s and v represent, respectively, the area and mean velocity of the artificial water-way; S and V the same data of the natural water-way; and in a constant quantity, the materials used in bridge structure are stone, wood and iron. The first two are the oldest materials in use. The use of stone in bridge construction is restricted to the arched forms, owing to their incapacity to support tensile strains. Many beautiful bridges of this material are scattered through Europe and especially in France, whose engineers lead the world in this kind of architecture. Among the works of this