proportion to its weight, it is difficult to be put in motion. The printer, therefore, takes hold of the lever near the ball, at A. Were he to continue pulling at that part of the lever, he would give to the ball no more velocity than that of his hand; but having put the ball into motion, he slips his hand down the lever to B. He could not have moved the weight, had he applied his hand here at first; but it being now in motion, the whole strength of his arm is given to the lever at B., whilst the velocity of the great weight at the further end is accelerated. Thus the weight and the velocity being combined, the impulse given to the screw is much greater than if he had continued to pull upon the further end of the lever at A.

If we now turn our eye to the diagram (page 129), we shall understand that the muscle C. raises the long lever of the arm at a disadvantage, or very slowly; but the arm being moved, that motion is rapidly increased by each successive impulse from the muscle; and, of course, the velocity at the further extremity is more rapid than at the insertion of the tendon.

Again, if we consider the action of the muscle D. in pulling down the arm, as in giving a back stroke with the sword, we have the combination of two powers,—weight and muscular effort. When the hammer descends, the rapidity is increased by the mere effect of gravity; but