enough has been said to show how lamentably deficient that system is in this particular. In a bridge on the American system, the strains, being axial, coincide with the skeleton diagram of the truss, and, further, the strains can be accurately computed, and need have no more material provided to meet their action than is absolutely necessary. The more usual mode of connection in this system is by means of pins, which joints, when well designed and executed, leave nothing to be desired. The main points to be considered are the sizes of the pins, the reinforcing of the upper chord and post-bearing, the fit between the pins and eyes, the proportion of the heads of the tension-bars, and the uniformity in lengths of similar parts in each panel. It is no part of a book of this character to give specific rules for the proper proportion of these parts, but the great importance of the subject, and the fact that the majority of American highway bridges are very deficient in "joint proportion," warrant an attempt to make clear the requirements of the pin-connection. Pins can not be made too large, and are governed in size by the largest tension eye-bars through which they pass. These occur in the lower chord or in the main diagonals at the ends of a truss. Whether a pin is a half inch more or less in diameter is an economy not worth consideration—only be sure that the error, if any, is toward the larger diameter. Considering the very great importance of properly proportioned pins, it is somewhat remarkable that so little attention has been given to the subject. For years the crude con-