accommodate itself to various kinds of flexions, and twistings of the trunk. While these objects are provided for, care must at the same time be taken that the spinal marrow it encloses shall, amidst all these motions, remain secure from pressure; for so delicate is its structure that the least degree of compression would at once interrupt its functions, and lead to the most fatal consequences. A safe passage is likewise to be afforded to the nerves, which issue from the spinal marrow, at certain intervals, on each side throughout its whole length.

No where has mechanical art been more conspicuously displayed than in the construction of a fabric capable of fulfilling these opposite, and apparently incompatible functions. The principal difficulty was to combine great strength with sufficient flexibility. This we find accomplished, first, by the division of the column into a great number of pieces, each of which being locked in with the two adjoining pieces, and tightly braced by connecting ligaments, is allowed but a very small degree of flexion at the point of junction. This slight flexion at each single joint, however, by becoming multiplied along the series, amounts to a considerable degree of motion in the whole column.

The broad basis of each bone is connected with the next, not by a joint, but by a plate of equal breadth (M, M, Figures 178 and 179,) composed of a peculiar substance, intermediate in its texture to ligament and cartilage, and possessing in a remarkable degree the qualities of toughness and adhesion, united with compressibility and elasticity. By yielding for a certain extent to a force tending to bend it to either side, it diminishes the quantity of motion which would otherwise have been required in each individual joint; and by acting at the same time as a spring, it softens all the jars and concussions incident to violent action: for we find that however the spine may be bent, no chasm is left by the flexions of the vertebræ upon one another, nor is the continuity of the column in the smallest degree interrupted.

The motions of the vertebræ upon each other are farther regulated by the mode in which their articular processes,