interposed between the latter and the underside of the rail. A wrought-iron strip (Figs. 6 and 7), ⅜ in. thick and 6 in. wide, runs underneath each longitudinal sleeper for the whole length of the bridge, and into it the bolts which hold the rails in place are screwed. The bridge is covered with planking 3 in. thick, laid as shown in section, Fig. 6, and covered with about 4 in. of ballast, while four gangways 3 ft. 6 in. wide, supported on the shallow longitudinal girders, run from end to end (Fig. 3). There are altogether 100 tons of iron in the whole structure, which has been erected at a cost of 4800/.

THE NEW TRENT BRIDGE, NOTTINGHAM.

PLATES XLI. AND XLII.

Plate XLI gives a prospective view, and Plate XLII shows the details of construction of the new bridge constructed over the River Trent at Nottingham, from the designs of Mr. M. O. Tarbottom. This new structure replaces the Old Trent Bridge, which has long possessed great interest for antiquarians from its numerous historical associations, and from its site having for ages past been the crossing place of the River Trent. Not long since a very complete account of this old structure was written by Mr. Tarbottom, and issued in a pamphlet form, and had our space permitted we should have been glad to have transferred to our page some of the highly interesting facts thus placed on record. As it is, however, we cannot do this, but must confine ourselves to a description of the new structure alone, and this we may do to some extent in Mr. Tarbottom’s own words.

The new bridge, then, is a handsome structure, having a total length of 700 ft. and a width between parapets of 40 ft., while the width from face to face of the abutments is 48 ft. 8 in. The bridge consists of three main arches or spans, each 100 ft. wide in the clear, one north flood and towing-path arch, 10 ft. span, and three south flood arches, 18 ft., 15 ft., and 12 ft. span respectively. The surface of the bridge is quite level, and the north approach has a gradient of 1 in 47 and the south 1 in 34. The height of the roadway above the summer water level of the Trent is 27 ft., and there are two footpaths each 7 ft. wide, with a carriage-way 26 ft. wide, capable of accommodating easily three lines of carriages.

The material of the large main arches is cast iron, and each arch has eight ribs or girders, which weigh about 200 tons. The main ribs are 3 ft. deep at the springing, and 2 ft. 6 in. deep at the crown, the main section being of an I form 2 ft. 9 in. deep, with top and bottom flanges measuring 7 in. by 13 in. and 9 in. by 2 in. respectively. The form of section of the face ribs is shown on the right-hand side of Fig. 12 of Plate XLI. These ribs sustain transverse wrought-iron girders, which are bolted thereto, and which in turn carry the roadway floor; the latter is formed of wrought-iron curved plates and Mallet’s buckled plates, all which are rivetted together and to T and angle iron bearers and straps. Every arch has strong bracing frames to connect the several ribs together, and all the joints of the ironwork are planed true and connected with iron pins or bolts, which were previously turned smooth in a lathe and fitted into holes correspondingly drilled through the ironwork. The face ribs are of an ornamental character, and are moulded on the lower edges, and on the upper lines of the arches. The spandrels are deeply recessed and moulded, and contain medallions of cast iron fitted within geometric casings, which are enclosed in moulded circles or tracery. The designs for the enrichments vary in each compartment both in size and detail; these were all modelled and prepared by Messrs. Farmer and Brindley, of London, the sculptors, but cast at Derby. Over the arches and spandrels an ornamental moulded cornice of cast iron runs from pier to pier, and the lower part embraces a rich filling of conventional foliage, composed of leaves and lilies, also of cast iron. The whole is surmounted by the parapet, which is of geometric and continuous design, formed of cast-iron open-work, with pateras or flowers at the intersections of the curved lines. The top member is moulded, and the lamp standards, for lighting the bridge, are designed as permanent features to correspond with the parapets, and form an integral part of the latter. The parapets of the north and south