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On the calcareous sponges of Minorea

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species of the allied genus *Cryptoniscus* there is hermaphroditism with successive functioning of the two sexes and *protandry*. This hypothesis, strongly supported by the investigations of Bullar and Paul Mayer upon the *Cymothoadina*, appears to me to be very acceptable in the present state of our knowledge, and I willingly extend it to the genera *Hemioniscus* and *Entoniscus*, and even to other less abnormal Bopyrina, such as *Ione thoracica*, which is also found at Wimereux in the branchial cavity of *Callianassa subterranea*. We should thus easily explain how, in the case of animals so rare as the *Entonisci*, Fraisse and myself were able to find, comparatively often, upon the same crab, two or even three female individuals in different stages of development and unaccompanied by any male*.

The young imperfectly developed females would in this case be males, which, after having functioned as such, had succeeded in attaching themselves directly upon the crab, and continued their evolution as females, thanks to the more perfect nutrition which they would obtain in their new position. The great dimensions of the sac occupied by the *Entoniscus* leaves, after the escape of the embryos, a free space much greater than in the case of the true *Bopyri*, and facilitates this change of place of the male, the activity of which is sufficient.

Sacculina Carcini is not very common at Wimereux; the *Entoniscus* is very rare there. The coincidence of these two parasites upon the same crab therefore possesses a real interest, especially if we connect this observation with those made by Fritz Müller upon *E. Porcellance*, and by Fraisse upon *E. Cavolinii*. It is, it seems to me, a fresh example of what I have called the mutual assistance or the successive association of parasites in a determinate order, each species preparing the soil for those which are to follow it. Demonstrated first among the insects, this law seems to me to be of very general application, and it will doubtless furnish valuable indications in comparative pathology when it is applied to parasites of a lower grade, animal or vegetable.—*Comptes Rendus*, May 3, 1886, p. 1034.

On the Calcareous Sponges of Minorca.

By M. LAKSCHEWITZ.

M. Lakschewitz has communicated to the Dorpat Society of Naturalists a preliminary note on the calcareous sponges of Minorca, founded upon collections made in 1882 by Prof. M. Braun, chiefly in the harbour of Mahon and the Alcanfa inlet. He adopts Hæckel's classification.

Order CALCISPONGIÆ.

Fam. 1. ASCONES.

1. *Ascetta primordialis*, Hæck.

Most of the specimens are flat cushion-like stocks of 10–40 millim.

* Fraisse found the *Entonisci* upon seven females of *Carcinus menas* without ova; one of these crabs bore two and the other three parasites. Upon a single *Portunus puber* I found two unequally developed specimens of *Entoniscus Moniezii*, the only individuals of this species that I have been able to observe.

in diameter. They consist of anastomosing tubes, usually opening in groups through common oscula (*Tarrus primordialis*, Häck.), more rarely quite astomatous (*Auloplegma primordiale*, Häck.). Varieties *Ascetta protogenes* and *A. dictyoides*, Häck., are represented among the Minorcan specimens. Triradiates regular.

Loc. Mahon, Alcanfa, apparently very abundant.

2. *Ascetta clathrus*, Häck.

Two astomatous *Auloplegma*-stocks of 30–35 millim. in diameter. The loose tissue formed of slender tubes. Triradiates with slender cylindrical rays, sometimes slightly undulated, apices a little thickened. Both specimens belong to the var. *mæandrina*.

Loc. Mahon; previously known from the Adriatic.

3. *Ascetta blanca*, Häck.

Among the few specimens are some which as single individuals form a spindle-shaped sac with a naked osculum (*Olynthus*). One is a monoblastic *Nardorus*-stock with a common osculum, and another possesses several oscula (*Soleniscus*).

Loc. Mahon; previously known only from the Canary Islands.

4. *Ascltis canariensis*, Häck.

All astomatous polyblastic stocks, often furnished with one or more pseudostomata, leading into vacuities of the canal-system. They belong to the variety *Ascuris arceifæ*, Häck.

Loc. Mahon; only known from the Canaries.

5. *Ascltis minoricensis*, sp. n.

"Triradiates and quadriradiates regular (equiangular and equiradiate) and of the same size. Rays 7–10 times as long as thick, slenderly conical. Apical ray of the quadriradiates straight, half as thick as the three facial ones. Colour in alcohol white or brown."

Loc. Mahon.

Two specimens are large astomatous *Auloplegma*-stocks, 40–50 millim. in diameter. A third is a monostomatous stock with a common probosciform aperture.

Fam. 2. LEUCONES.

6. *Leucaltis pumila*, Häck.

Most of the specimens are large polyblastic stocks with several naked probosciform apertures. Some of them attain a diameter of 70 millim., and one is an astomatous stock with a rather narrow gastral cavity.

It is singular that Häckel describes only solitary personæ of small size; the Minorcan specimens are among the largest of calcareous sponges. In the structure of the skeleton they agree exactly with Häckel's description; it consists chiefly of nearly regular triradiates, while the gastral surface and those of the canals are lined with regularly arranged small quadriradiates, the basal ray of which is straight and somewhat longer than the curved lateral ray.

Loc. Mahon; previously known from the Atlantic and Indian Oceans.

7. *Leucandra aspera*, Häck.

A single specimen with a proboscidiiform aperture (*Dyssyconella aspera*, Häck.).

Loc. Mahon ; widely distributed in the Mediterranean.

8. *Leucandra balearica*, sp. n.

“Dermal surface spinose, as also the gastral surface. Chief part of the skeleton consisting of regular triradiates. The triradiates of the dermal cortex and the gastral quadriradiates are enveloped by minute bacillar spicules (*Stäbchenmörtel*). Scattered in the parenchyma are colossal fusiform spicules which project but little. The globular flagellate chambers are seated racemosely on the branched canals. The specimens are solitary personæ, partly without a mouth-aperture and partly with a fringed aperture.”

Loc. Mahon.

9. *Leucandra Rodriguezii*, sp. n.

“Dermal surface setosely spinose. Gastral surface spinose. Chief part of the skeleton consisting of regular triradiates ; the cortical layer thickly permeated by colossal, fusiform, and long, very fine, cylindrical spicules (*Stricknadeln*). The triradiates of the dermal cortex and the gastral quadriradiates enveloped by ‘*Stäbchenmörtel*.’ Large astomatous stocks.”

Loc. Mahon and Alcanfa.

Fam. 3. SYCONES.

10. *Sycandra coronata*, Häck.

Peristome in all specimens surrounded by an elegant circlet (*Sycarium coronatum*).

Loc. Mahon ; widely distributed in the Mediterranean.

11. *Sycandra raphanus*, Häck.

The specimens are individual personæ, one with a naked mouth-aperture (*Sycurus raphanus*, Häck.), the others all Sycariiform.

Loc. Mahon, Alcanfa ; widely distributed, Mediterranean, Indian Ocean, Australia, Philippines.

12. *Sycandra setosa*, Häck.

Two single personæ, with a long peristomial circlet.

Loc. Mahon ; common in the Mediterranean.

13. *Sycandra Schmidtii*, Häck.

A specimen with proboscidiiform mouth-aperture.

Loc. Mahon ; also in the Adriatic.

14. *Sycandra elegans*, Häck.

All solitary personæ, bearing a horizontal spicular circlet besides the peristomial circlet.

Loc. Mahon and Alcanfa ; common in the Mediterranean.

15. *Sycandra Humboldtii*, Häck.

One specimen agreeing in skeletal structure with this species, but its peristome is much produced.

Loc. Mahon; previously known from the Adriatic.—*Sitzungsb. Naturf.-Gesellsch. bei der Univ. Dorpat*, Band vii. pp. 336–341.

On a new Rhizopod, Arcyothrix Balbianii. By M. PAUL HALLEZ.

In his culture of the ova of *Ascaris megalcephala* Prof. Paul Haliez discovered a very curious Rhizopod, to which he has given the name of *Arcyothrix Balbianii*. It measures from 20 to 65 μ according as it is more or less extended. Its irregularly globular body has its lower surface flattened into a pedal disk, and the form of the animal when creeping resembles that of a jockey-cap. Its protoplasm is transparent and contains, besides granules and vacuoles, a large contractile vesicle, which M. Haliez found to communicate with the exterior. He was unable to ascertain whether the animal had a nucleus, as the employment of colouring agents would have killed the ova under observation. This Rhizopod presents appendages of two kinds, namely (1) a digitiform contractile pseudopodium presenting slow movements of oscillation and rotation, and (2) two very long and slender filaments of varicose aspect and often bifid, which serve to retain what the pseudopodium has seized. They are inserted upon two mamillæ, which are pretty close together, and in contracting they may form a spiral resembling that of the peduncle of the *Vorticellæ**.

These appendages play no part in the locomotion of the animal, which is a simple reptation of the protoplasmic mass. Although M. Haliez has only once met with this Protozoon and could not study its development, his discovery of it is of considerable importance. The simultaneous presence of the pseudopodium of the Amœbans and of the filaments of the Heliozoa leads to the supposition that *Arcyothrix Balbianii* may be regarded as a type intermediate between these two groups. (The outline figure given of the animal (a side view) shows a depressed irregular cone having the flat creeping surface below and the single pseudopodium springing from the apex. Two long slender threads, thickened at intervals, spring from two conical projections on one side of the cone, and a flagellate Infusorian is shown as retained by one of these filaments. The contractile vesicle is placed immediately beneath the base of the lower of the two filaments.)—*Mémoires de la Société des Sciences de Lille*, sér. 4, tome xiv.; *Bull. Scient. du Dép. du Nord*, October 1885, p. 323.

* *Podostoma filigerum*, according to Claparède, can retract the filaments which it emits in the same way.