

Fig. 20.

Portions of *Echinus esculentus*.

than the rest of the shaft, perfectly smooth, but terminates in a bead: they are tinted with violet, but the base and tip, or the pedestal and capital of the pillar, are white. The base is concave, so as to play upon the levigated centre of the above protuberance. Besides these larger spines, there are some bristle-shaped ones terminating in a subovate knob, which when unfolded appears to resemble a tripetalous flower with acuminate petals, and which are supposed to be polypes.* Those parts void of spines, called the alleys, distinguished by rows of orifices disposed in pairs, are furnished with a quite different kind of organ, I mean the suckers † before alluded to and described, by which the animal can also move or fix itself to

Fig. 21.



One of the suckers.

a. The sucker.

b. The stalk of the sucker.

any substance; it is thought also, as they are perforated, that it uses them to absorb the water for respiration. The length of these suckers or tentacles, for so they may be also called, when they are fully extended, is always greater than that of the spines, so that they may serve as so many anchors to fix the animal, and enable it to resist the mass of waters that press upon it. They are stated to be more numerous near the mouth than in other parts, by which arrangement Divine Wisdom has fitted them to maintain a horizontal position, which is their natural one. These suckers fix the animal so firmly to the rocks, that it is with the greatest difficulty, and seldom without crushing the shell, that they can be separated.

The most powerful and complex organs with which the Creator has gifted the Echinidans are their jaws and teeth. Their mouth has adapted to it a remarkable frame-work, con-

* *Pedicellariæ*, Fig. 20.

† Fig. 21.