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*Commerce.*

When the living matter is removed from a Ceratose sponge a network of elastic horny fibres, the skeleton of the animal, remains behind. This is the sponge of com­merce. Of such sponges the softest, finest in texture, and most valued is the Turkey or Levant sponge, *Euspongia officinalis,* Lin. The other two varieties are the *Hippo­spongia equina,* O. Schmidt, and the Zimocca sponge, *Euspongia Zimocca,* O.S., which is not so soft as the others (see p. 423 above). All three species are found at from 2 to 100 fathoms along the whole Mediterranean coast, includ­ing its bays, gulfs, and islands, except the western half of its northern shores as far as Venice and the Balearic Isles, Corsica, Sardinia, and Sicily. Bath sponges occur around the shores of the Bahamas, and less abundantly on the north coast of Cuba. They are of several kinds, one not dis­tinguishable from the fine Levant sponge; others, the “yellow” and “hardhead” varieties, resemble the Zimocca sponge ; and of horse sponges there appear to be several varieties, such as the “lamb’s-wool” and the “velvet” sponge *(Hippospongia gossypina* and *H. meandriformis).* The fine bath sponge occurs on the shores of Australia (Torres Straits, the west coast, and Port Phillip on the south coast). A sponge eminently adapted for bathing purposes *(Coscinoderma lanuginosum,* Crtr. ; *Euspongia mathewsii,* Lfd.), but not yet brought into the market, occurs about the South Caroline Islands, where it is actu­ally in use, and at Port Phillip in Australia. The fine bath sponge occurs in the North Pacific, South Atlantic, and Indian Oceans, so that its distribution is world-wide.

The methods employed to get sponges from the bottom of the sea, where they grow attached to rocks, stones, and other objects, depend on the depths from which they are to be brought. In comparatively shallow water they may be loosened and hooked up by a harpoon ; at greater depths, down to 30 or 40 fathoms, they are dived for; and at depths of from 50 to 100 fathoms they are dredged with a net. The method of harpooning was the earliest practised, and is still carried on in probably its most primitive form by the Dalmatian fishermen. Small boats are used, manned by a single harpooner with a boy to steer ; when, however, the expedition is to extend over night the crew is doubled. The harpoon is a five-pronged fork with a long wooden handle, and if this is not long enough another harpoon is lashed on to it. The Greek fishers use a large boat furnished with two or three smaller ones, from which the actual harpooning is carried on ; the crew numbers seven or eight. One of the chief difficulties is to see the bottom distinctly through a troubled surface. The Dalmatian fishers throw a smooth stone dipped in oil

a yard or so in front of the boat ; the stone scatters drops of oil as it flies and so makes a smooth track for the “ look­out.” The Greeks use a zinc-plate cylinder about 11/2 feet long and 1 foot wide, closed at the lower end by a plate of glass, which is immersed below the surface of the sea ; on looking through this the bottom may be clearly seen even in 30 fathoms. This plan is also adopted in the Bahamas, where harpooning carried on after the Greek system gives employment to over 5000 men and boys.

The primitive method of diving with no other apparatus than a slab of stone to serve as a sinker and a cord to communicate with the surface is still practised in the Mediterranean. The diver carries a net round his neck to hold the sponges. On reaching the bottom he hastily snatches up whatever sponge he sees. After staying down as long as he is able—an interval which varies from two to at the most three minutes—he tugs violently at the cord and is rapidly drawn up. On entering the boat from depths of 25 fathoms he quickly recovers from the effects of his plunge after a few powerful respirations ; but after working at depths of 30 to 40 fathoms or more he reaches the surface in a swooning state. At the beginning of the season blood usually flows from the mouth and nose after a descent ; this is regarded as a symptom of good condition ; should it be wanting the diver will scarcely venture a second plunge for the rest of the season. The work is severe, and frequently the diver returns empty-handed to the boat. Diving is usually carried on in the summer months; in winter it is too cold, at all events without a diving-dress. The ordinary diver’s dress with pumping apparatus is largely used by the Greeks. The diving is carried on from a ship manned by eight or nine men, including one, or rarely two, divers. At a depth of from 10 to 15 fathoms the diver can remain under for an hour, at greater depths up to 20 fathoms only a few minutes ; the consequences of a longer stay are palsy of the lower extremities, stricture, and other complaints. Dredging is chiefly carried on along the west coast of Asia Minor, principally in winter after the autumn storms have torn up the seaweeds covering the bottom. The mouth of the dredge is 6 yards wide and 1 yard high ; the net is made of camel-hair cords of the thickness of a finger, with meshes 4 inches square. It is drawn along the bottom by a tow-line attached to the bowsprit of a sailing vessel or hauled in from the shore.

Prompted by a suggestion made by Oscar Schmidt, that sponges might be artificially propagated from cuttings, the Italian Government supplied funds for experiments to determine the feasibility of cultivating sponges as an in­dustrial pursuit. A station was established on the island of Lesina, off the Dalmatian coast, and experiments were carried on there for six years (1867-72) under the super­intendence of Von Buccich. The results were on the whole successful, but all expectations of creating a new source of income for the sponge-fishers of Dalmatia were defeated by the hostility of the fishers themselves.

The details of the method of sponge-farming as practised by Von Buccich are briefly as follows. The selected speci­mens, which should be obtained in as uninjured a state as possible, are placed on a board moistened with sea water and cut with a knife or fine saw into pieces about 1 inch square, care being taken to preserve the outer skin as in­tact as possible. The operation is best performed in winter, as exposure to the air is then far less fatal than in summer. The sponge cuttings are then trepanned and skewered on bamboo rods ; the rods, each bearing three cuttings, are secured in an upright position between two parallel boards, which are then sunk to the bottom of the sea and weighted with stones. In choosing a spot for the sponge-farm the mouths of rivers and proximity to submarine springs must be avoided ; mud in this case, as in that of reef-building