

which exist between the digestive organs and the hoofs of the ruminant animals; but it is of importance that they should be noted.* It may be remarked, further, that the great-bulk of fishes whose skeletons consist of cartilage have yet an ability of secreting the calcareous earth which composes bone, and that they are furnished with bony coverings, either partial or entire. Their bones lie outside. The thorn-back derives its name from the multitudinous hooks and spikes of bone that bristle over its body; the head, back, and operculum of the sturgeon are covered with bony plates; the thorns and prickles of the shark are composed of the same material. The framework within is a framework of mere animal matter; but it was no lack of the osseous ingredient that led to the arrangement—an arrangement which we can alone refer to the will of that all-potent Creator, who can transpose his materials at pleasure, without interfering with the perfection of his work. It is a curious enough circumstance, that some of the osseous fishes, as if entirely to reverse the condition of the cartilaginous ones, are partially covered with

* Dr. Buckland, in his *Bridgewater Treatise*, assigns satisfactory reasons for this construction of tail in sharks and sturgeons. Of the fishes of these two orders, he states, "the former perform the office of scavengers, to clear the water of impurities, and have no teeth, but feed, by means of a soft, leather-like mouth, capable of protrusion and contraction, on putrid vegetables and animal substances at the bottom; and hence they have constantly to keep their bodies in an inclined position. The sharks employ their tail in another peculiar manner—to turn their body, in order to bring their mouth, which is placed downwards beneath the head, into contact with their prey. We find an important provision in every animal, to give a position of ease and activity to the head during the operation of feeding." - *Bridgewater Treatise*, p. 279, vol. i., first ed.