with its thin, soft, and wet matrix, the stratum Malpighii. Then, immediately under this, we find a bony plate. Now this bony plate consists of two elements, very different in their anatomical and physiological character; namely, first, of parts of the true skeleton, the vertebræ, the ribs, and the bones of the sternum; secondly, of ossifications of the skin, or rather of the outer walls of the body, which overlie the true skeleton and fill out its framework, thus making one continuous bony shield of the vertebræ and ribs, and another of the sternal bones. These ossifications of the skin, commonly called the dermal skeleton, are divided into many fields, like a pavement, by sutures, the direction and extension of which are entirely independent of the underlying framework of the true skeleton. These fields are larger where they overlie the bones of the true skeleton; they become smaller and thus relatively more numerous where they reach beyond it, namely, in the margin of the upper shield. As already stated, these marginal bony plates are mere ossifications of the skin extending beyond the ribs. The relative direction and extension, as well as the number of all these fields of the ossified skin, are very similar in the different families of Testudinata.

This composition of the shield, from the elements described above, is common to all the land Turtles, to the Emydoidæ, to the Cinosternoidæ, to the Chelydroidæ, and to the South American, Eastern, and Australian Pleuroderæ, the Chelyoidæ and Hydraspididæ. Thus far, we know only three groups which present any differences in these respects, the Chelonioidæ, the Sphargididæ, and the Trionychidæ. Though we find that in the Chelonioidæ all the elements named above take part in building up their shield, still their dermal skeleton is very much reduced, while in land Turtles it makes up by far the largest part of the bony shield and actually grows into the true bony skeleton at the expense of the latter, in such a manner that parts of this disappear and are replaced by the ossification of the skin. In the Chelonioidæ, on the contrary, the dermal skeleton fills only imperfectly the spaces between the ribs, but then it forms a regular row of marginal plates, and again scantily fills the spaces between the sternal bones. In Trionychidæ, we observe the same partial development of the dermal skeleton, as it fills only to some extent the intercostal spaces and the spaces between the sternal bones, and forms but a few marginal plates, which may even be entirely wanting, as is the case in the Southeast African Cycloderma, recently discovered by Dr. Peters, and in our own Trionyx ferox and muticus. Finally, in Sphargis the dermal skeleton is developed in a very different way, namely, as one continuous shield above, and another beneath, nowhere resting immediately upon the true skeleton, there remaining between the dermal and the bony skeleton a thick layer of corium, which never ossifies. This structure constitutes the most striking contrast when compared with Testudo, where the dermal shield actually grows into the true bony