XII. *Description of a rare Species of Worm Shells, discovered at an Island lying off the North-west Coast of the Island of Sumatra, in the East Indies. By* J. Griffiths, *Esq. Communicated by the Right Hon. Sir* Joseph Banks, *K. B. P. R. S.*

Read February 13, 1806.

A SHORT time after a very violent earthquake that occurred in the island of Sumatra, in the year 1797, these uncommon productions of nature were discovered; the violence of the concussion was more particularly confined to that part of the island situated on the sea coast, between two degrees of the equator north and south, and to the islands adjacent. Its effects were most severely felt at Padang; many lives were lost, and considerable damage sustained, by a most tremendous inundation of the sea; this was also experienced at the low island of Battoo, distant from the coast of Sumatra about twenty leagues.

These shells were procured in a small sheltered bay, with a muddy bottom, surrounded by coral reefs, on the island of Battoo; upon the sea receding from the bay after the inundation they were seen protruding from a bank of slightly-indurated mud, and two or three broken specimens were brought to me at Padang, by the master of a boat trading between that port and the island, for cocoa-nut oil, sea slug, &c.

As I had not observed any of these shells in the cabinets I

had seen abroad, or in England, nor yet a description in any author that I was able to consult, joined to the total ignorance of the Dutch inhabitants of Padang, many of whom had been a long time in the habit of trading to Battoo without having seen or heard of such a production, led me to believe them entirely new, and made me extremely desirous to procure some more perfect specimens, and such information respecting them, as might be acceptable to you, Sir, in your pursuit and inquiry on every subject connected with natural history.

I was consequently induced to send a small praw, with a servant of mine (a Papooa Coffree) who was very expert in diving, and had been employed under my own inspection in procuring many submarine objects, which the coast and islands near Padang abound with; it is therefore from his account, corroborated by others of the crew, that I can give a description of the locality of these subjects, with their appearance in the water, which I think is correct.

He stated, that he had found these tube shells in the bay before mentioned, and in another inlet of the sea, sticking out of rather hard mud, mixed with small stones, sand, &c. from eight to ten inches or more, and from one to three fathoms under water; they were standing in different directions, and separate from each other. Both the master of the boat and crew assured me, that the animal throws out tentacula from the two apertures of the apex of the shell, that resembled the small actiniæ adhering to the rocks about Padang, and that the body of the shell was filled with a soft gelatinous flesh, similar to that of the teredo navalis, but this they had washed out, from its very soon proving putrid, and extremely offensive; that they were in considerable number, and being gently

shaken, easily taken up; but all of them mutilated more or less, which was probably occasioned at the time of the earthquake, when many large fragments of madrepores, corals, &c. were torn from their situation, by the agitation of the sea.

Although more than twenty specimens were brought to me, and others obtained afterwards, there was not one complete; yet being so fortunate as to procure a portion of the shell with the apex nearly perfect, and another with the opposite closed extremity equally so, I am enabled to give a description of them.

The length of the longest of these shells that came into my possession was 5 feet 4 inches, and the circumference at the base 9 inches, tapering upwards to $2\frac{1}{2}$ inches; the colour on the outside milk white, the inner surface rather of a yellow tinge. This specimen was nearly perfect, having a small part of the lower extremity entire. I have others of various dimensions, a very good one about 3 feet long and 4 inches round, tapering to $1\frac{1}{2}$ inch at the point; most of these shells had adhering to them, about one foot or more from the top, the small cockscomb oyster, small serpulæ, &c. consequently they must have been that distance protruded from the hard mud, but the water being thick and discoloured, the people of Battoo had not taken notice of them antecedent to the earthquake.

These tube shells differ very much among themselves, not one of them being correspondent in size or thickness to another. The large end of the shell is completely closed, and has a rounded appearance; at this part it is very thin. The small end or apex is very brittle, and is divided by a longitudinal

septum running down for eight or nine inches, forming it into two distinct tubes, inclosed within the outer one, from whence the animal throws out tentacula; the substance of the shell is composed of layers having a fibrous and radiated appearance, covered externally with a pure white crust, and internally is of a yellow tinge; the external surface is frequently interrupted in a transverse direction by a sudden increase of thickness, which probably indicates different stages in the growth of the shell, although they are at unequal distances, sometimes at six inches, at others four, in the same shell. These interruptions bear a rude and unfinished appearance, and do not extend into the radiated substance, but are merely on the outside shell, which has rather a smooth surface, but at the same time impressed with the irregularities of the substance with which it was in contact. These shells all differ in thickness, some being not more than one-eighth of an inch, others full half an inch in substance; many are nearly straight, others crooked and contorted. The internal surface is in general smooth, though in some of them covered with excrescences resembling tubercles, and without any indication of the animal having adhered to any part of it.

It is the great length and size of these shells, which are the largest of the testacea of a tubular form yet discovered, and the division in the upper part, which constitute their principal peculiarities. I should add, that on their being broken in a transverse direction, the body of the shell between the inner surface and the outer crust, appears to resemble stalactites, and indeed they might easily be mistaken for them.

By consulting RUMPHIUS I found that my opinion of these tubes being entirely a new genus, was unfounded, for which,

Sir, I am much indebted to your kind attention. He is th only original author, I believe, who has given any account of this production, but the figure of the shell in RUMPHIUS is somewhat different from those I have described; it exhibits two long jointed tubes, issuing from the upper part of the exterior tube; and he describes them to be found in shallow water among the mangrove trees; in the account given by RUMPHIUS there is a description both of the ground in which they are found, and the mode in which the large end of the shell is closed, exactly similar to what I have stated, so that it is evidently of the same genus, but, as it differs in having the two tubes through which the tentacula pass out, of considerable length, and entirely separate, a circumstance which may be connected with the situation of the animal in shallow water among mangroves, this, I apprehend, must be clearly admitted to be an entirely new species.

Mr. HOME, who has interested himself in the natural history of this animal, has taken the trouble to arrange the drawings for the further illustration of the subject, which have been executed under his inspection from the specimens I have brought to this country; and I shall be happy if my materials, or any I can procure from Sumatra, may enable that gentleman to make any further observations on this curious production of nature.

New Burlington Street,
January 23d, 1806.

EXPLANATION OF THE DRAWINGS. (Plate X.)

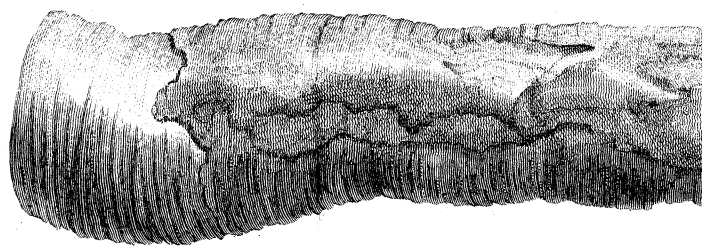
Fig. 1, Is a representation of the whole shell in the most perfect state in which its parts have been seen, and there is reason to believe that the only part wanting is the orifice of the double tube. The drawing is made upon a scale of $2\frac{1}{2}$ inches to a foot.

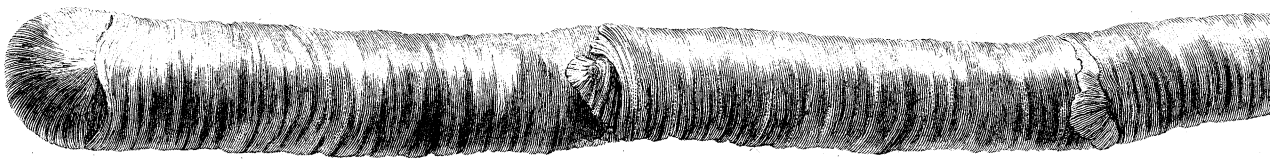
Fig 2, A drawing of the small termination of the shell. At its lower part, for an inch in length, it exhibits the usual appearance of the external surface, but from thence to the end, it is very irregular, and in some specimens small shells of oysters, small serpulæ, &c. adhered to it. All this surface was probably above the mud, exposed to the sea water. At the upper extremity one of the tubes is broken, shewing the size of its canal, also that it is connected with the outer tube in which it is inclosed. The other tube is a little bent, and diverging outwardly, and this is probably its natural termination.

Fig. 3, Represents a section of the shell, at that part where it forms a double tube, to shew the origin of the two tubes, the thickness of the septum between them, and the two orifices leading into them.

Fig. 4, Is a transverse section of the shell at the thickest part, after it had been polished, to shew that it is made up of strata of crystals surrounding one another in concentric circles; also a front view of the orifices into the double tube.

Fig. 5. A front view of the orifices into the double tube, also shewing the thickness of the shell at that part, the canal of which has an oval form.





Scale of 3 Inches to a Foot.

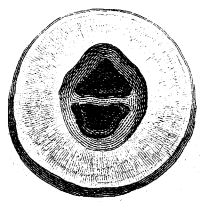


Fig. 3.

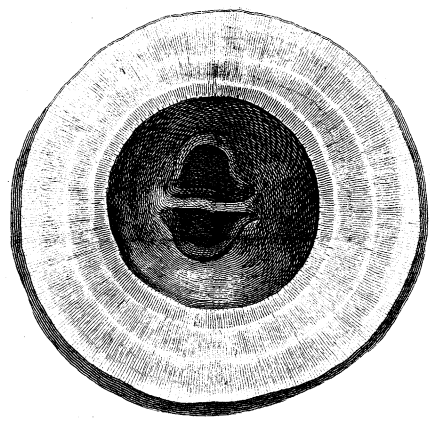


Fig. 4.

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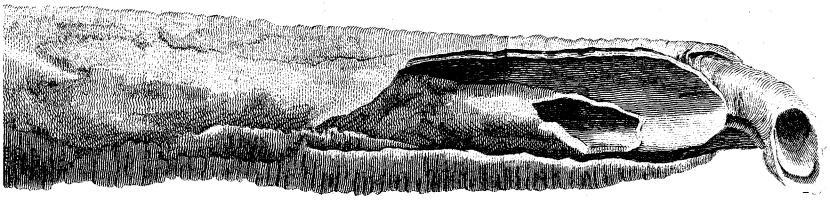

Fig. 2.

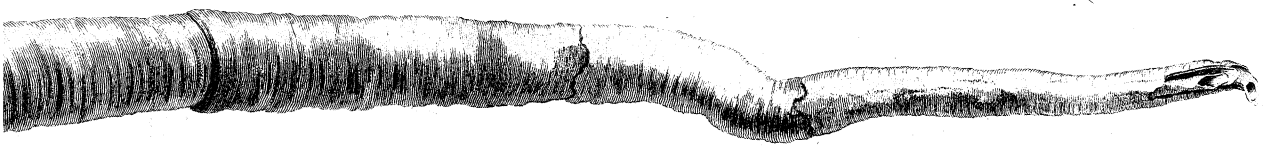

Fig. 1.

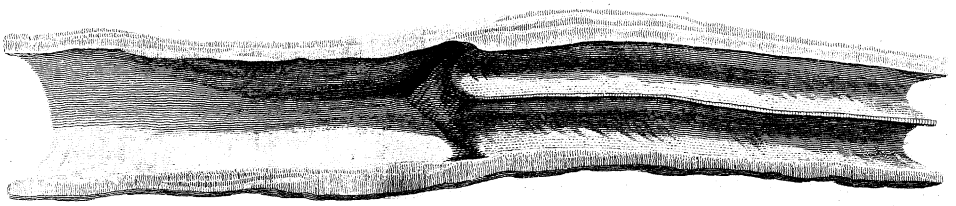

Fig. 3.

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Fig. 6.

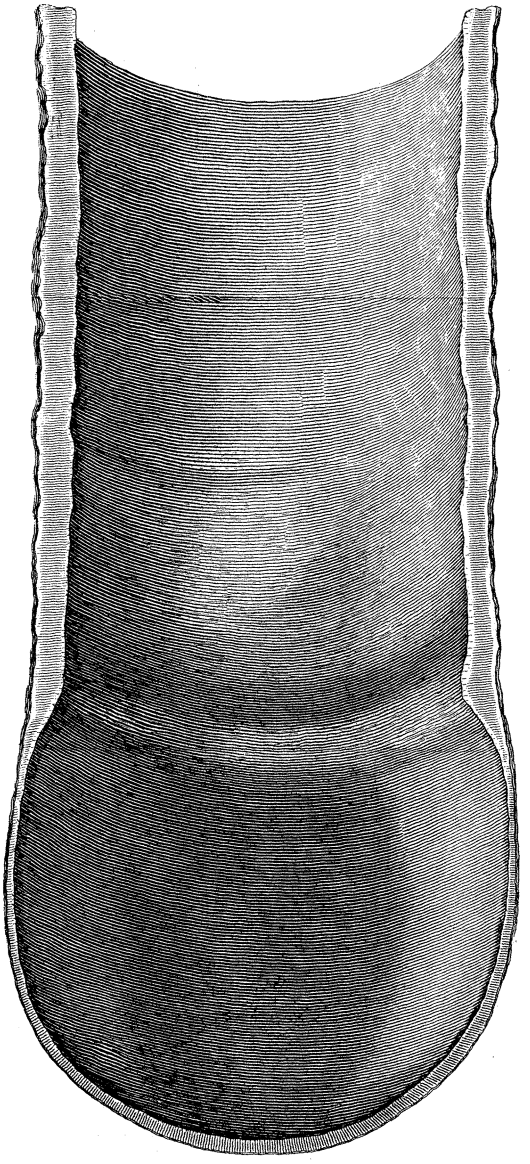

Fig. 7.

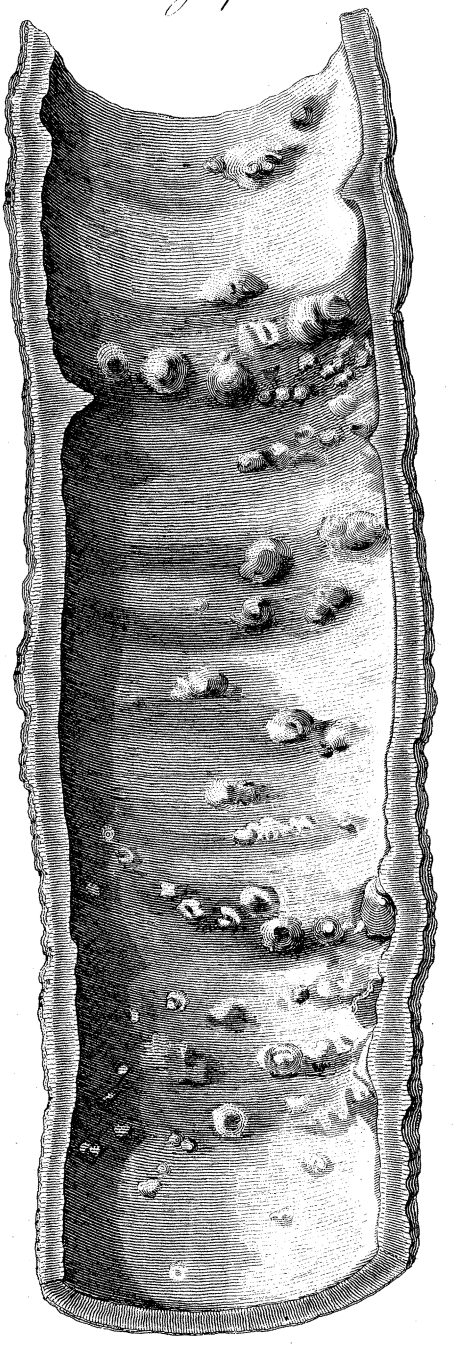

Plate XI.

Fig. 6, Represents the internal cavity of the shell at its lower part, which is every where smooth; it also shews how very thin the shell is which closes up the extremity, compared with that of the general tube, which is also thinnest at the lowest part.

Fig. 7, A section of a specimen which had the tuberculated appearance on its internal surface.

Fig. 2.

Fig. 1.

Fig. 5.

Fig. 4.

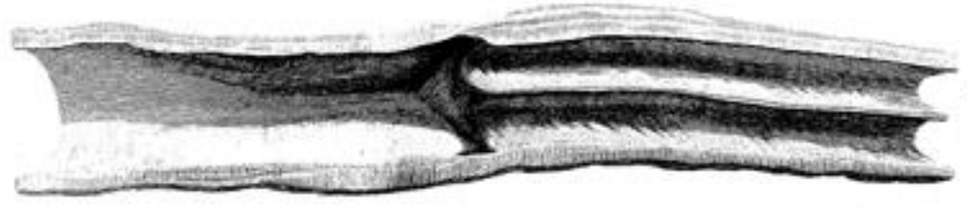

Fig. 3.

Scale of 3 Inches to a Foot.

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