HISTORY OF IRON BRIDGES.

SUSPENSION BRIDGES.

We read that in China, several suspension bridges made of iron chains have existed from a very remote period; but they are represented as being of rude construction, resembling the rope bridges found spanning deep gorges in South America on its first exploration by Europeans, and probably had their origin more in the exigencies of local situation than in the mechanical ingenuity of the constructors.

The first European chain bridge was built in England about 1741 across the River Tees near Middleton. Its length was 70 feet and it was intended for foot passengers only. In 1796 a bridge of about the same span was built by a Mr. Findlay across Jacob's Creek in the State of Pennsylvania, and 24 years later forty had been erected on his plans in various parts of the United States.

The chain bridge over the river Tweed, near Berwick, England, was the first constructed of any magnitude. It has a span of 449 feet and was built in 1820. The famous Menai Bridge by Telford, of 580 feet span, was completed in 1826. The Niagara Bridge, which, so far, is the only successful adaptation of the suspension principle to railway traffic, has a span of 821 feet 4 inches, and was completed in 1855.

In all bridges on this principle the iron is subjected to a tensile strain only. The undulatory and vibratory motion, caused by the action of high winds or movable loads, forms a serious objection to them, which it has been found difficult to obviate, especially in those of moderate span, and many have failed or been taken down.