tions, the diameter to be taken, in determining above ratio, is the *least* side of the *least* rectangle with which they can be circumscribed. For the other sections, two thirds of the least side must be taken for the diameter. While this method of determining effective diameters is not absolutely accurate, it is sufficiently near the truth to test the merit of competitive designs. Where a post bears directly on a pin, it should be regarded as having a round end. There is probably no property of iron about which less is positively known than its real strength when in the form of posts or columns. Certain general laws have been determined by the experiments thus far made, among the most important of which are the following :

The strength of a column with square end bearings being called unity, that of a column with *both* ends rounded (like the ends of an egg) will be one third, and that of a column with one end square and one end round will be a mean between the first two. That is, the numbers $1, \frac{2}{3}$ and $\frac{1}{3}$ represent the relative strength of columns, according as the bearings are square, one round and one square, or both round. The formula mostly in use for computing the strength of posts is an empirical one, invented by Lewis Gordon, of England, and is based upon the experiments made for the British Board of Trade, by Eaton Hodgkinson, about 1840. Gordon's formula is simpler in application than those deduced by Hodgkinson, and, when properly applied, experience has shown it to be abundantly safe. The original formula is as follows for square-end columns, and should