bar straight again, by filling up the space left by the compression of the wood: this bar broke with 577 pounds.

ON THE ABSOLUTE STRENGTH OF TIMBER.

The strain which arises by pulling timber in the direction of its length is called TENSION.

The absolute strength of a fibre, or small thread of timber, is the force by which every part of a fibre is held together, which is equal to the force that would be required to pull it asunder; and the force that would be required to tear any number of threads asunder, is proportional to all of them; but the areas of the sections of two pieces of timber composed of fibres of the same kinds are as the number of fibres in each; and therefore the strength of the timber is as the area of the sections.

Hence all prismatic bodies are equally strong; that is, they will not break in one part more than another.

Bodies which have unequal sections will break at their smallest part, if it be between the ends; and therefore, if the absolute strength which would be required to tear a square inch of each kind of timber be ascertained, we may easily determine the strength of any other quantity whatever.

The following table is taken from Muschenbrook’s experiments. He has described his method of trial minutely. The woods were all formed into slips fit for his apparatus, and part of the slip was cut away to a parallelopiped form, \( \frac{1}{5} \) of an inch square, and therefore the 25th part of a square inch in section; the absolute strength of a square inch was as follows: