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NOTES ON SOME BRAZILIAN BRYOZOA ECTOPROCTA

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(with 5 figures)
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RESUMO - *Hislopia corderoi* Mané-Garzon, 1959, é redescrita. Dou uma chave das espécies das Hislopiidae. As espécies de *Fredericella* são discutidas. A sinonímia de *Lophopus iheringi* é enumerada e o gênero *Stolella* é mantido. A variabilidade das Plumatellas é salientada.

ABSTRACT - *Hislopia corderoi* Mané-Garzon, 1959, is redescribed. I give a key of the species of the Hislopiidae. The species of *Fredericella* are discussed. The synonyms of *Lophopus iheringi* are given. The genus *Stolella* is maintained. The variability of the Plumatellas is stressed.

INTRODUCTION

During the preparation for the chapter Bryozoa in Schaden's Brazilian Freshwater Fauna I met with several problems. The opinions about position and classification of the Bryozoa in recent papers are different (Cori, 1941; Toriumi, 1955; Lacourt, 1968; Wiebach, 1966-70), and there is ample variation in the synonymizing.

I follow Jägersten, 1972, and consider the Phylum Ectoprocta as belonging to the group Tentaculata. The Entoprocta are a separate Phylum. With Lacourt (1968:7-8) I maintain the name Bryozoa = moss animals, Moostierchen against Polyzoa, in Brown's opinion (1958).

Toriumi (1955:249) regarded the form of the colony as the most important character for the classification of freshwater Bryozoa. Lacourt (1968:37) said, the identification cannot be made from the shape of the zoaria, and gave a key based only on the statoblasts of the Plumatellidae, though he admits (p. 39) that some statoblasts resemble each other quite strongly. Moreover, in most species the statoblasts vary in size and proportions, and therefore they may easily be confused with those of several other species. Toriumi (1951:176-177) and Wiebach (1970b:65) are right to claim that many more specimens must be studied till we get a safe classification of many of the species. Wiebach recommends to use Lacourt's synonymies with great caution.

Ctenostomata

Hislopia corderoi Mané-Garzon, 1959
Figures 1, 2*Hislopia corderoi* Mané-Garzon, 1959:213-216, pl. 1.*Hislopia corderoi*; Wiebach, 1967:180-185, f. 9-11, 13-18 ;
1970b:62.

In our old collection I found a slide labeled "*Hislopia* sp., Rio Uruguay, E.H. Cordero, 1926" The slide is in good conditions, so that 19 zoecia with seven polypides could be studied. They correspond to *Hislopia corderoi* Mané-Garzon, 1959, from the same locality (slide from 1927). Wiebach (1967:178-185) compared the description given by Bonetto & Cordiviola (1963) with the specimens he had from the River Amazon, and distinguished *H. corderoi* from *H. lacustris* Carter, 1858, known from Asia and perhaps from Africa (Wiebach, 1967:180), by the spines around the orifice and on the front in *H. corderoi*. If the oral spines are very numerous, they may each be rudimentary and appear like scales (Wiebach, 1967:181), as my Figure 2 shows.

Bonetto and Cordiviola (1963:83) indicated the proportion of breadth to length of the zoecium as 50-54%; in Wiebach's photographs (1967; f.9, 14) it is 51%. In the present slide the 19 complete zoecia give 62%, possibly they were pressed under the cover glass. Wiebach (1967:183) indicated the proportion of length to breadth for material of *H. lacustris* as 1.28-1.45:1; of *H. corderoi* from the river Paraná as 2.42:1; from the Amazon, 1.81:1; in the present slide, 1.88:1.

The spines around the orifice and on the front wall, which characterise the species *corderoi*, are quite variable in one and the same colony. They may be wanting in some zoecia, or 1-4 or up to 15 stand only around the orifice (Fig. 2) or also on the front wall in two rows there can be 2-15 spines (Wiebach 1967:181). Wiebach indicated a total of up to 26 spines.

The fan-shape of the young buds in *H. malayensis* described by Annandale (1916:33; 36, pl. 2, f. 1a) occurs also in *H. corderoi* (Wiebach, 1967:180, f. 11, 18).

The folds of the collar of the polypid (Fig. 1,c) when retracted (Fig. 2) sometimes seem to form four flaps or valves, described by Carter (1858) and figured by Annandale (1916:pl. 1, f. 9), what Wiebach (1967:179) contested.

When the zoarium is taken from its substratum, the endocyst retracts from the ectocyst. This was described by Julien (1885:137) for *Plumatella*. The same is visible in Wiebach's photographs of *Hislopia* (1967, f. 9; 1970b: f.1), and in my slide (Fig. 1,b). The parietal muscles (p) stand in a line inward from the endocyst.

The proportions of the organs of the digestive tract are specific: in *Hislopia lacustris* length to diameter of the cuticularised cardia is 1.3:1, in *corderoi*: 0.9:1; that of the caecum is in *lacustris* 1:1, in *corderoi* 2.0:1.

The thick chitinous wall of the cardiac region is typical of *Hislopia* (see Annandale, 1916, f. 2C). In *Echinella*

Korotneff, 1901 (Wiebach, 1966:132-142) the cardiac chitine forms spirally arranged spines (Annandale, 1916, f 2D; Wiebach, 1966, f 4-6), so that the genus *Echinella* is characterised.

Jullien's genus *Norodonia*, (1880:77) corrected by Dawdoff (1948) to *Norodomia*, was synonymised to *Hislopia* by Annandale (1911:199) who further united Jullien's species *sinnensis* with *cambodgiensis* (p. 202).

KEY TO THE HISLOPIIDAE SPECIES

- 1 Gizzard with spiral rows of chitinous denticles
 .. *Echinella platoides* (southern Asia)
 - Gizzard with an inner ring of chitinous substance
 .. *Hislopia* 2
- 2 Zooecia in margin of colony almost circular
 .. *Hislopia lacustris moniliformis* (Asia)
 - Zooecia longish 3
- 3 Ectocyst hyaline; no orificial spines
 .. *H. malayensis* (Asia)
 - Ectocyst yellowish 4
- 4 Orifice generally without spines. . *H. cambodgiensis* (Asia)
 - One to four oral spines generally present 5
- 5 Caecum 1,3 times as long as wide; up to 4 oral spines
 .. *H. lacustris lacustris* (Asia)
 - Caecum length twice its width; 0-4 or more dorsal spines..
 .. *H. corderoi* (South America)

Phylactolaemata

Fredericella Gervais, 1838

Figures 3-5

A comparison of the statoblasts of *Fredericella sultana* from Europe and of *F. sultana crenulata* Marcus, 1946, from Brazil shows a clear difference in their structure. The capsule is smooth in the European specimens of *sultana* (Fig. 3), pitted in the Brazilian *crenulata* (Fig. 4) The length to breadth proportion differs between the longish sessoblast of *sultana sultana*, 1.54:1 to 1.93:1, against 1.23-1.25:1 in *crenulata* and *australiensis browni* (Fig. 5). Its border is smooth in *s. sultana* and *a. browni*, knobby in *s. crenulata*.

Toriumi (1951:176-7) questioned whether the specific characters of *F. australiensis* are genotypic or phenotypic.

Bonetto and Cordiviola (1965) considered the *Fredericella* from Rio Paraná as *sultana* and from Rio Uruguay as *australiensis*, but thought both to be only variations of one and the same species. Lacourt (1968:49) found the sizes of these statoblasts much too different to unite them.

Lophopus Dumortier, 1835

The Brazilian *Lophopus iheringi* Meissner, 1893, was in sufficiently described and later placed in other genera, viz. *Australella iheringi* (Annandale, 1910; 1915; Kraepelin, 1914 : 62, f.9); *Hyalinella iheringi* (Annandale, 1919); *Pectinatella ? iheringi* Hastings, 1929:303, f 2a, 2b; Marcus, 1942 : 64) and *Hyalinella lendenfeldi* Ridley, 1886, (Lacourt, 1968: 96). Anna B. Hastings studied the type colonies and figured them (1929, f. 2) They are of the massy form of *Lophopus* and *Pectinatella*, not of the tubiform type of *Hyalinella* (Hastings, 1929, f 1A) *Australella* was synonymized to *Hyalinella* (Annandale, 1919:91). The floatoblast of *L. iheringi* is rather roundish, similar to that of *Pectinatella*, but it has no spines. The pointed poles of the longish *Lophopus crystalinus* statoblasts are sometimes considered as spines, and the statoblasts then called spinoblasts, but I think, they are closer to those of *iheringi* than to the spiny ones of *Pectinatella*, so I prefer to return *iheringi* to *Lophopus*. Toriumi (1956, fig. 16) figured a spineless statoblast of *Lophopodella carteri* that closely resembles Kraepelin's figure of *Lophopus iheringi* (1914:9), but differs from Meissner's figure 1. As long as no spiny statoblasts of *L. iheringi* are found, the species can be considered as valid.

Plumatella Lamarck, 1816

Already Allman (1856:93-98) said: "it is scarcely possible to conceive a species burdened with a more discordant and perplexing synonymy than *Plumatella repens* Linnaeus, 1758" Jullien (1885:113) gave more than 20 synonyms for *Plumatella repens* (Linné, 1758), but Lacourt (1968:64) gave only two. Jullien (1885:103, f.17-47) drew 31 free statoblasts of *P. repens*, showing their principal varieties. "This great variability makes any specific character impossible" (l.c., p.187) His figures 48-62 of sessile statoblasts are also extremely variable in shape and size.

Wiebach's discussions of some of the species of *Plumatella* (e.g., *javanica*, 1967:175-178) show, how doubtful of his classifications he is: "probably this species" (p. 175), "is a species polymorpha" (p. 176), "This is not a safe definition" (p. 176), "in my opinion it is sure that *Pl. javanica* is clearly different from *Pl. emarginata* and *Pl. repens*, but it may occasionally have been confounded with one or the other" (p. 177). M.D. Rogick (1935a:157) gave a number of names as varieties of *Plumatella repens*, that are generally considered as species. The synonyms are so varied, and the descriptions often not complete, that I restrict myself to the genus and do not go to the species.

Stolella Annandale, 1909

Lacourt (1968:59) synonymized the genus *Stolella* to *Plumatella*, as the generic character, elongated zooecia, occurs in many species of *Plumatella*. I do not accept this suppression, though in several specimens of our old slides the groups of zooecia are not separated by pseudostolons, but close together: but in others they are.

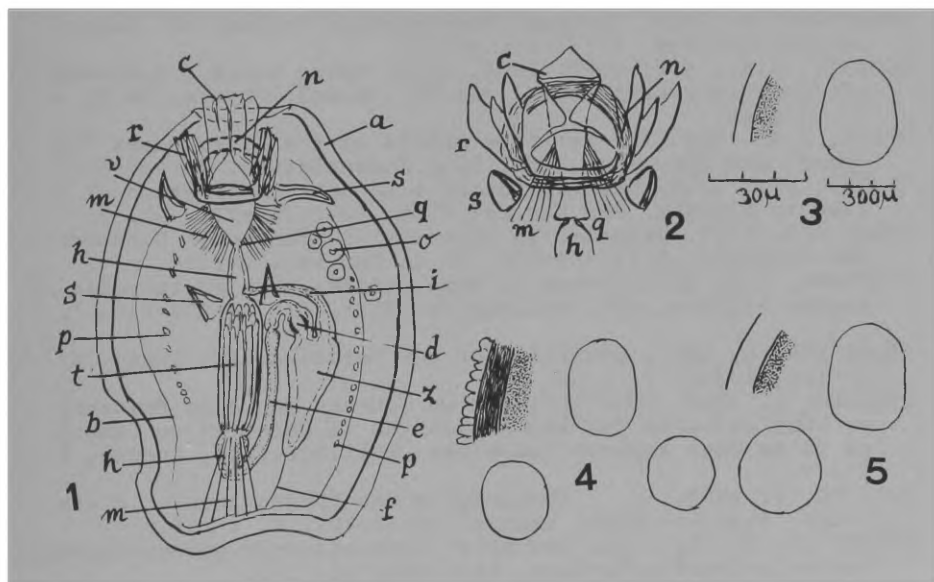


Fig. 1 - *Hislopia corderoi* Mané-Garzon, 1959. Specimen preserved 1926 by E.H. Cordero from Uruguay-river. Fig. 2 - Orifice of a zooecium in the same slide. Fig. 3 - Sessoblast of *Fredericella sultana sultana* from Europe, and border of same. Fig. 4 - Sessoblast and piptoblasts of *Fredericella sultana crenulata* and border of same. Fig. 5 - Sessoblast and piptoblast of *Fredericella australiensis* and border of same. a - ectocyst; b - endocyst; c - collar; d - cardia; e - esophagus; f - funiculus; h - pharynx; i - intestine; m - retractor muscles; n - orifice; o - ovary; p - parietal muscles; q - diaphragm; r - rudimentary spines; s - spines; t - tentacles; v - vestibulum; z - caecum.

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