in Fig. 3, Plate XXIX., with a semicircular top 8 ft. 7 in. in diameter, parallel sides 2 ft. 6 in. in height, and a curved invert, the depth of the sewer from the middle of invert to the crown being 8 ft. The relative position of the sewer crossing and the railway beneath it, as well as the direction and extent of the temporary work required, are shown in Fig. 6, Plate XXIX., where it will be seen that the temporary diversion extended for a considerable distance on each side of the railway, across which the sewage was conducted in a timber trough 7 ft. 6 in. wide and 8 ft. deep, which was supported at three points by trestles resting on the invert of the railway below. The temporary sewage trough for the eastern curve (a smaller work) was made in one span of 27 ft., of the same capacity as that for the Hotel Curve, and of a similar construction, being framed with strong timber-trussed girders, and lined at the sides and bottom with 3 in. planking well caulked and tarred. The connections between the troughs and the brickwork of the sewer were made in brickwork, with curved inverts and side walls carried up straight for a height of 4 ft., at which level the walls were covered over with planking. The union between the brickwork conduits at each end of the trough were made good with the Fleet on the outside before the walls of the sewer were broken through, and the flood turned into the trough. Afterwards, and while the sewage was flowing through the original as well as diverted channel, dams of timber and puddle were constructed across the sewer at the points of junction with the old and new work. The length between these dams was then pulled down and reconstructed, as shown in Plate XXIX. The cast iron of the original crossing had suffered no deterioration from the constant flow of sewage matter through it; the red lead with which the interior had been cased was still adhering to the sides, although it had been washed away from the invert; all the joints were perfect, and the packing was as good as when it had been put in some years before. The new crossings are similar in construction to the old, differing somewhat in detail and in length; the old tube over the Hotel Curve was 28 ft. span, and was replaced by one of 35 ft., while that over the eastern curve, 27 ft. long, was almost the same as before. The cross section, Fig. 3, Plate XXIX., shows the transverse arrangement of the plates composing the tube, the positions of the strengthening flanges, and the mode of connection with the supporting girders. It will be seen that the top covers of these plates, which are 3/8 in. thick, are bolted together by 3/8 in. bolts passing through 1 in. flanges at intervals of 5 in., the parallel sides are of 1/2 in. metal, and the invert has a thickness of 1 in., increased by transverse and longitudinal flanges on the inside, the former of which are 3 in. deep in the centre, dying away to nothing at the sides of the invert, while the spaces are filled with concrete covered with tar, so that a smooth and uniform surface is presented. Externally the invert plates are strengthened by longitudinal flanges, and at intervals of 3 ft. by the brackets which form the connexion with the two cast-iron girders. These latter are placed 10 ft. 8 in. apart from centre to centre, and are of the section shown in Figs. 3 and 5. In addition to the brackets just mentioned, the sewer crossing is attached to the girders by light wrought-iron steadying strips, as seen in Fig. 3, placed every 3 ft. Longitudinally, the sewer tube is made up of plates 6 ft. long, except at the ends, which are cut to suit the skew of the crossing (an angle of 25°), and in the invert, where plates 3 ft. long are employed. Figs. 1 and 2 show the arrangement of the plates, and it will be seen that around each end a deep flange was cast to make good the connexion between the tube and the thin courses of brickwork set in cement which form the ends of the sewer at the points of junction.

The girders, Figs. 4 and 5, have no load to carry, except the weight of the tube and its contents, the roadway being supported by a system of independent girders and intermediate arches placed over the crown of the sewer, a method of construction which was attended with much difficulty, in consequence of the deficiency of room, and the number of gas and water mains that had to lie between the girders and the road metalising.

In consequence of the determination of the Metropolitan Railway authorities to construct a station at Charles-street, the contract for the erection of the bridge illustrated on Plate XXX., was cancelled, but we think, however, that the mere accident of the non-erection of the bridge will not lessen the value of the design to our readers, since it presents several points of novelty and interest.

Referring to the general elevation and cross section of the bridge, Figs. 1 and 2, Plate XXX., it will be seen that the clear span across the lines of the Metropolitan Railway is 154 ft., that the width of the street carried is 40 ft., and its inclination 1 in 50. The form of truss adopted is in general principle analogous to that of Braun's Saltash bridge, but the details are essentially different in every respect. There are several important desiderata to be kept in view when designing a bridge to carry a busy metropolitan thoroughfare across a railway. Thus, it is absolutely indispensable that there should be a parapet of considerable height to screen the traffic of the line, and it is desirable that the bridge should present a symmetrical and pleasing appearance viewed either from the line or the road. Now, this latter condition is admirably fulfilled in Mr. Fowler's design. In an ordinary bowstring, which, by the way, always presents an uncomfortable though fictitious appearance of weakness at the ends, the necessity of having an opaque parapet at once precludes the possibility of getting a symmetrical and well balanced eleva-