

capacity of passive resistance in the bones. The deviations from the cylindrical forms are not irregularities; and if we take that bone which deviates the furthest from the cylindrical shape, the tibia, or shin bone, we shall have demonstration of the correspondence between the shape of the bone and the force which it has to sustain.

If we consider the direction of the force in walking, running, or leaping, and in all the powerful exertions where the weight of the body is thrown forwards on the ball of the great toe, it must appear that the pressure against the shin bone is chiefly on the anterior part: and there is no doubt that if the tibia were a perfect cylinder, it would be subject to fracture even from the mere force of the body itself being thrown upon it. But if the column be stronger in proportion as the material is distant from the centre, we readily perceive how an anterior spine, or ridge, should be thrown out: and if we attend to the internal structure of that spine, we shall find that it is much denser and stronger than the rest of the bone. We cannot, here, deem either the form or the density of this ridge, a thing of accident; since it so perfectly corresponds with the experiment of Du Hamel which we have described, where the dense piece of wood being let into the piece of timber, was found to be a means of resisting transverse fracture. If we proceed, with the knowledge