to carry the half of unit A, brought on by the tie-rod $f$ B, and also one-half of the unit C, brought on, in a similar manner, by the tie-rod $g$ B. In this way the vertical B b would get a load of two units, one-half of which, or one unit, would have to be upheld through the tie-rod b a, but as the upper part, $f$ a, of this tie was already strained by the weight due to one-half of the unit A, and as the angle of the tie was 45°, the tie b a would bring a compression of exactly a unit and one-half on the top member of the girder. It was clear that a downward load of one unit and a half must also be brought, by the tie b g D, on to the point D, and that a similar load of a unit and a half must be brought on to the same point by the tie d h D, making together a load of three units. This, added to the unit D itself, would cause a load of four units to have to be carried by the vertical D c. Of these four units two would be carried by the tie c a, and the other two by the tie c H. The tie e a would bring the compression on to the top member of the girder due to these two units. If the tie c a had been at the same angle as the tie b f a, this compression would only have been two units; but as the tie c a was at an angle only half as favorable as the tie b f a, the compression brought on to the top member of the truss by the tie c a would be double that of the vertical load carried by it, or a compression of four. The last source from which compression would come upon the top member of the truss would be from the strain of the tie e a. This tie, it would be seen, had to bear one-half the duty of upholding the central strut H e. This strut H e would have to support, first, two units of load brought on it by the tie c H; secondly, one unit of load brought on by the tie d i H, owing to that tie upholding one-half of the load of two on F d, and, thirdly, one-half of a unit of load brought on by the upper part i H of the same tie d i H, which upper part would have to support the half of the unit of load on G i. These three sources of strain would amount together to three and a half units. There would, of course, be an equal load brought on by the corresponding ties to the right hand of the strut H e, which strut would thus be loaded with seven units, to which must be added the unit on H itself, making eight as the total load on the strut H e. Of this eight, one-half, or four, would be upheld by the tie e a, and by this tie would exert a compressive force on the top member of the girder. It would be seen, that the angle at which this tie e a lay was twice as unfavorable as that of the tie last considered, and four times as unfavorable as that of the tie b f a, the angle of which was 45°. Owing to this unfavorable angle of the