

the functions in full operation which are necessary to life.

We may perceive that a certain substance calculated to sustain the more strictly living part, and to give strength, may be traced through all living bodies. In the vegetable it is the woody fibre; and there, sometimes, as if to mark the analogy, we may find silicious earth deposited instead of the phosphate and carbonate of lime of the animal structure. In the lower animals we find membranes capable of secreting a solid material, and although in some instances the substance is like leather or cartilage, it is in general earthy, and for the most part, carbonate of lime. But when elasticity is necessary, as well as general resistance, cartilage is employed, which is a highly compressible and elastic substance. Thus, fishes have a large proportion of cartilage in their bones; and from this greater quantity, some have been called cartilaginous in distinction to the osseous or true fishes. The cartilaginous and elastic skeleton comes into use in an unexpected manner in the fish: when the salmon or trout leaps from the water, the muscles bend the elastic spine; this recoils in aid of the muscles of the opposite class: and thus these two forces combine to give a powerful stroke with the tail on the water.