Progress on Hell Gate Bridge, New York City

The accompanying views show the Hell Gate bridge of the New York Connecting R.R. at one of its most interesting stages of construction. As these photographs were taken a very particular operation was being carried out by the erection forces of the American Bridge Co.

The two halves of the arch are erected as cantilevers, with temporary backstays holding them up, as shown in the sketch in *Engineering News,* Jan. 8, 1914, p. 62, and Apr. 8, 1915, p. 698. The east or Astoria end of the bridge has been erected for seven panels—about 300 ft.—with a backstay hitched to the end pin of the top chord (see *Engineering News,* Apr. 8, 1915, pp. 698 and 699).

For the rest of the half-arch a backstay leading over a higher point of support and hitched to the fifth panel point of the top chord is to do duty. The second backstay has been completed during the last few weeks, and

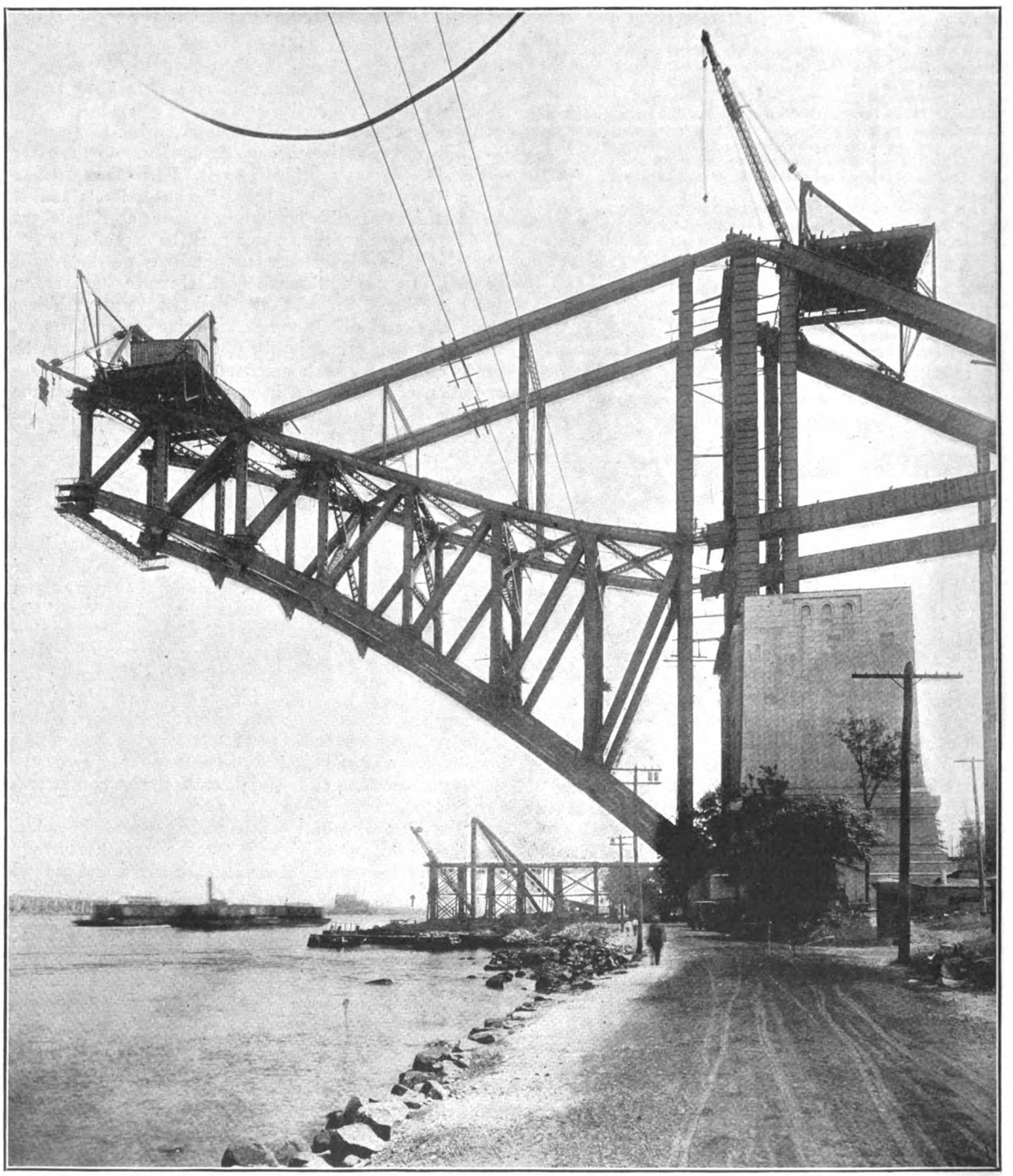

FIG. 1. EAST OR LONG ISLAND END OF HELL GATE ARCH ACROSS THE EAST RIVER AT NEW YORK CITY

on July 22 and 23 the load was transferred to it from the first backstay. At the time the view in Fig. 1 was taken a gang of men was at work driving out the last pin of the lower backstay.

On top of the new backstay supports and under the saddles of the second backstay were set two enormous hydraulic jacks, each of 2400 tons lifting capacity. The jacks were operated to lift the saddles until the short lengths of eye-bar which made the hitch of the first backstay were slacked off. As computed beforehand, this required a jack lift of about 20 in.

The eye-bars were watched, and they became slack at a lift within a fraction of an inch of the computed amount. Then the eye-bar pins were driven out, the upper saddles being blocked in position with plate blocking. There were eight eye-bars to each truss, four inside the chord and four outside, but both pins came out with no special difficulty.

The jacks will be used again in making the closure of the arch at the center.

The west or Ward's Island end of the arch is now three panels out, and the upper backstay is being erected. This end has reached about the same stage of construction as the east end had when the views in *Engineering News*, Apr. 8, 1915, were published. Work will be pushed until this end is as far along as the east end, and then both will be built forward to the center, and the two halves of the arch lowered to connection. The present season will see the arch closed at the crown. The viaduct approach from the west is nearing completion as shown in Fig. 3.

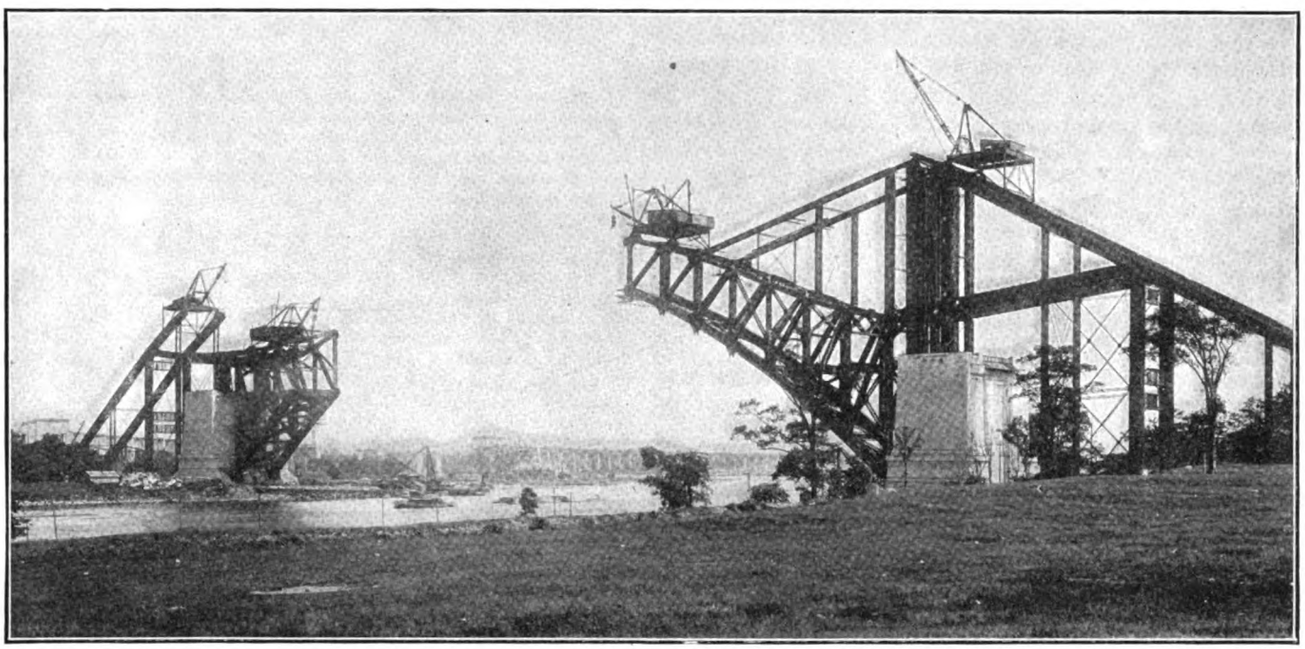

FIG. 2. THE HELL GATE BRIDGE ON JULY 23, 1915

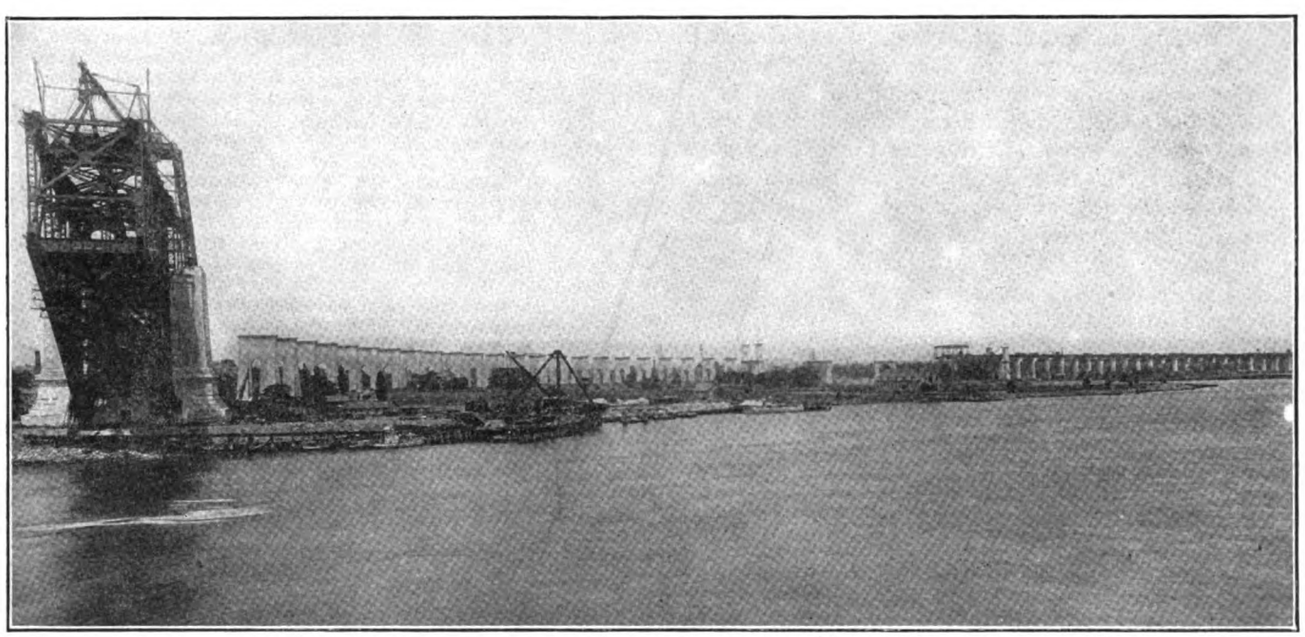

FIG. 3. THE WEST APPROACH OVER WARD'S ISLAND