

fallen in my way, and which I have had the honour of presenting to the British Museum, was brought to me when residing at Funchal in the month of February last. It was said to have become entangled in a fishing line, and to have been brought up from a considerable depth near Ponta do Pargo, the south-west extremity of the island. It was attached to a stone on which a small specimen of *Dendrophyllea ramea*, a not uncommon Madeiran coral, was seated. It has a height of 6 or 7 inches, and it measures about 10 inches across.

MISCELLANEOUS.

Investigations of the living Brachiopoda of the Mediterranean.

First Memoir : on *Thecidium*. By M. LACAZE DUTHIERS.

THE *Thecidia*, fixed by the convex face of the concave valve, only move the dorsal or apophysary valve. Four muscles serve to lower the latter and close the shell. There are two to open it ; they form the innermost pair. The separation of the valves is active, and the abductor muscles act as the power of a lever of the first order.

The arms would resemble in many respects those of other Brachiopoda, if they were not adherent to the mantle all along their basal ridge. D'Orbigny's expression of *abrachiopodes*, applied to the *Thecidia* is entirely false : indeed, what is a Brachiopod without arms ?

The cirri present two very distinct structures :—a cortical layer, which is soft and easily destructible—the cellular envelope ; and a hard, resistant, and nearly cartilaginous axis, which is the framework. They differ a little in the two sexes ; these differences will come into consideration in connexion with the reproduction.

The mouth occupies precisely the same situation as in the other Brachiopods. In all, in fact, the arms are united by the arc of a circle—a true, more or less concave horseshoe, which they form by becoming confounded on the median line ; and it is at the bottom of this curve at the middle that we see the buccal orifice, always in front of the ridge, the base of the arms, and the insertion of the cirri. The stomach is surrounded by the two packets of cæca which constitute the liver. The intestine presents a very curious peculiarity, already indicated by MM. Hancock and Huxley in the *Terebratulæ*. It terminates in a delicate ligament, and presents no anus. Examination by the lens, and even under high powers of the microscope, left no doubt upon this point.

Behind the mouth, above the arc formed by the base of the arms, there is a nervous centre composed of ganglia, from which issue numerous nerves passing to the two lobes of the mantle and other parts of the body.

The sexes are separate. The testes and the ovaries only exist in one lobe of the mantle—that corresponding to the deeper or inferior valve. The two testes, like the two ovaries, are hidden beneath supplementary osseous plates developed in the thickness of the mantle. The spermatozoid is very small, with a very delicate tail and a

globular head. The ovaries resemble little bunches of grapes of an orange-colour, but each grain is formed by an egg, and not by a secretory cæcum.

The egg during its development projects out of the gland, and is suspended by a peduncle, which is very probably broken at the period of extrusion.

On each side of the median line in the concave valve there is a glandular canal, with an internal and external orifice; this, which represents what Mr. Hancock calls the supposed auricles of the pseudo-hearts, is in relation to the ovary or testis, and serves, probably, for the issue of the ova and seminal fluid.

The young embryos of the *Thecidia* are suspended from two of the cirri of the arms—those of the middle behind the mouth. These cirri, which may be called suspensors, curve backwards and bury themselves in a median incubatory pouch, placed between the two ovaries. This peculiarity impresses upon the shell a character which enables us to distinguish the male from the female *Thecidia*, when the animal no longer exists. A small notch for the passage of the two embryoniferous cirri upon the external twisted lamella which supports the arms always indicates the female sex. There are few examples of this possibility of recognizing the sexes of shells.

The entire series of the development of the ova could not be investigated. The youngest embryos observed resembled an aggregation of large cells. Starting from this state, in which the young animal is ovoid, three furrows are seen to be formed perpendicular to the principal axis, dividing the embryo into four lobes; the two median are comparatively very large, the two outer ones very small. One of the latter appears to be hollowed into a cavity like a sucker; the other presents a longitudinal fissure surrounded by two or four red eye-like spots. It is very probable that this is the anterior extremity, and that its fissure becomes the mouth. The embryos move by the agency of the vibriatile cilia with which they are covered; they often contract themselves. They appear to bend themselves upon the median furrow, and then the greater diameter is much diminished. The substance contained in the anterior median lobe breaks up into lobules, which will afterwards represent the cæca of the liver.—*Comptes Rendus*, November 11, 1861, p. 849.

On a new Species of Neotoma (N. ferruginea) from Guatemala.

By R. F. TOMES.

The present species of *Neotoma* is so well-marked a species that it will be scarcely necessary to lengthen the description by comparing it with other species of the genus.

It is typically a *Neotoma*, and in size about equals the *Mus rattus* of Europe. General form rat-like; the head rather elongate, and the muzzle somewhat pointed. Muffle small, being little more than a flat space between the nostrils, and with scarcely any part quite free from short, fine, scattered hairs. Upper lip cleft from the muffle downwards, and well covered with short hairs; nostrils rather small



Lacaze-Duthiers, Henri de. 1862. "Investigations of the living Brachiopoda of the Mediterranean. First Memoir: on Thecidium." *The Annals and magazine of natural history; zoology, botany, and geology* 9, 77–78.

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