vals of 2 diameters in length, for all lengths between 6 and 60 diameters. The first column gives lengths in diameters, and the second, the number of pounds to the square inch, borne, with safety.

**Transverse Strength of Wood.**

CXLII. Pine timber will bear a transverse strain of 1500 or 1600 lbs. to the square inch of cross-section; that is, the projecting end of a beam will bear 1500 lbs. for each square inch of its cross-section, applied at a distance from the fulcrum equal to the depth of the beam; the force acting parallel with the sides. In other words, a beam 1 inch square upon supports 2 inches apart, will sustain 3,000 lbs. midway of supports, provided the timber be not split or crushed; as would certainly be the case with so short a leverage.

It will therefore be proper in practice, never to expose this material to a greater transverse strain than 250 lbs. (upon a leverage of 1 diameter), to the square inch; and, to calculate the strength of a projecting beam, this quantity should be multiplied by the cross-section and the depth. and the product divided by the distance of the load from the fulcrum. [xciiv.]

For the safe load in the middle of a beam supported near the ends, take four times the above quantity ( = 1,000 lbs.), multiply by cross-section and depth, and divide by length between supports.

A beam will bear twice as much load uniformly distributed over its length, as when it is concentrated in the centre, in case the beam is supported at the ends, or at the end in the case of a projecting beam.

But these are familiar principles and need not be dwelt upon in this place.