

The vertebræ of the chest and abdomen are, as in Birds, soldered together into one inflexible and more or less convex arch, though there are still thin cartilaginous cushions between them. That connection is chiefly effected by the spinal processes, which grow continuously, without an intervening suture, into the ossified shield formed in the corium all over the back, thus forming a kind of framework for that superimposed roof.

The ribs are fixed to the places where the vertebræ meet, but the vertebræ do not send out peculiar processes for their support. They are strongest in those Turtles in which the ossifications of the corium are least extensive, namely, in the Trionychidæ, Sphargididæ, and Chelonioidæ; weaker in the Chelydroidæ and Emydoidæ; weakest, and indeed often disappearing entirely, in the land Turtles.

The sternum consists of nine bones, four in pairs, one odd,¹ all of which are true bones. Their relation to each other in size and connection varies greatly in different families. While in the land Turtles and Emydoidæ they form one solid, continuous, broad shield, covering the whole chest and the abdominal region from below, they are much less developed in some of the Cinosternoidæ, (Ozotheca, for instance,) and least in the Trionychidæ, Chelonioidæ, and Sphargididæ. In all the three latter families, the bones of the sternum are very narrow, meeting each other by slender processes, leaving much room between them, which is filled out by the corium, thus forming a flat, elastic sternum.² The sternum is jointed to the ribs by means of a bony bridge, which may be compared to the cartilaginous or bony bridge of other vertebrates, while the so-called marginal bones are mere ossifications of the skin.

The vertebræ of the tail are very movable, convex behind, concave before. No spinal processes either above or below.

The locomotion in Turtles is entirely restricted to the four legs. The bones which are subservient to locomotion, appear entirely peculiar to this order of Reptiles, as far as their form and connection with each other, as well as their position with reference to the other parts of the skeleton, are concerned.

The shoulder apparatus no longer rests upon the ribs as in the other Vertebrata, but lies in advance of the ribs, and is more or less withdrawn under them. The whole construction of these Reptiles shows the intention to cover all soft parts by a hard shield. This being the case, there is no room for a movable apparatus upon the ribs. As the shoulder apparatus with the humerus, so also is the

¹ This odd bone is wanting in the full-grown Cinosternoidæ.

² It is for this reason, perhaps, that we do not find, in these three families, the sternum of the males scooped out, (to facilitate copulation,) as we find it

generally, though not always, in land and marsh Turtles. In Sphargididæ the sternum is reduced to a bony ring, consisting of slender pieces, and the disc inclosed by it is mere corium. The odd bone seems to be wanting.