

constituents. But substances of still greater hardness, united with perfect rigidity, are wanted, in numberless instances, for giving effectual protection to soft and delicate structures, for supplying a firm basis to the framework of the body, and for constructing levers of various kinds to be employed in the more energetic movements of the higher animals. For all these purposes it was necessary to superadd a material endowed with stronger cohesive powers, and capable by its dense concretion of forming solid and inflexible organs. The substances which nature has selected for this office are the salts of lime. Sometimes the Carbonate, and sometimes the Phosphate of lime is employed for forming these hard and unyielding structures; and often both these calcareous substances are united together in different proportions in the same solid fabric. When the carbonate of lime predominates, or is the sole earthy ingredient, it constitutes *Shell*; when there is a greater proportion of the phosphate, it is called a *Crust*, as is the case with the coverings of the lobster and the crab: when the earthy matter consists almost wholly of phosphate of lime, it composes the different forms of *Bone*. I shall have occasion to describe the formation and properties of each of these structures in the sequel.

The protection of the delicate structure of the fabric from the injurious influence of external agents is an object of great importance in the animal economy, and is one which nature has shown extreme solicitude to secure. For this purpose she has provided the *integuments*, under which designation are included not merely the skin, but also all the parts that are immediately connected with it, and are formed and nourished by the same vessels. No parts of the animal structure present greater diversity in their form and outward appearance than the integuments; yet it is easy to discover, amidst all these varieties, that the same general plan has been followed in their construction, and that each particular formation is the result of a combination of the same elementary structures. Of these elements the most important, and that which generally composes the chief bulk of the skin, is the *Corium*, or true skin. The outermost layer is