

the original forest; they are uninhabited, and rarely trodden except by the hunter. In such places only have I ever met with *Helix bactricola*, *Cistula aripensis*, or the *Diplommatina*; and they do not now exist on Punta Gorda, or anywhere in its neighbourhood so far as I have been able to ascertain. Punta Gorda is practically an islet, being cut off from the main island of Trinidad by a mangrove swamp submerged at high water. Through this swamp a canal was cut some thirty or forty years ago, connecting the water of the Gulf on each side of the peninsula. Punta Gorda is similar in its structure to the islets in its neighbourhood—namely, the Cotoras, Careras, and Gaspari; it is composed of compact limestone of Devonian or Carboniferous age, in which exist caverns and fissures, and in these caverns and fissures are deposited stalagmitic matter, sometimes forming a breccia-like stone.

Of the probable antiquity of the breccia in which the shells are imbedded, it is difficult exactly to judge. The destruction of the original forest upon Punta Gorda possibly induced not only a slackening of the formation of stalagmites, but also involved the extinction of some of the land-shells. The molluscan fauna of the peninsula at present consists of *Stenogyra octona*, *Helicina barbata*, *H. lamellosa*, *Cyclotus translucidus*, *Cylindrella trinitaria*, and *Bulimus pilosus*—an assemblage having only two species in common with the cave deposit. Punta Gorda, as well as the islets near it, and the Boca Islands were cultivated at the beginning of the century, and crops of cotton were raised there. It is not likely, therefore, that the breccia containing shells is less than fifty or sixty years old; while, on the other hand, it is more probable that its age might be reckoned in hundreds of years. Ships arrived here from India for the first time in 1845.

I think, therefore, that the evidence now given tends to strengthen the theory that the *Diplommatina* is an aboriginal inhabitant of the island, and was not introduced from India.

Mr. Blanford has already pointed out that the distribution of the Cyclophoridæ (including *Diplommatina* and its allies) includes, besides certain other countries, India and the West Indies. In my paper in the 'Zoological Proceedings,' 1875, p. 318, I have pointed out several analogous circumstances as regards geographical distribution, especially, for instance, that of *Streptaxis*.

Globiferi, new Organs of the Echinida. By Dr. OTTO HAMANN.

On the skin of many Echinida, besides spines, pedicellariæ, and sphæridia, certain organs occur which have hitherto remained undiscovered. On account of their peculiar form I call them *globiferi*.

Upon a movable peduncle, sometimes long, sometimes short, are seated some globular bodies, which may show the most multifarious structures in different species. In *Sphærechinus granularis* the head of the globifer consists of three spheres united to each other at their points of contact, and each of which shows an aperture, generally of a circular form, even under a low power. In the peduncle of

each globifer there is a calcareous rod which serves to support the head.

Globiferi are distributed over the whole surface of the skin. They occur on both the ventral and the dorsal surface. In size they measure a few millimetres. They occur in most Echinida. As yet I have examined them most accurately, besides *Sphærechinus*, in *Centrostephanus longispinus*, Peters. In this latter species the structures seated upon the peduncle are of ovate form.

The investigation of fresh globiferi, separated from the living animal, shows at once that they are glandular organs which emit a secretion through apertures. The tightly stuffed glands (each globule contains a gland with its aperture) may be easily brought to immediate evacuation; this takes place particularly on the addition of Flemming's chrom-osmium-acetic acid. The evacuation is effected by means of a well-developed musculature. The muscular fibrillæ (smooth muscle-cells) run concentrically with the aperture of each glandular ball.

The structure of these glandular balls is complex, and varies in the different genera and species. According to the state in which the gland is its structure differs. It reminds one strikingly (especially in *Centrostephanus*) of the conditions presented by the mucigenous cells of the Vertebrata in the resting state, or in active secretion.

Neither the Holothurians nor the Asterida possess any organs like the globiferi. In them the gland-cells are distributed in the skin, the epithelium. If this were the case in the Echinida, any action of theirs against enemies would be inconceivable, as the long spines must hinder any such action. Glandular organs will be capable of cooperating with the stalked pedicellariæ in defence only when attached to peduncles. And that we must regard the globiferi as defensive organs, weapons, and as acting in the same way as the nettle-capsules of the Coelenterata, is indicated by their structure and by observations on the living animal.—*Sitzungsberichte der Jenaischen Gesellschaft für Medicin und Naturwissenschaft*, 1886.

Some new Infusoria from American Fresh Waters.

By Dr. ALFRED C. STOKES.

In the paper on this subject by Dr. Stokes in the 'Annals' for February of the present year, at p. 104, a new genus is characterized under the name of *Diplomastax*. In Dr. Stokes's MS. the name given to this genus was *Diplomestoma*, the etymology of which was given by him as follows:—"διπλός, double; ὑμῆν, a membrane; στόμα, a mouth;" from which it seemed to the Editors absolutely impossible to get such a word as *Diplomestoma*. While hesitating whether to change the name, and if so how to change it, the Editors found that in the explanation of the figures the species described stood as *Diplomastax frontata*; and the latter name was accordingly adopted, under the impression that Dr. Stokes had



Hamann, Otto. 1886. "Globiferi, new organs of the Echinida." *The Annals and magazine of natural history; zoology, botany, and geology* 17, 386–387.

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