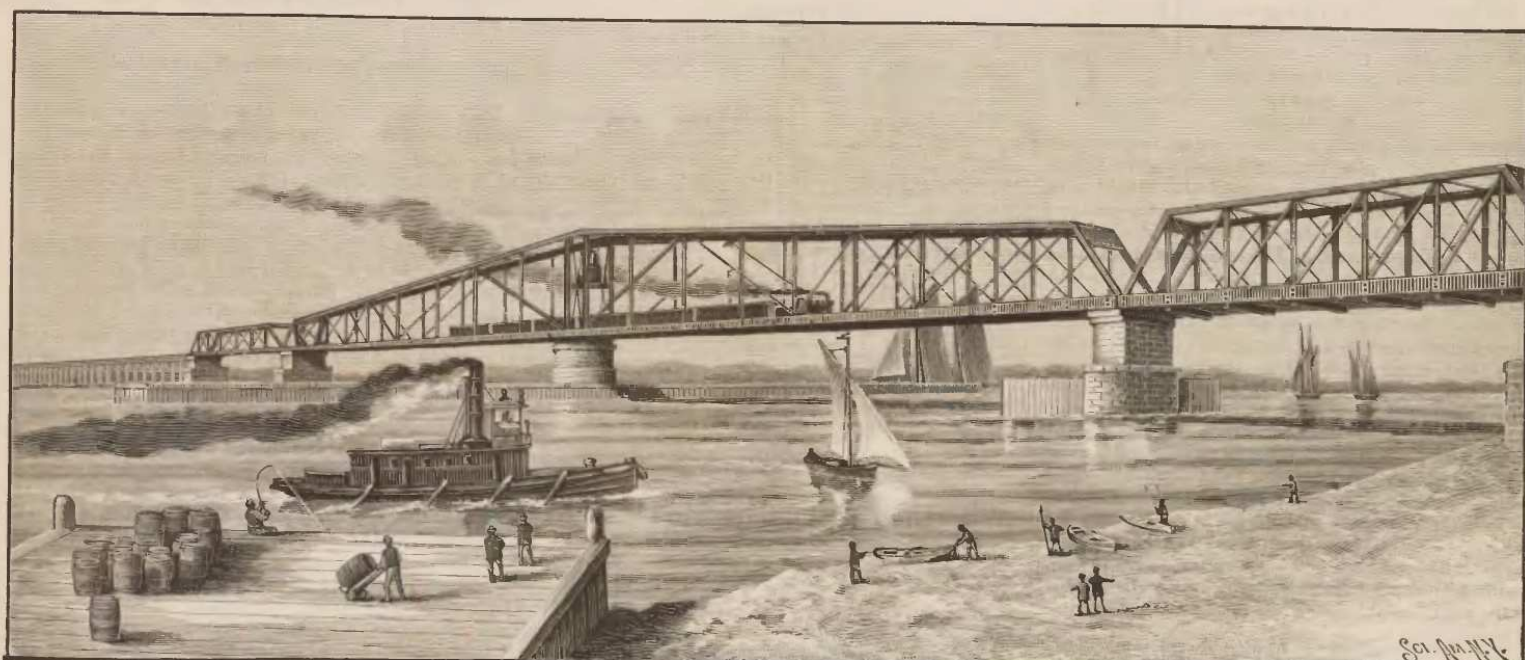
The trusses and drawbridge are carried upon five piers of masonry. These are built of the best material, Lake Champlain granite of the first quality being adopted. Much trouble was experienced in laying them, as a solid foundation was only reached with great difficulty.

The entire length of the bridge proper, exclusive of approaches, is eight hundred feet. It comprises two shore spans, covered by fixed trusses, and two draw



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