

rate system of the vertebrata, the skeleton is composed of true *bones*; that is, of solid pieces, which, although they are dense calcareous structures, yet continue organized during the whole period of development, and form as much a part of the living system as any other organ of the body. We have formerly seen that the membrane in which the calcareous matter of the shell is deposited, should properly be classed among the integuments; being analogous to them not only in being situated externally, but also in their structure and in their function. It is not so with bone, which is essentially an internal structure.*

In their chemical composition, likewise, bones are strikingly contrasted with the calcareous products of the Mollusca; for in the former, the earthy portion consists almost wholly of phosphate of lime: a material which appears to have been selected for this purpose from its forming much harder compounds with animal membrane than the carbonate. Wherever great strength and rigidity are required, this is the material depended upon for imparting these qualities; and it has, accordingly, been employed for the osseous structures, which are among the most elaborate results of organization. The densest and hardest of these structures are those

* De Blainville regards the hard coverings of insects, together with the shells of the crustacea, as structures derived altogether from the integuments, and as perfectly analogous, in this respect, to the scales, hoofs, or other horny productions of the skin in vertebrated animals. Geoffroy St. Hilaire contends, on the contrary, that the former constitute the true skeleton of the lower classes, and that a perfect analogy may be traced between the rings, which are the essential constituents of the frame-work of annulose animals; and the vertebræ, which enclose the spinal cord of the higher classes. Professor Carus appears, in his system of organic formations, to have kept in view both these analogies; giving to the former class of structures the denomination of *Dermo-skeleton*, and to the latter that of *Neuro-skeleton*, (See his *Tabulæ Anatomiam Comparativam illustrantes*, edited by Thienemann.) Analogies have also been imagined to exist between the external and internal situations of the woody fibres of plants belonging respectively to the endogenous and exogenous classes, and that of the corresponding relative situations of the skeletons of invertebrated and vertebrated animals. See a Memoir by Dumortier, in the *Nova Acta Physico-Medica Acad. Cæsar. Leopold. Carolinæ Natur. Curios. XVI. 219.*)