

The limbs of quadrupeds constitute four columns of support to the trunk, which is placed horizontally above them; but the whole weight of the body, together with that of the head and neck, does not bear equally upon them; the fore extremities almost always sustain the greater part of that weight, both because the fore part of the trunk is itself heavier than the hind part, and because it is loaded with the additional weight of the head and neck. Hence, in the usual attitude of standing, the pieces of which the fore limbs are composed are required to be placed more in a straight line than those of the hinder limb; for the power of a column to support a weight is the greater in proportion as it approaches to the perpendicular position. The hind limbs are composed of exactly the same number of divisions; but the separate portions are usually longer than those of the fore extremity, and consequently if they had been disposed vertically in a straight line, they would have elevated the hinder part of the trunk to too great a height compared with the fore part. This is obviated by their forming alternate angles with one another. As the pelvis connects the spine with the joint of the hip, and even extends farther backwards, the thigh bone must necessarily be brought forwards; then the tibia and fibula, which compose the bones of the leg, must be carried backwards to their junction with the bones of the foot; and, again, the foot must be turned forwards in its whole length from the heel to the extremities of the toes. On comparing the positions of the corresponding divisions of the anterior and posterior extremities, we observe that they incline, when bent, in opposite directions; for in the former we find, in following the series of bones from the spine, that the scapula proceeds forwards, the humerus backwards; the radius and ulna again forwards, and the fore foot backwards, positions which are exactly the reverse of the corresponding bones of the hind limb. (See Fig. 218, page 350.)

The weight of the body, in consequence of this alternate direction of the angles at the successive joints, must always tend, while the quadruped is on its legs, to bend each limb: