The celebrated Charles Hutton, L. L. D. and F. R. S., in his Recreations in Mathematics and Natural Philosophy, page 392, on Architecture, proposes the following problem.

**PROBLEM 1.**

To cut a tree into a Beam capable of the greatest possible resistance.

"This problem belongs properly to mechanics; but, on account of its use in architecture, we thought it might be proper to give it a place here, and to discuss it both geometrically and philosophically. We shall first examine it under the former point of view.

"Galileo,* who first undertook to apply geometry to the resistance of solids, has determined, on a very ingenious train of reasoning, that, when a body is placed horizontally, and fixed by one of its extremities, as is the case with a quadrangular beam projecting from a wall, if a weight be suspended from the other extremity, in order to break it, the resistance which it opposes is in the compound ratio of the horizontal dimension and the square of the vertical dimension. But this would be more correctly true, if the matter of the body were of a homogeneous and inflexible texture.

"It has been shown also, that, if a beam is supported at both extremities, and if a weight, tending to break it, be suspended from the middle, the resistance it opposes is in the ratio of the product of the breadth and square of the depth, divided by half the length.†

"To solve therefore the proposed problem, we must cut from the trunk of the tree a beam of such dimensions, that the product of the square of the one by the other shall be the greatest possible.