Bélidor, in his *Science des Ingenieurs*, gives us the following account of his experiments on the strength of the side grain of timber; by placing weights on the middle of their lengths.

1st Experiment. Three oak bars, each one inch square, by 18 inches long, placed horizontally, with their ends loose. The medium weight that broke them was 406 pounds.

2d — do — Three oak bars of the same size as the former, with their ends firmly fixed, were broken by the medium weight of 608 pounds.

3d — do — Three oak bars, 2 inches broad, by one inch deep, by 18 inches long, with their ends loose, were broken by the medium weight of 805 pounds.

4th — do — Three oak bars, one inch broad, by 2 inches deep, by 18 inches long, with their ends loose, were broken by the medium weight of 1580 pounds.

5th — do — Three oak bars, one inch square, 3 feet long, ends loose, were broken by the medium weight of 187 pounds.

6th — do — Three oak bars, one inch square, 3 feet long, ends firmly fixed, were broken by the medium weight of 283 pounds.

7th — do — Three oak bars, 2 inches square, 3 feet long, ends loose, were broken by the medium weight of 1585 pounds.

8th — do — Three oak bars, one inch and \(\frac{2}{3}\) broad by 2\(\frac{1}{3}\) deep, and 3 feet long, ends loose, were broken by the medium weight of 1660 pounds.

If we compare experiment the first with experiment the third, the strength will appear proportional to the breadth, the length and depth of each piece being the same.