

The Corium. A thorough analysis of the corium is of the greatest interest in the study of the Turtles, because this part of the skin is the seat of all those deposits of lime which compose their dermal skeleton. The corium is composed of two very different layers: first, a layer of elastic fibres, immediately under the stratum Malpighii, consisting of the same kind of anastomosing, or rather net-like, elastic fibres that we find in the walls of the arteries, etc.; secondly, a layer of a tissue consisting of smooth, long fibres crossing each other, and interwoven sometimes more regularly, as in the Trionychidæ, or irregularly, as in Sphargis. According to the numerous sections which we have made, a deposition of lime generally takes place only in the elastic fibres, while the fibrous tissue lying beneath is resorbed. At least we find in all ossifications, when young, the arrangement of elastic fibres still very distinct; and Sphargis, in which a bony shield of about two lines in thickness begins immediately under the Malpighian layer, seems to show this particularly well. Under this follows a thick, coarse, fibrous tissue, in which there are no ossifications at all; under this, finally, follows the skeleton. In sections made in different directions through the shield, we see clearly the character of the ossifications, as well as that of the skin which does not ossify, and that of the skeleton proper, which in most Turtles is very much affected by the ossification of the skin. A section through the soft but thick margin of the dorsal shield of *Trionyx ferox*, in which no ossifications take place, shows first a thin epidermis, then a thicker layer of elastic fibres, then many layers of fibres crossing each other regularly and producing by the regularity of their knees those seeming layers of the skin which are so striking to the naked eye in any transverse section. Another section through a dermal ossification of the sternum of the same Turtle, shows the difference between the true skeleton bone, with its very regular structure, bone-holes, etc., and the dermal bone above it, in which many canals run through, piercing it in different directions, and in which the bone-holes also are more irregularly disposed, showing its origin from elastic fibres. This is still more evident in a section through a younger ossification in *Chelonia Mydas*, where the roundish or longitudinal holes of the elastic fibres are very distinct. Again, another section near the former, where the ossification has not yet begun, shows the character of the elastic tissue when it is about to be ossified. A horizontal section through the bony shield of Sphargis, which, as stated above, nowhere touches the bone, is also very characteristic. This structure furnishes of itself sufficient evidence of the incorrectness of the views which Cuvier¹ and others entertained, that the whole bony shield of Turtles is pro-

¹ Without making any distinction between the dermal and the true skeleton, Cuvier (*Leçons d'Anatomie comparée*, 2d édit., vol. i., p. 263, and *Osséments fossiles*, vol. v., 2d part, p. 195), and with him

also Geoffroy, (*Mém. du Muséum*, vol. xiv.) consider the carapace as formed entirely by the dilatation of the vertebrae and the ribs. Carus (*Urtheile*, etc., p. 150) was the first to show that a considerable portion