of this kind are employed very extensively in the fabric of insects.*

The animal substance which comes next in the order of density is *Cartilage*. The purposes for which this kind of structure is employed are those in which a solid basis is required for the support of softer or more flexible parts, and where the mechanical properties that are wanted are firmness conjoined with some degree of elasticity. Cartilage (or gristle) is composed of a finer and more uniform material than any of the preceding structures. It consists almost wholly of albumen, with a slight proportion of calcareous matter. Unlike membrane in any of its forms, it contains no fibres, but, on being cut with a sharp knife, presents the appearances of a dense homogeneous substance of a white pearly hue. Its surface is smooth, and where it is exposed to friction, as in the joints, is often highly polished.

In all the inferior tribes of animals, Nature employs cartilage to supply the place of bone when rigidity is required to be given to the fabric. In an extensive order of fishes, including the shark, the sturgeon, and the ray, we find the whole skeleton constructed of cartilage. In the fabric of very young quadrupeds cartilage is substituted for bone; and in the adult animal, various organs, such as the external ears, the eye-lids, the nostrils, and different parts of the apparatus of the throat and windpipe, are composed of flexible cartilage, which gives them a determinate shape and firmness. In all these cases bone, which, besides being three times as heavy, is devoid of elasticity, and liable to fracture, would have been much less suitable. Cartilage is often employed as an intermedium for connecting different bones, as, for instance, between the ribs and the sternum, or breast bone; whereby, besides the advantage of greater lightness, the pliancy of the material diminishes those jars which are incident to the frame in all its violent actions.

In the construction of cartilage, nature seems to have attained the utmost degree of density which could be given to an internal texture composed merely of the usual animal

* Chabrier, Mémoires du Musée, tom. vi. p. 416.