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, without 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 themſelves 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 properties, 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 eſ-

ſential qualities of ſnails, I thought I might give them the name; for they have no particular appellation in this country. Some call them piſs-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 reſervoir,

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 pur-

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 rumpled 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 Cualoupe,
20 Mar. 1757.

Peyſſonel.

LXXVIII.