

last five or six days ; and that his wound will,
in all probability, be soon healed.

Hatton-Garden,
February 22. 1758.

Joseph Warner.

LXXVII. *Observations on the Limax non
cochleata Purpur ferens, The naked Snail
producing Purple.* By John Andrew
Peyssonel, M. D. F. R. S. *Translated
from the French.*

Read Feb. 23,
1758.

AMONG the fish we meet with in
the seas of the Antilles of America,
we find, that this I am going to describe will appear
precious, from the beautiful purple colour it produces,
in the same manner, that the cuttle-fish produces
its ink, if a means could be found to procure this
liquor in a sufficient quantity to render it an article
of commerce. These fishes are soft, viscous, with-
out shells, scales, or bones ; are of the nature of the
polypi, and such other kinds, without feet, fins, or
any thing to supply their places. Their motion is
vermicular ; and, like the slugs, they wreath them-
selves up, and when touched make themselves quite
round.

They fill up certain membranes of the body with
water. Their local motion ; *antennæ*, which they
lengthen and contract ; and a great many other pro-
perties, which they have in common with snails,
slugs, and turbinated shell-fish, made me call them
naked snails : and altho' they have not the most ef-

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sential qualities of snails, I thought I might give them the name; for they have no particular appellation in this country. Some call them pifs-a-beds, some sea-cats, and others a less modest name, *tapecon*, taken from Pliny. The Negroes and country-people disagree upon this subject; and therefore I thought all their names ought to be rejected, in order to adopt a more significant one, which I have given them; and that altho' they are without shells, a quality essential to snails, they had a right to that class by their other properties and qualities.

This fish is commonly four inches long, and two thick; of a greenish colour, spotted with black, each of which forms a circle. The under part is like that of snails, flat, with kinds of *mamillæ*, or rugosities, which are adhesive; by means of which they advance in a vermicular motion; and when touched become round, by retracting their neck and head; and afterwards protrude them considerably, according to their motion and progression, crawling upon rocks to seek their food.

The head of this animal has a flatness, or is inclinable to a square or parallelogram. On each side there are membranes or skins, which form kinds of ears; and under them others, which at times fill with water, and are then transparent. Under this thick skin there is a *cranium*, of a kind of coriaceous or cartilaginous matter; and in the *cranium* we find the brain, which is a white substance, and very firm. At the basis of the head its oval wide mouth is placed, being above two lines long, which often discovers a white hard edge, with which he crops the fucus's, and other sea-plants, for his nourishment.

About half an inch from the ears there are two
horns,

horns, or *antennæ*, like those of some testaceous animals, which serve them for eyes; and these *antennæ* extend and contract at will, turning to either side also. The *oesophagus* begins at the upper and inner part of the mouth, which is a delicate long tube; near which there is another thick one, and made nearly like the colon, which leads to a bag, or the first stomach, which may be likened to the craw of a fowl: it is always filled with fucus mixed with sand. Sometimes this stomach is double, or at least lengthens itself considerably, and the aliment parts it, as it were, into two portions. After this craw, or stomach, we find another, which performs the same office with the gizzard of fowls. The membranes are thick, and are set with twelve stones, or horny pieces, of a bright yellow colour, and as transparent as fine yellow amber, ending in points like a diamond; so that the great side, or basis, is set into the membrane of the gizzard as a diamond in its socket: others differ in size, having different figures, that in acting all together they may be able to break and grind the herbs the animal feeds upon, as well by the strength of the muscle or gizzard, which puts them into action, as by the situation of these stones, assisted by grains of sand found in it, turning the whole by this trituration into a liquor. Afterwards, what was thus triturated by the power of the gizzard passes into a third belly or stomach, which is covered by a purple body, resembling the *parenchyma* of the liver, and nearly of the same consistence: then this belly turns into a long tube, which surrounds this *parenchyma*, and is covered in like manner by a very fine membrane: it is full of a white liquor, like chyle, and goes to discharge itself into another refer-

voir, at the side of which is a yellowish gland; like a *pancreas*. From these two bodies or glands, one of which may be called hepatic, and the other pancreatic, two conduits pass out; that of the *pancreas* is white, the other of a blackish purple: the first conducts its chyle, condensed, into a reservoir or bladder, which may be resembled to the *receptaculum chyli* of Pequet, and from thence passes to the fecal matter: the other conducts to a body made like the mesentery, but which is always found out of the common capacity or cavity, in which all the *viscera* are contained; which I thus describe:

This common capacity is very large, beginning at the head and ending at the tail of the fish: it is sometimes filled with a yellowish water, and is formed by the fleshy body of the animal; which is only a membrane composed of fibres every way interwoven together, open at the top, where the organs are situated, which contain the purple juice.

There is a hollow u on the back of the animal, where the canal, filled with a reddish juice, passes out, carrying it to a fringed body like a mesentery; and it is there the purple juice is brought to perfection; and afterwards goes to a long sack lying under a kind of horny plate, not like the bone of the cuttle-fish, but like the bone of the *sepia*, or little cuttle-fish, which we call *le couteau*. This bone, or horny substance, is transparent; and is of a triangular figure, or approaching the form of a bivalve shell. On the right side it is fastened by a strong cartilaginous muscle, which binds it to the body of the animal; and on the left it is open and detached, and easy to be pulled up: then it is easy to see underneath both the mesenteric body, and the tube or reservoir of the purple

ple juice. This bone, or horny plate, is covered by a loose membrane, which is by no means attached to it, but capable of being filled and inflated with water or wind.

The whole is covered with two membranes, which are continuations of the flesh of the fish's body: the membranes are loose, and larger than are necessary to the bone: they are wrinkled or rumped over one another, to cover the whole, and to defend the bone and *viscera* from all kinds of pressure; but they are ready to stretch one from the other, and leave the parts destined for the purple juice uncovered. They begin a little under the neck, and extend, in the female animal, to the tail, which is flat; and in the male they do not go so low, but end at some distance from the tail.

The females are oviparous; for eggs are found in the grand cavity, at the side of the pancreatic body.

I have already said, that when the animal is touched, he makes himself round, and throws out his purple juice, as the cuttle-fish does his ink. This juice is of a beautiful deep colour: it tinges linen, and the tincture is difficult to get out. It remains at present to try if we can collect a sufficient quantity of this juice, and to find a means of preserving the tincture; which would then be certainly of great value: to which purpose I may apply myself.

When the fish is boiled, or put into spirits, it shrinks up, and loses two thirds of its size; because all the water, which is in the interstices of the fibres, is dissipated, and the dried fibres contract: which clearly appears from dissecting them.

Dated at Cuaialoupe,
20 Mar. 1757.

Peyssonel.
LXXVIII.