This page intentionally left blank.

pliocene and miocene Tertiary epochs that we must seek for it. Independently of the Cyprinoidei which are chiefly characteristic of the fresh waters of our hemisphere, we find, in the gypseous beds of Montmartre, in the marls of Puy-en-Velay, in those of the Limogne d'Auvergne, and elsewhere, Cyprinodons (which have also received the generic name of *Lebias*) which have nowhere been observed in beds of marine origin.

XXV.—*Additional Notes on* Euplectella speciosa.

By Dr. J. E. Gray, F.R.S., V.P.Z.S. &c.

The great interest which the importation of more specimens of Venus's Flower-basket (*Euplectella speciosa*) has excited induces me to send you some further observations on this beautiful Sponge.

All the forty-eight or fifty specimens of the *Euplectella* that I have seen are bent on one side, as in Professor Owen's figure of *E. aspergillum*; there is one short, stouter specimen, which came with the others from Zebu, that is nearly erect, which induces me to believe that probably the *E. cucumer* of Owen is only a shorter, broader, and erect specimen of the same species.

Probably this curved form arises from the sponge growing on the perpendicular face of the cliffs in the sea; but all the specimens which I have been able to examine seem to have been attached to earth intermixed with fragments of shells, corals, &c., indicating that they most probably live on mud-banks.

It has occurred to me that this form may be produced by the crab that inhabits them. From several indications in the different specimens, there can be no doubt that the sponge when growing in the sea is rather more flexible than in the dry state in which we receive it. The crab, which is of considerable size, the thorax being about an inch and a half wide and an inch long when the tail is contracted, must enter the cavity of the sponge while it is growing, when it is more flexible, and before the netted lid is placed on the end of the central cavity, and probably when the crab itself is of a smaller size. As the crab becomes imprisoned in the cavity, it will be constantly walking up and down the tube, to procure food; and by so doing it will most likely bend the tube on one side, so that the free end of the tube may become bent down nearly to the level of the base. Most of the specimens which are brought to this country have been more or less cleaned and bleached; but there are two or three in the British Museum which appear to be in their natural state; and these seem to be more covered with the external layer of short spicules on the convex side of the curve, which would be the upper side of the sponge if it grows in this

position in the sea. Sometimes more than one crab is found in the cavity of the same sponge; and I think I can determine, through the network of the sponge, that they belong to different species, or even genera: one looks much like a *Pagurus*.

I am by no means sure that this is a correct explanation of the form; for it is exceedingly difficult to reason *à priori* on such subjects; and I only throw it out as a probable explanation of the peculiarities of the form.

A specimen in Mrs. Gray's cabinet is interesting as showing that the sponge has the power of repairing an injury. There has evidently been a hole made in one of the sides, about the middle of the distance between the base and the apex; and the animal has repaired the injury by forming a new network of bundles of fibres very like the original structure.

The specimens vary considerbaly in the convexity of the network that closes the cavity, and also in the size of the spaces between the network: in some the interlaced bundles of fibres are broad, and the interspaces large; in others the spaces are small, and the interlaced bundles of fibres narrower and more numerous.

Mr. Wright has just informed me that there is a block of timber in Germany which has ten specimens attached. This is interesting as showing how they probably grow under the sea; and if they grow so grouped together, this explains why they have come to Europe in such comparative abundance.

The first specimen that Mr. Cuming had he sold for £30; he bought it back for the same sum, and it came with his collection to the British Museum. The first new specimens that arrived sold for £10 or £15 each; they are now selling at from £3 to £4 each.

The specimens that first arrived were in their natural state as taken out of the sea, and are of a pale brownish colour; but those that are now in the market have been cleaned and bleached, which makes them more attractive to the unscientific purchaser.

I have seen one specimen which is nearly cylindrical, being scarcely broader at the upper end than a little above the base.

Two specimens which have lately arrived are almost entirely destitute of any frill round the upper end of the sponge: one has a nearly regular, almost circular end, covered with very fine reticulations without any apparent centre; the other has an oblong aperture to the tube, which is produced at the edge on the convex side of the curve of the tube, and it is covered with very fine reticulations which seem to converge to many points. This specimen is short, stumpy, and only slightly curved; whereas the other is very much curved, so that the whole sponge forms rather more than half of a circle.