

European estimation; and, its great length rendering the effort of smaller muscles sufficient for the various purposes, the calf of the leg in the negro is smaller in proportion, than in other races or men.

The ARCH OF THE FOOT is to be noticed as another of the many provisions for saving the body from shocks, by the elasticity of the supports. The heels and the balls of the toes are the two extremities of the elastic arch, and the leg rests between them. Connected with elasticity, it is interesting to remark how imperfectly a wooden leg answers the purpose of a natural leg. With the wooden leg, which always remains of the same length, the centre of the body must describe at each step, a portion of a circle of which the bottom knob of the leg is the centre, and the body is therefore constantly rising and falling; while with the natural legs, which, by gentle flexure at the knee, are made shorter or longer in different parts of the step, as required, the body is carried along in a manner perfectly level. In like manner, a man riding on horseback, if he keep his back upright and stiff, is jolted by every step of the trotting animal; but the experienced horseman even without rising in the stirrups, by letting the back yield a little at each movement, as a bent spring yields during the motion of a carriage, can carry his head quite smoothly along. In a general review of the skeleton, we have to remark—

1, The nice adaption of all the parts to each other, and to the strains which they have respectively to bear; as in the size of the spinal vertebrae increasing from above downwards, the bones of the leg being larger than those of the arm, and so on.

2, The objects of strength and lightness combined, as by the hollowness of the long bones; their angular form, their thickening and flexures in particular places where great strain has to be borne; the enlargement of the extremities to which the muscles are attached, lengthening the lever by which these act.

3, We have to remark the nature and strength of material in different parts, so admirably adapted to the purposes which the part serve. There is a bone, for instance, in

one place, nearly as hard as iron, where, covered with enamel, it has the form of teeth, with the office of chewing and tearing all kinds of matter used as food. In the cranium, again, bone is softer, but tough and resisting: in the middle of long bones, it is compact and little bulky, to leave room for the swelling of the muscles lying there; while at either end, it is large and spongy, with the same quantity of matter, to give a broad surface for articulation; and, in the spine, the bodies of the vertebrae, which rest on an elastic bed of intervertebral substance, are light and spongy, while their articulating surfaces and processes are very hard. In the joints we see the tough, elastic, smooth substance, called cartilage, covering the ends of the bones, defending and padding them, and destroying friction. In infants, we find all the bones soft or grisly, and therefore calculated to bear, with impunity, the falls and blows unavoidable at their age; and we see certain parts remaining cartilage or gristle for life, where their elasticity is necessary or useful, as at the anterior extremity of the ribs. About the joints we have to remark the ligaments, which bind the bones together, possessing a tenacity scarcely equalled, in any other known substance; and we see that the muscular fibres, whose contractions move the bones, and thereby the body—because they would have made the limbs clumsy even to deformity, had they all passed over the joints to the parts which they have to pull—attach themselves, at convenient distances, to a strong cord called a tendon, by means of which, like a hundred sailors at a rope, they make their effort effective at any distance. The tendons are remarkable for the great strength which resides in their slender forms and for the lubricated smoothness of their surfaces. Many other striking particulars might be enumerated; but these may suffice.

Such, then, is the skeleton, or general framework of the human skeleton—less curious and complicated, perhaps, than some other parts of the system, but so perfect and so wonderful, that the mind which can attentively consider it without emotion, is in a state not to be envied. The living force of man has been used as a working power in various ways, as