Note 23, On Cylindrical Arch-Bridges; Described on Page 70.

A few of these bridges have been constructed, and have proved successful. Theoretically, they seemed to possess some advantage over those with the other formed arch, especially, as to economy of material in the arch. But practically, the Independent, or Self-sustaining Arch, has justly, as I think, enjoyed a decided preference.

The theoretical excellence of Hollow Cylinders for sustaining negative strain, is somewhat impaired by the difficulty of manufacturing them (of cast iron,) with a uniform thickness on all sides; owing the core's not always being set precisely in the centre, and to its liability to spring, and rise in the mold. Add to this the greater cost of manufacture, and the result is nearly or quite a full offset to the additional amount of material theoretically required, in the different form of castings used in the Independent Arch.

In the Cylindrical Arch bridges that have been put in use, instead of the somewhat crude device for cross beams, and bracing to preserve the lateral adjustment of the arches, shewn in Fig. 18; simple Cast or Wro't Iron web & flange beams have been employed, in connection with double uprights, welded together at the top, and diverging downward to their connection with the beams; and thus giving lateral support to the arches, and keeping them in line.