wind, equal to 30 lbs. per square foot, was blowing. It was further assumed that, as every wheel had a break, all the breaks were put on at once, which would throw the strain upon the top chords of the bridge. That was the assumed load of the bridge of 200 feet span, and it was adopted by Mr. Murphy, Mr. Whipple, and Mr. Bollman.

In answer to inquiries from several members, Mr. Colburn said that the highest breaking strain of the cast-iron alluded to in the Paper was 20½ tons per square inch; but it was certainly never subjected to that strain in a bridge. It was boiled cast-iron, that was melted and kept in fusion for several hours, and partially decarbonized. Previous to the present war in America, every cast gun was made of iron melted two, three, or four times.

Mr. F. J. BRAMWELL regretted to hear that the arrangements for the reading of other communications were such, that it was desirable to limit the present discussion; as he feared there would be great difficulty in investigating the principles of construction of the Trusses described in the Paper, unless some considerable time were devoted to that purpose.

With regard to the principles involved in the construction of the Trusses of American Iron Bridges, he referred to three diagrams he had caused to be prepared, showing, respectively, the Fink truss (Fig. 1), an ordinary diagonal truss which was so well known in this country (Fig. 2), and the Bollman, or Harper's Ferry Bridge, truss (Fig. 3). In these diagrams, one-half of each figure was drawn merely in lines, running along the centres of the various members of the truss; while in the other half of each figure the members were indicated either by dotted lines simply, or by dotted lines and shading on each side, so as to show, by the width of the shading or of the dotted lines, the relative amounts of iron required in each member; and by the different kinds of dotted lines and the different kinds of shading, to distinguish between the parts in compression and those in tension; discarding, for the sake of simplicity, all consideration of rivet holes, joints, and such matters, and assuming the whole of the iron to be brought to an uniform thickness, and to be equally valuable for compression and for extension. Thus, if the shading along one member of the truss were twice as wide as along another, then it indicated that there must be double the sectional area of metal in the first of these two members, that there was required to be in the second of such members. In this way the diagrams would at once instruct the eye, as to the consumption of metal in each part of each