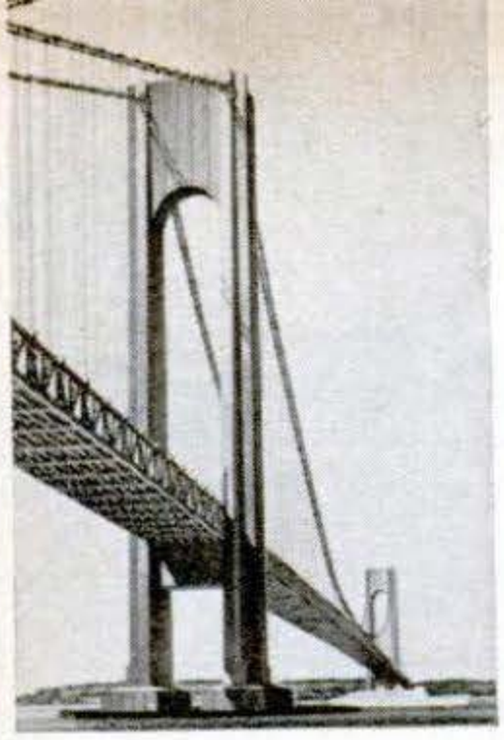

Even farther than the Golden Gate soars the newly completed Verrazano-Narrows suspension span

The Biggest Bridge

PHOTO BY O. W. LINK

In tower-top view, workers attach "band" or hanger for deck to one of the finished main cables.

in the World

By Alden P. Armagnac

UP THE outside of the 690-foot-tall bridge tower, a little steel-netting cage swayed and bumped its way to a platform at nearly 70-story height. By a ladder I made the last few feet to the tower's top—and, clutching my hard hat lest it sail off in the wind, I watched them spin the cables for the greatest bridge in the world.

The new Verrazano-Narrows Bridge leaps the entrance to New York harbor with a main span of 4,260 feet—60 feet longer than that of San Francisco's Golden Gate Bridge, the world-record holder for 27 years. Its $325,000,000 cost makes it the most expensive single structure ever built. When it's opened November 21 by New York's Triborough Bridge and Tunnel Authority it will join Brooklyn and Staten Island for the first time with a motor highway. Soaring 228 feet above the Narrows, it is so high that the biggest liners and warships can pass beneath it.

To ocean vessels' passengers, the huge and graceful suspension bridge already makes a spectacular gateway to the city. It takes the first part of its name from the Italian explorer, Giovanni da Verrazano, credited with discovering New York harbor in 1524. Designing this engineering wonder was the crowning feat of Othmar H. Ammann, master bridge-builder of modern times. As designer or consultant, Ammann has had a hand in planning most of the nation's largest suspension spans.

Loom in the sky. Biggest single task in erecting this newest span was the spinning of four massive cables, 35⅞ inches thick, to hang its 13,700-foot roadway in midair. Workers of U.S. Steel's American Bridge Division used a record 142,500 miles of galvanized steel wire—enough to circle the earth nearly six times.

Eight "spinning wheels" of four-foot diameter, each trailing a loop of the wire, shuttled from anchorage to anchorage over the tops of the

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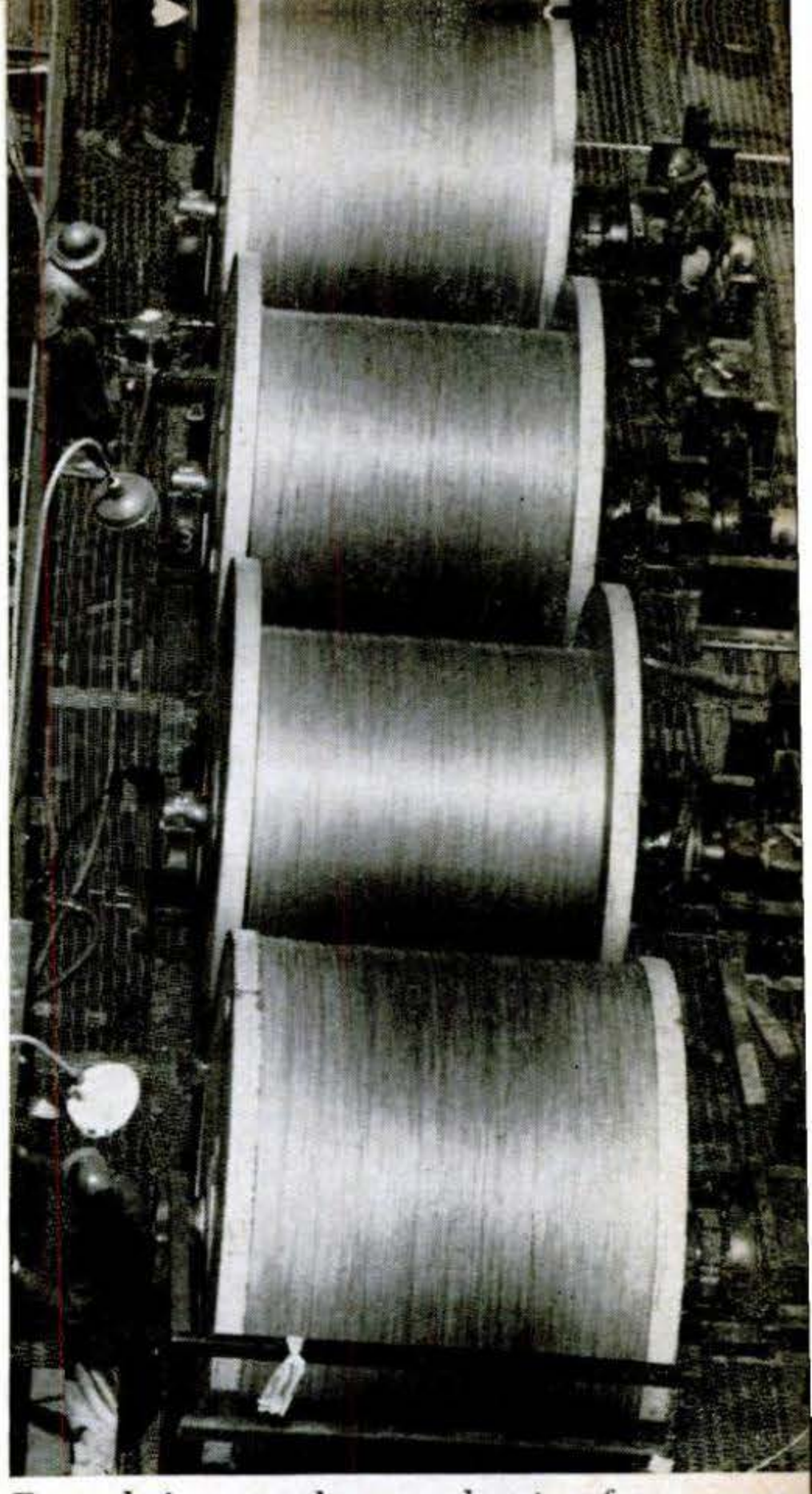


Record-size spools unreel wire for spinning of bridge cables. Each holds 90 miles of the steel thread.
PHOTO BY W. W. MORRIS

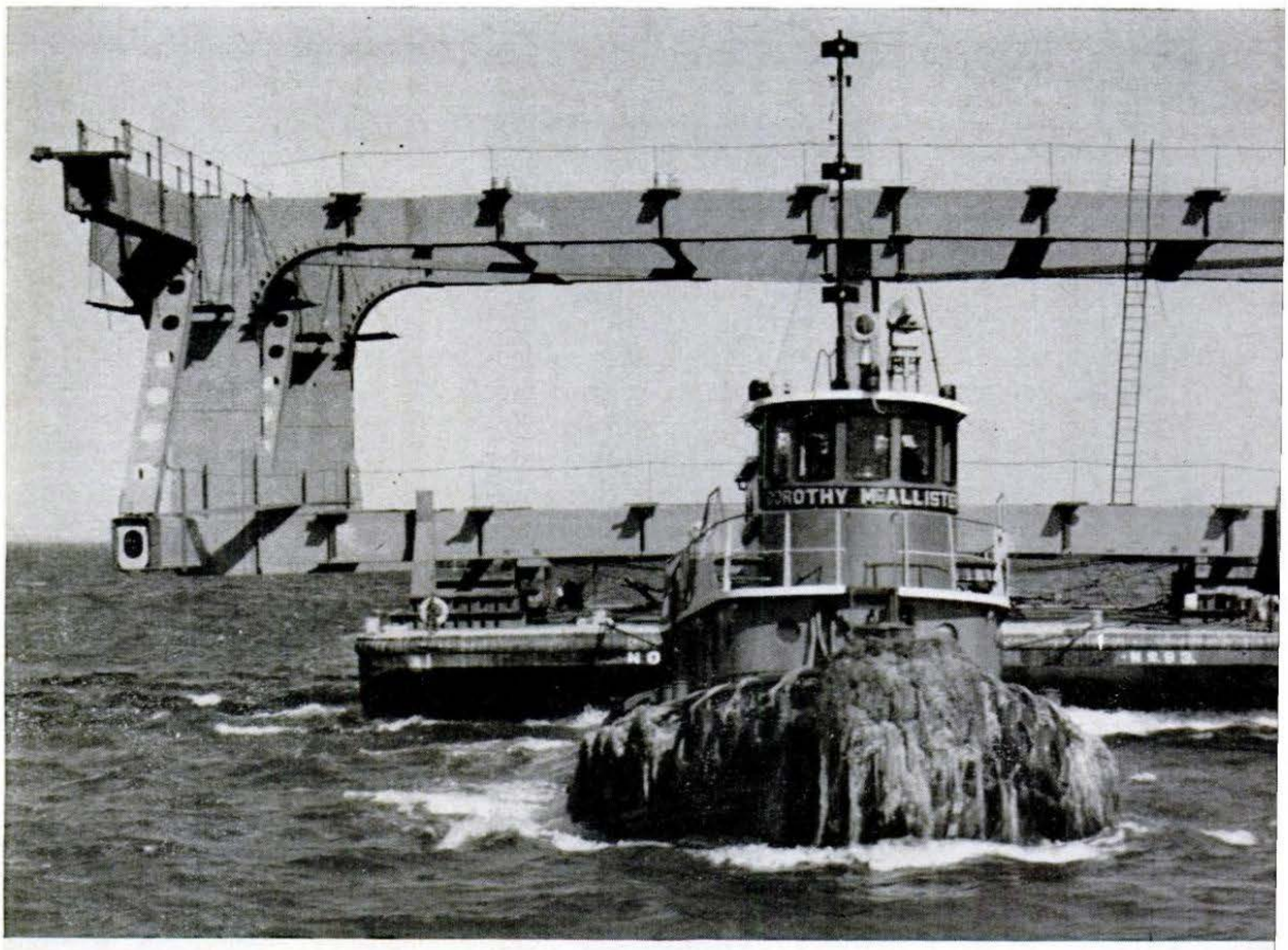
"Spinning wheel" carries a loop of wire from one anchorage to another, to lay it in the main cable. Finished cable contains 26,108 of the wires.
PHOTO BY W. W. MORRIS

steel towers until all 26,108 wires of each cable had been laid (side by side for greatest strength, not twisted or braided as "spinning" might suggest). A cowbell and headlight on each wheel warned workmen along the catwalk to stand clear as it went by on its 12-minute trip across the bridge. The 0.196-inch-diameter wire, a little slimmer than a pencil, unreeled from giant spools—the biggest that have ever been used in bridge building, each holding a 90-mile length weighing 24 tons.

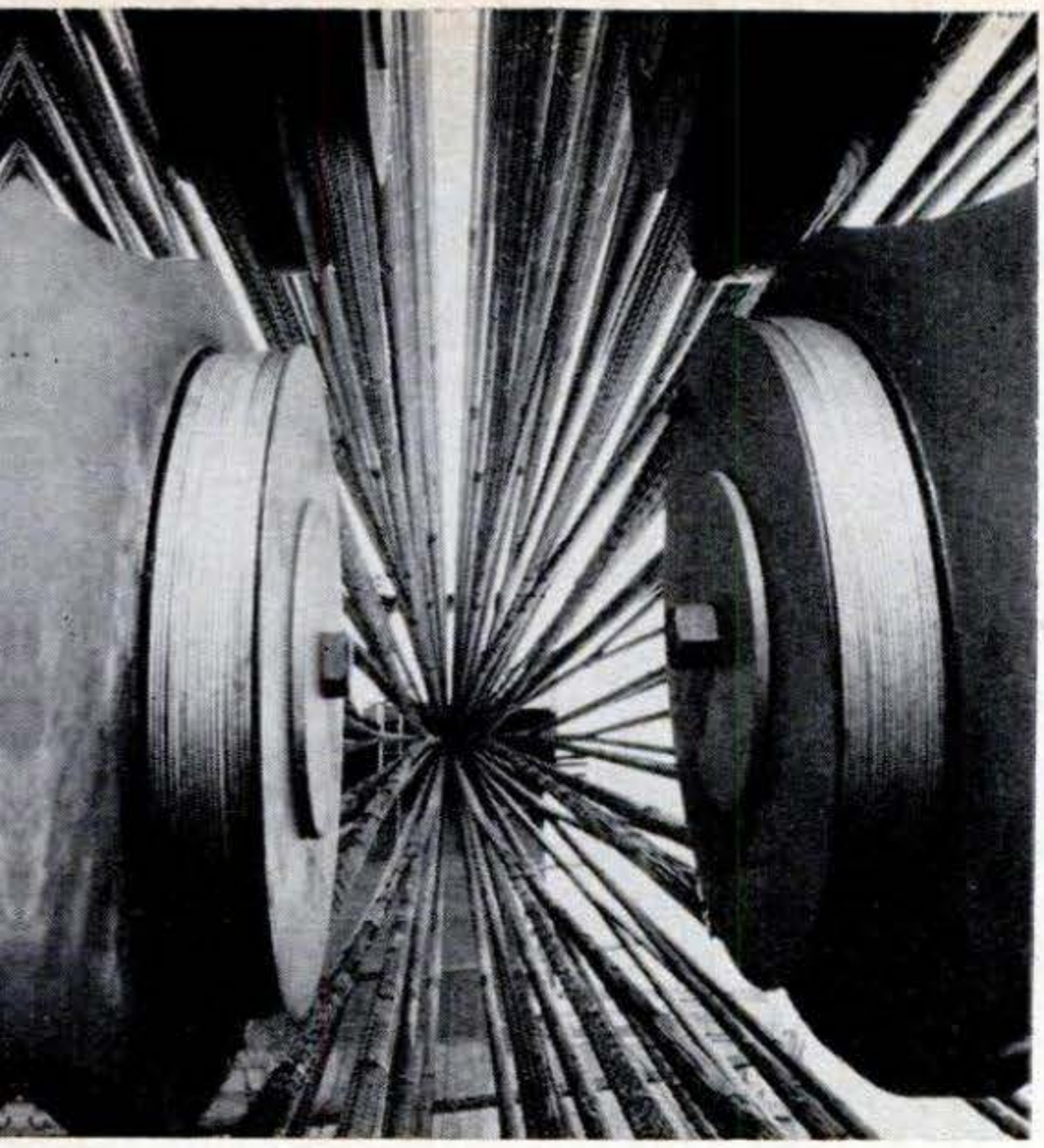
Wire galluses. From the completed cables, the double deck was hung by "suspender ropes" of $2\frac{3}{16}$-inch diameter. Prefabbed deck sections, assembled at American Bridge's Jersey City yard, made a five-mile voyage aboard barges to the bridge site. There the steel trusses, averaging 400 tons in weight, were hoisted aloft and fastened in place—starting from the bridge's center and progressing toward each end.

The finished bridge's upper deck, providing a six-lane roadway for cars and trucks, will be the first to be opened. Later, when future traffic requires it, will come the lower deck's opening—giving a total of 12 lanes with a capacity of 48,000,000 vehicles yearly.

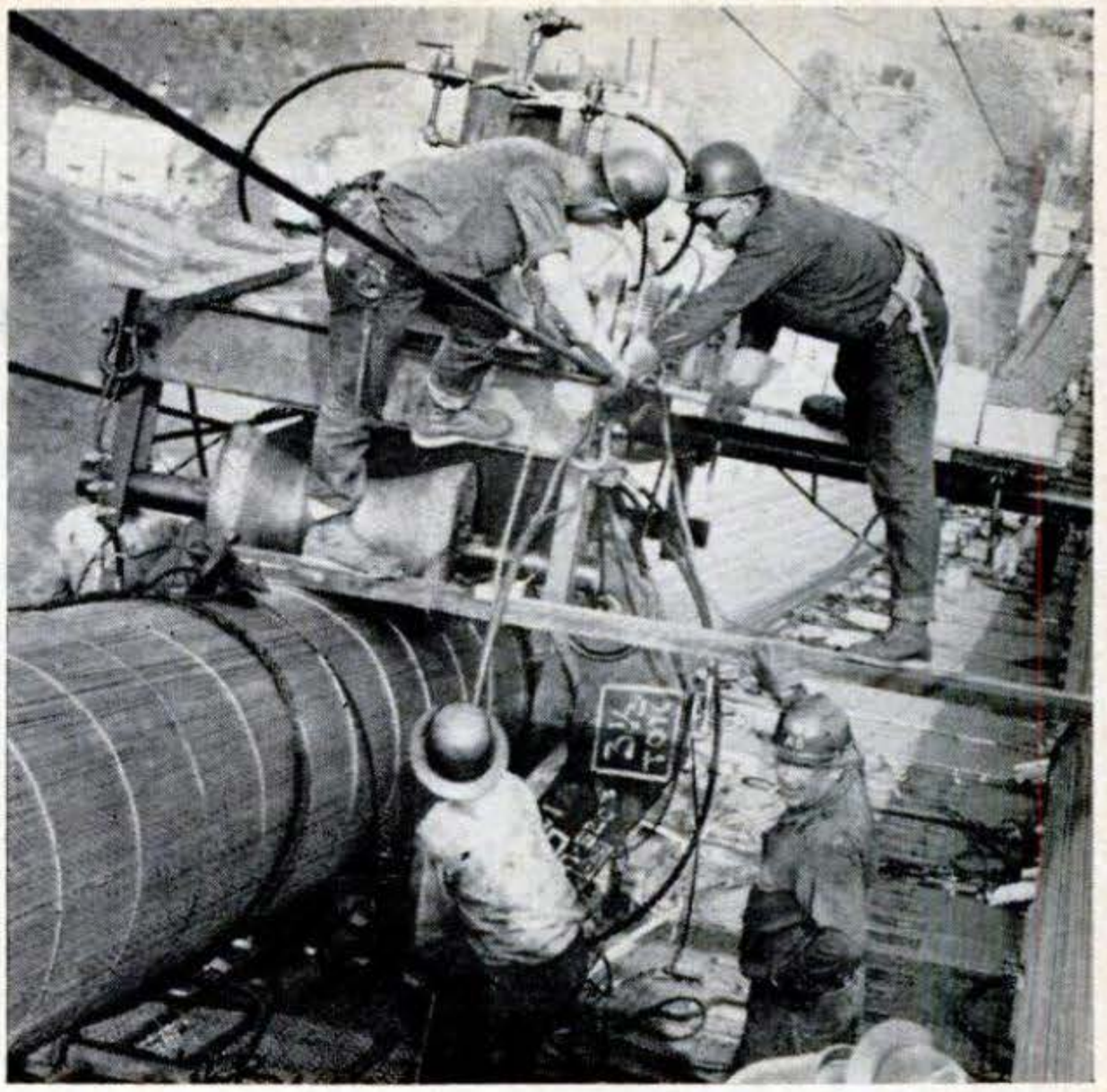
Can still bigger bridges be built in the future? With steel-cable wires of present strength, engineers say, a suspension span as long as 7,000 feet is theoretically possible. Already plans are being considered for a proposed suspension bridge with a main span of 4,580 feet, 320 feet more than the Narrows span, across the Humber River in England. But for at least a number of years to come, the Verrazano-Narrows Bridge will retain its crown as the greatest masterpiece of the bridge-builder's art.



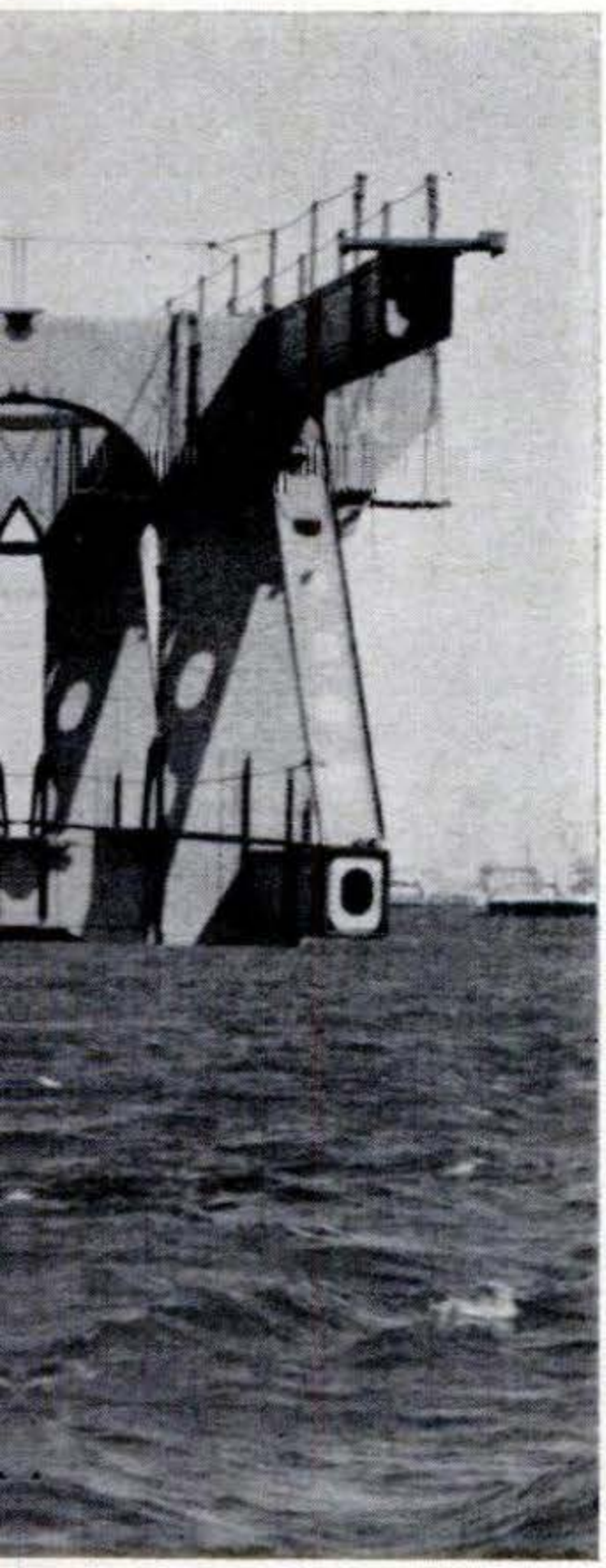
Here comes the deck: Towed by tug, a prefabricated truss section rides barge to its destination, beneath completed cables of bridge. Dozens of these sections, averaging about 400 tons apiece, form a double deck that will ultimately provide 12 lanes for cars and trucks.
PHOTO BY O. W. LINK



End of a main cable subdivides into 61 "strands" of 428 wires apiece. Wires loop around "strand shoes" (foreground) on eyebars protruding from massive anchorage.
PHOTO BY O. W. LINK



Putting the squeeze on a cable's wires, by applying pressure with hydraulic jacks of this machine, workers shape cable to its final cylindrical form. Temporary straps, then cable "bands," keep it that way.
PHOTO BY W. W. MORRIS



Hoisted from barge, truss section swings into place, to be joined to end of completed portion of deck. Suspended structure's 51,000-ton weight hangs from four main cables on 1,048 suspender ropes. ■ ■
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