

ABOUT SPONGES.



As with the coral, so too with the sponge, it was long a disputed question whether to class it among vegetable or animal life. Aristotle, Pliny, and all writers who occupied themselves with Natural History in ancient times, agreed in according it a sensitive life.

Pliny, Dioscorides, etc., we find, even formed the idea that sponges were capable of feeling, and that they adhered to their native rock by special force. Erasmus, however, criticising Pliny, passed over all that he had written upon the sponge. Thus to the ancients it was something between a plant and an animal.

Later, Rondelet advanced the idea that these productions belonged to the vegetable kingdom, an idea which Tournefort, Gaspard Bauhin, Kay, and even Linnæus supported, by the great authority of their names. Influenced, however, by the labours of Trimbley, and other observers, Linnæus withdrew the sponge from the vegetable kingdom. He satisfied himself that certain polyps much resembled sponges in the nature of their structure.

The power which some animals possess to attach themselves to other objects and remain so is indeed singular. Nevertheless it is certain that whole tribes exist, the species of which are strictly adherent, that live and die attached to some rock or other object, and among these are the sponges. "The poor little creatures," says Alfred Frédo, "receive their nourishment from the waves which wash past them; they inhale and respire the bitter water all their lives; they are insensible to that which is but a hundredth part of an inch from their mouth."

And thus the sponge is built up and animated by life—animal life and not vegetable—insignificant and scarcely perceptible, it is true, but wondrous in its power and properties.

It has been found by close observers that in the months of April and May these sponges develop ova which are round, yellow or white, and whence proceed certain ovoid granular embryos, furnished towards their longest extremities with small, vibratile cilia. They are often carried off by the current, or form swarms of larvæ round the parent sponge. They swim above with a gliding, wavy motion, and when they have been some time in the water they usually come to the surface. During two or three days they seem to seek a convenient place to fix themselves. Once freed, the larval form spreads itself out, and soon grows into the form of its parent.

The aperture and size of the sponge increase as the animal gelatine increases, and one part develops more than another according to surrounding circumstances. Yet no one species puts on the appearance of another, so that as the little germ begins, so it grows till perfected, unless deformed by some jutting crag, or pushed aside by an obtrusive companion.

Says Carpenter: "When sponges are examined in their living state and natural condition, a constant and rapid stream of water is seen to issue from the larger orifices or vents. This stream is made apparent by the movement of the minute particles contained in the surrounding fluid. On the other hand it is easily made apparent that water is as constantly being imbibed through the minute pores; and that after traversing the smaller cavities of the spongy structure

it finds its way into the canals through which it is expelled. Some such absorption must take place to supply the fluid incessantly discharged through the vent."

The nutrition and growth of the sponge depend, then, on the water which enters the pores, on the substance which it holds in solution, and on the minute particles suspended in it. From these the animal tissue appears to derive the materials of its nourishment, and the silicious and calcareous substances must be separated by it from the state of solution in which they exist in the surrounding fluid.

This movement of fluid through their tissue seems to be almost the only action that favours the existence of life in these simple beings. "No obvious contraction can be perceived," says one, "when they are touched or irritated. They may be punctured or cut with sharp instruments, pierced with red-hot wires, or torn in fragments, and yet no change of form, or, rather, evidence of sensibility in them, can be conceived. The parts which are unimpaired will continue to present the same phenomena as before, and no injury seems to have any influence beyond the portion immediately affected by it."

Other observers, on the contrary, maintain that a shock affecting the whole mass alike does produce an evident effect upon it. It has also been noticed that these projecting orifices vary considerably in their form at different times, even within short intervals, and when no external cause has influenced them. Some naturalists, moreover, state that, although no sensible contractions and dilations can be *seen* in the whole mass, a peculiar sensation is *felt* when the hand is placed upon a specimen still under water. This sensation is of a tingling character, and appears due to some movement in the individual particles of which the flesh is composed.

Thus it appears that science has not been entirely settled in its views as to

the organisation and development of these obscure and complex creatures; nor is it more advanced in its knowledge of the duration of life and the quickness of growth in sponges.

The number of supposed species at present known is very large. Dr. Bowerbank, in his work on British sponges, describes nearly two hundred, and many species have since been discovered. They are met with presenting every possible diversity of size and outward configuration; many of them are small, others are of immense size and of varied colours. Some of the most beautiful specimens are valued only as curiosities, as they secrete a silicious substance which takes various beautiful forms, but is easily broken, and crumbles when dry. One of the prettiest of these is called the Glass Sponge, and looks like fine spun glass. Another, that is light and delicate as frost-work, is called Venus' Flower-Basket.

Sponges are found to bear the forms of fans, globes, branches like trees, funnels, and trumpets. Others are divided into lobes, like great fingers, such as "Neptune's Glove." One variety produces regular sponge monuments, which grow from three inches to six feet and a-half on the submarine rocks. They have a narrow stalk, which, at a certain height, expands considerably, and gives the structure the look of a cup symmetrically hollowed out like an immense drinking-goblet. To such a colossal vase the imagination of the sailor could give but one name, that of the god of the sea, "Neptune's Cup."

Sponge-fishing takes place principally in the Grecian Archipelago and the Syrian littoral. The boat's crew consists of four or five men, who scatter themselves along the coast two or three miles in search of sponges under the cliffs and ledges of rocks. They begin in June on the coast of Syria and finish at the end of October. Those of inferior quality are gathered in shallow water. They

are simply fished up with three-toothed harpoons, but not without deteriorating them more or less. The finer and more costly kinds are found only at a depth of from twenty to thirty fathoms. They are collected by divers who use a knife to carefully detach them.

Among divers those of Kalminos and of Psara are particularly renowned. They will descend to the depths of twenty fathoms, remain down a shorter time than the Syrian divers, and yet bring up a more abundant harvest. The fisheries of the Archipelago furnish few fine sponges to commerce. The Syrian fisheries furnish many of the finer kinds, but they are of medium size, while those from the coast of Barbary are of great dimensions, of very fine tissue, and much sought for in Europe.

In the Red Sea the Arabs fish for sponges by diving, the produce being either sold to the English at Aden or sent to Egypt. On the Bahama banks and in the Gulf of Mexico the sponges grow in water of small depth. The fishermen, Spanish, American, and English, sink a long mast or perch in the water near the boat, down which they drop upon the sponge; by this means it is easily gathered.

It may not be uninteresting to learn something of the different species with which we have to do. First, we have the fine, soft, Syrian sponge, distinguished for its lightness, its fine flaxen colour, and its form. Specimens of this kind, round-shaped, large and soft, sometimes bring very high prices. From the Grecian Archipelago comes one scarcely distinguishable from that of Syria, though not quite so fine. It is sometimes confounded with the Venetian.

The Greek sponge, though less sought for than either of the preceding, is most useful for domestic and industrial purposes. The brown Barbary sponge, when first taken out of the water, has an elongated, flattened body, gelatinous

and charged with blackish mud. It is hard and of a reddish colour. When well washed in water it becomes round in shape, though still remaining heavy and reddish. It is valued on account of its readily absorbing water, and for its great strength. It is sometimes called Hard Barbary Sponge, or Gelina. Then we have the Salonica Sponge, which is only of middling quality; finally the Bahama Sponge, from the Antilles, wanting in flexibility and a little hard, therefore sold at a low price. Many species are described as inhabiting the British seas, but not of commercial value.

There are two ways of preparing sponges for the market. When first torn from their crevice on the sea-bottom and brought upon the shore there is a grayish, glutinous flesh within the heavy fibres that gives forth a disagreeable and unhealthy odour, and would cause the sponge to putrefy if left in this condition; so they are buried in the dry sand and left there until all the flesh is decayed. They are then dug up, put in wire baskets and fastened along the shore where the waves can wash over them and take out any refuse that may remain. Some of the finer sponges are afterwards beaten, and soaked in dilute muriatic acid to bleach them and to dissolve any adherent portions of carbonate of lime. As this somewhat weakens their texture the common sponges are not bleached in acids but simply cleansed, and so retain their yellowish-brown colour.

When we hold these mere skeletons in our hands we may well ask, Were they once really endowed with life? What is this life, and in what does it consist? Our Heavenly Father, who breathed the subtle influence into all animate things, alone knows where is its seat and what is its substance. Marvellous are all his works, and each shows forth his praise and heightens our adoration of the Supreme Being.