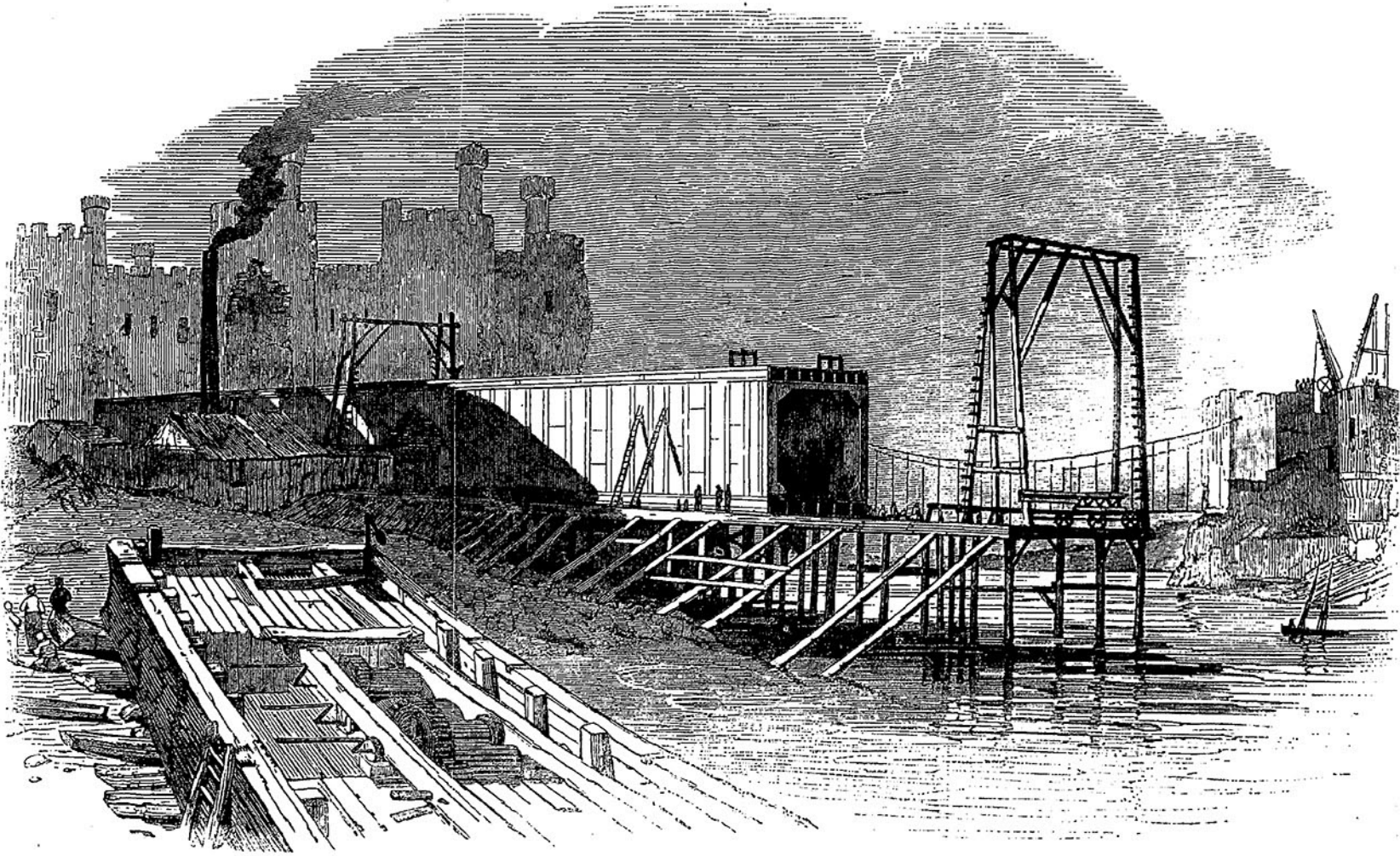


## THE TUBULAR RAILWAY BRIDGE OVER THE RIVER CONWAY.



THE IRON TUBE ON THE PLATFORM ON WHICH IT WAS BUILT.

The Tubular Bridge, which is constructed to carry the Chester and Holyhead line of railway over the river Conway, is one of the most unique examples of engineering skill ever imagined or carried into execution. Though inferior in length and weight to the Britannia Tubular Bridge, now in course of erection over the Menai Straits, for the same railway, yet, being built on precisely the same principles, and raised to its destined site by the same power, it may, from the circumstance of its being the first erected, be deemed a first idea, to be carried out in its fullest extent in its mighty contemporary. As the floating and erecting this singular construction is a most important event in engineering annals, fraught with interest to the scientific world, and wonderful to the unscientific, we have devoted some space to its complete illustration. We are happy to add, that on Monday last the labour of raising this vast tube was very nearly accomplished. The tube, which at first was resting on part of the platform on which it was built, was raised eight inches by pumping the water out of the pontoons, which had been placed under it. At about eleven (the tide still on the flow) the whole fabric was got under weigh, and slowly drawn down by means of hawsers attached to various convenient places, and worked by capstans, until it arrived within a few feet of its proper position at the north side, and in its right position at the south, or Conway side, when, owing to the pontoons on that side touching the bottom, it could be got no farther, and, the tide receding, the tube was left unsupported on the two temporary stone-beds, built inside the abutments. With this single, and, indeed, trivial, exception, the whole operation was performed in a most satisfactory manner, and the tube will, doubtless, be in its place in the course

of the week. Standing on the tube were Messrs. G. and R. Stephenson, Mr. Brunel, Mr. Rendel, Mr. Fairbairn, Mr. Bidder, Mr. Frank Forster, Captain Claxton, Captain Moorsom, and the contractor, Mr. Evans. At the conclusion, three hearty cheers were given by the workmen and spectators, Captain Claxton giving the signal, and finishing by smashing his speaking-trumpet, and pitching it into the Straits. A great number of professional gentlemen were present to witness this great engineering work.

The tube was floated to the piers on six huge pontoons, three at either end, constructed near the spot where the tube was erected; and in the view we give, representing the tube on the platform where it was built, one of the pontoons occupies a prominent place in the foreground. The pontoons are 100 feet in length, 25 feet in width, and 10 feet high. The pontoons were floated under the platform on which the tube rested at low water; and the piles supporting the platform being taken away, the whole mass of the tube rested upon two stone piers, temporarily erected at either end for that purpose; but as the tide rose, the pontoons lifted the tube from these piers, and transported it to the shelf prepared for it below the presses on the permanent piers.

In our view of the floating the tube, the buoys are shown which were fixed in the stream to guide the mighty fabric in its course; and the appearance of the tube on its pontoons, shored up to steady it, forms a singular and impressive picture.

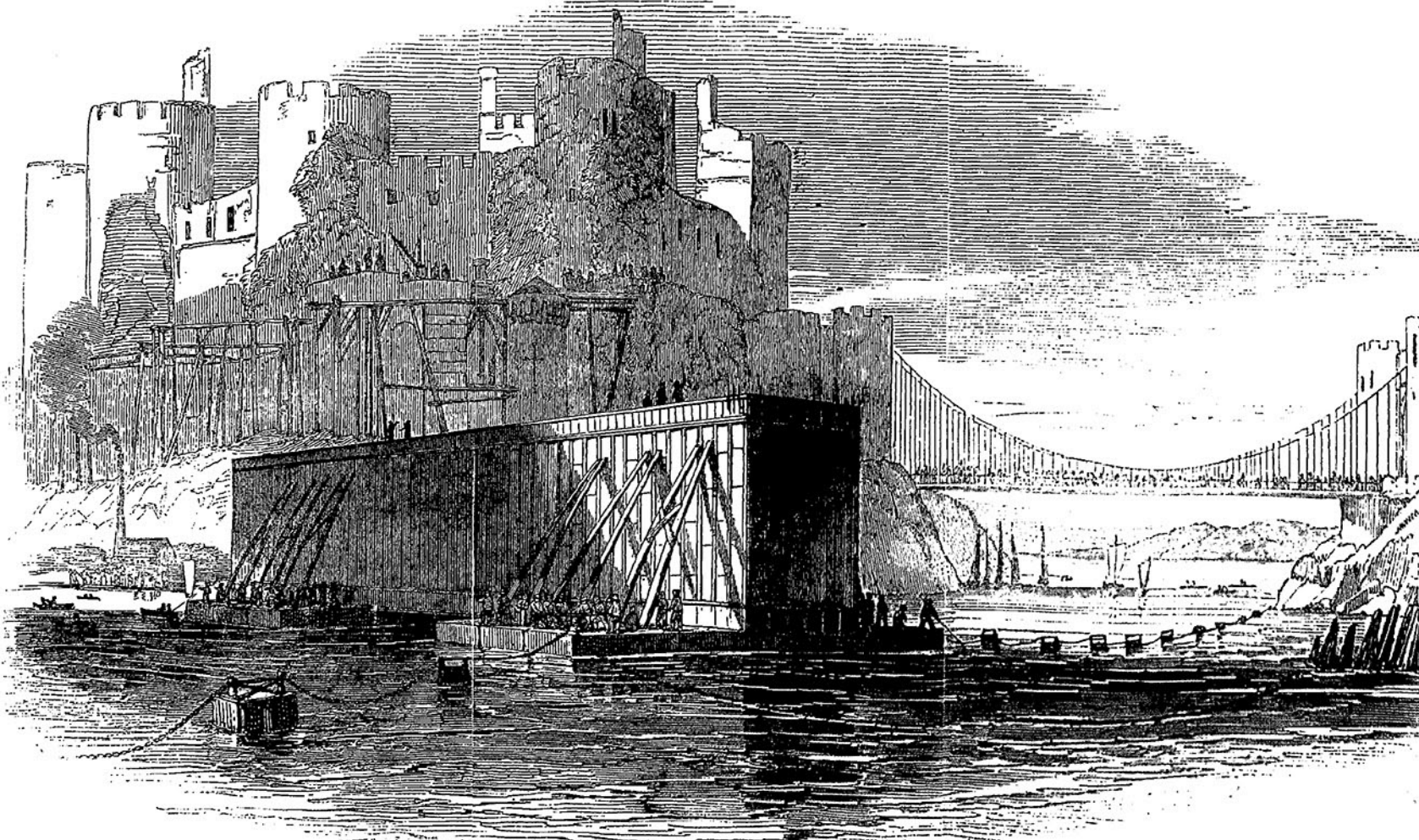
The bridge had not been lifted to its place at the time of our going to press, or at least no intelligence of the event had reached our office at that time; but through the kindness of R. Stephenson, Esq., the

chief engineer, we are enabled to describe the apparatus prepared for the lifting, and to illustrate it completely by diagrams; and these we now proceed to describe.

On a piece of land projecting into the Conway, about 100 yards from the site of the piers to the Bridge, an enormous platform was raised on piles, and on this the work of erecting the tube has been carried on. The tube has been twelve months in construction, and the novel manner in which it is arranged and built is worthy of the eminent engineer who planned it. One of our representations shows it, as completed, resting on its platform previous to its being lowered on the pontoons destined to bear it to the piers of the Bridge.

The idea furnished by the word "tube," however, gives no idea of its form, inasmuch as that is suggestive of a circularly-formed tunnel, whereas in fact the Bridge is like a huge chest, such an one as the geni of Eastern romances might be supposed to fabricate.

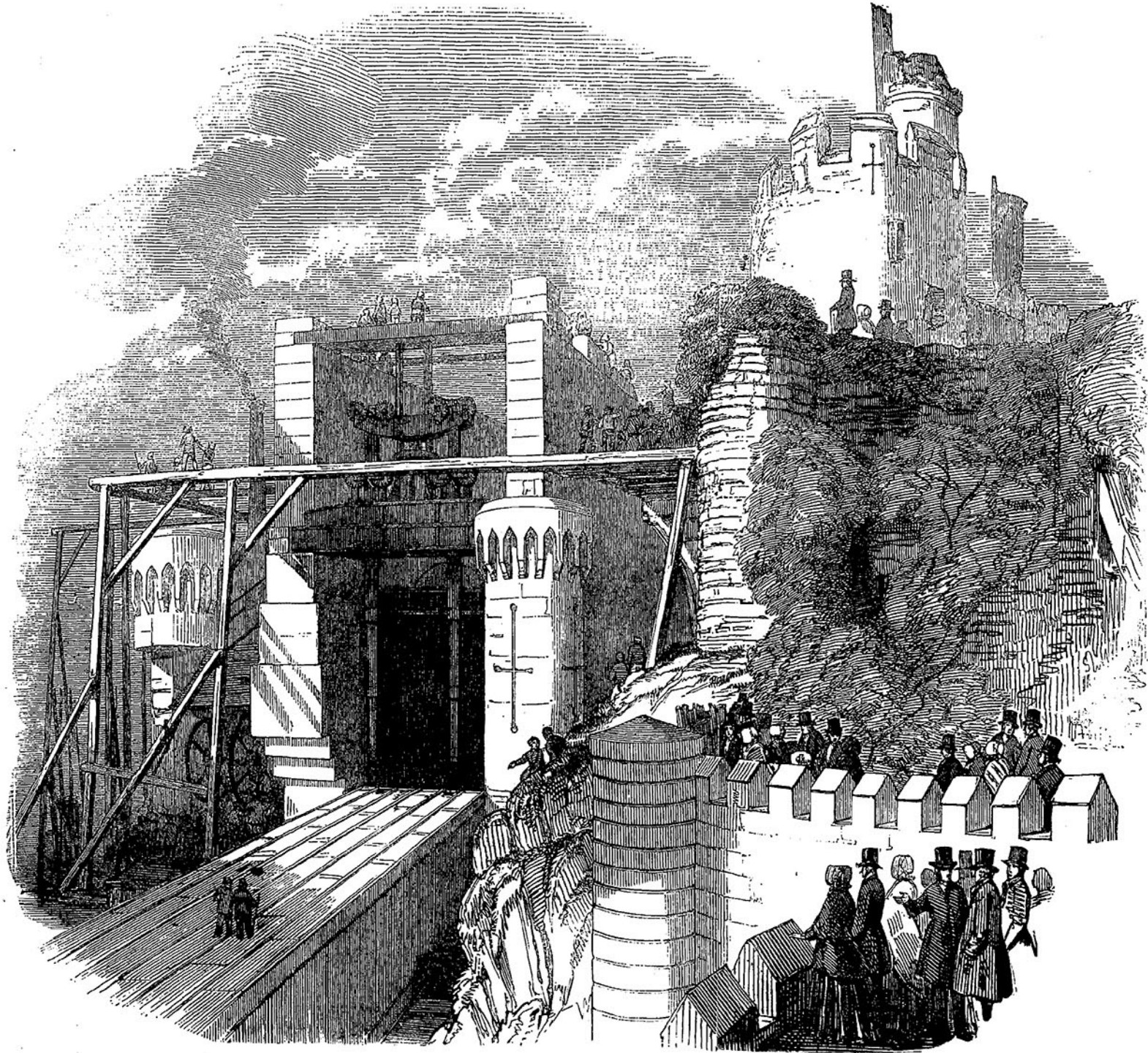
The Tube is made of wrought-iron plates, varying in thickness from  $\frac{1}{2}$  inch to 1 inch, riveted together, strengthened by T irons; and, to give additional strength to the whole, a series of cells is formed at the top and at the bottom of the tube, between an inner ceiling and floor and the exterior plates. In our sectional engraving (Fig. 1) the peculiar construction of this wonderful specimen of engineering skill is fully elucidated, and it will be observed that T irons strengthen the top and sides, and that the iron plates which form the cells are riveted and held in their places by angle irons. The upper cells, eight in number, in the transverse section, are nearly square, being 1 foot 9 inches high, and 1 foot 8 $\frac{1}{2}$  wide. The lower cells, six in number, are



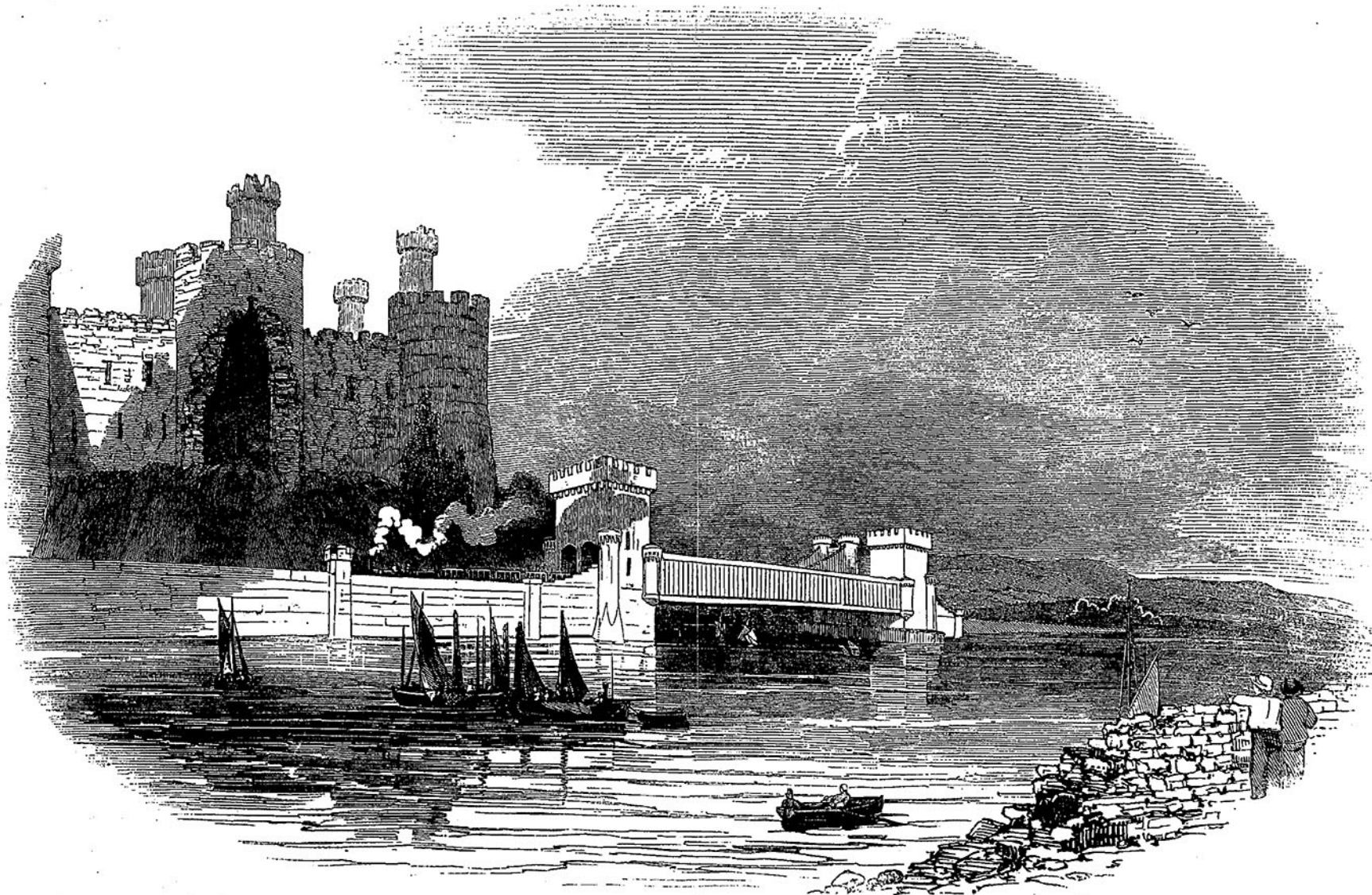
FLOATING THE TUBE TO ITS DESTINATION



THE TUBULAR RAILWAY BRIDGE OVER THE RIVER CONWAY



THE TUBE AT THE PIERS JUST PREVIOUS TO BEING RAISED TO ITS PLACE.



THE CONWAY TUNNEL BRIDGE AS IT WILL APPEAR WHEN COMPLETED