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ternal conditions (*aptera-terminalis*), whilst at other times there are striking differences (*renum-crustalis*).

Whilst admitting that the two generations may have been originally identical, one is led to ask, which of the two now existing corresponds to the original form, or at least resembles it most. M. Adler believes that it is the agamic generation that represents this original form; if it is not identical with it, it should at least be very near. This conclusion is deduced from the following facts:—

First, the parthenogenetic form exists alone in certain species.

Secondly, among the Cynipidæ there is no case known of a sexual form existing alone; all the sexual species are only known to us as a link in a cycle containing an agamic generation.

Without being absolutely convincing, the arguments of M. Adler have a certain value. To this we might add that, contrary to what we see in other Articulata in which parthenogenesis exists, the sexual generations are the summer broods, and the parthenogenetic generations producing females are those which hibernate. Now the analogies with other insects would lead us to suppose that the hibernating generation is the original, and that the summer generation is secondary*.

These provisional hypotheses will probably have to be much modified by later discoveries; but the researches of M. Adler will always be conspicuous as being a great advance in our knowledge of parthenogenesis, and be reckoned among the most patient and fruitful researches which have been undertaken on insects.

A. H.

XXVIII.—*Note on Wagnerella borealis, a Protozoan.*

By C. MERESCHKOWSKY.

WHEN I described in this Journal† the interesting organism that I discovered in the White Sea, and named *Wagnerella borealis*, in honour of my master Prof. Nicolas Wagner, I had before me only a few specimens; and these were preserved

* See A. Weismann's 'Studien zur Descendenz-Theorie: I. Ueber den Saison-Dimorphismus der Schmetterlinge,' Leipzig, 1875.

† C. Mereschkowsky, "On *Wagnerella borealis*, a new Genus of Sponge nearly allied to the *Physemariæ*," Ann. & Mag. Nat. Hist. 1878, ser. 5, vol. i.; and "Etudes sur les Eponges de la Mer Blanche," in Mém. de l'Acad. de St. Pétersb. vol. xxvi. no. 7.

in spirits. Now the individuals preserved in alcohol, even when afterwards placed in glycerine, become entirely opaque; one can see nothing of their contents or of their internal organization; and consequently it is only possible to form an idea of the nature of the animal from the characters presented by their exterior. But this exterior bears witness strongly in favour of the animal being nothing but a small sponge; the spicules of two different kinds produced by the animal itself, above all, suggest this opinion as to the nature of the animal.

Since then I have had the opportunity of seeing some hundreds of specimens of *Wagnerella borealis* in the Bay of Naples, as also the preparations made of it by M. Paul Mayer, who has had the kindness to show me these as well as his drawings. The preparations of these animals coloured with tincture of cochineal have especially served to convince me that I was entirely deceived in assigning them a place among the sponges. I am now convinced that it is an organism probably belonging to the group Heliozoa, in the class Protozoa; for there is no doubt that the protoplasmic mass is not formed of cells; it is in all only a single cell with a single nucleus, which divides only for the purpose of propagation into two, four, and eight nuclei, as described by M. Paul Mayer*.

It is therefore, in the first place, to correct this error that I write this note, and, further, to confirm the identity of the *Wagnerella borealis* of the White Sea with that which occurs in the Bay of Naples, and which has been recognized as a Protozoan by the researches of M. Paul Mayer.

In the second place, it is to rectify another error that I committed in describing the animal discovered by me in the White Sea, and an error of a much less pardonable nature than the former. I described the spicules that occurred in *Wagnerella borealis* as being of a calcareous nature. A more careful examination of the object has convinced me that in this I have committed a profound and gross error, the spicules being siliceous as in all the Heliozoa. It was in reading the fine work by M. Bütschli on the Protozoa† that I recognized the necessity of correcting this error, which I hope will be excused me, seeing that I committed it at the very outset of my zoological studies.

As to the question whether the spicules are produced by the animal itself, or elements foreign to the organism and selected by it from among the spicules of sponges, I think that M.

* Paul Mayer, "*Wagnerella borealis*," Zool. Anzeiger, Bd. ii. 1879, pp. 357, 358.

† Bütschli, Broun's 'Klassen und Ordnungen, Band i. Protozoa, 1881. *Ann. & Mag. N. Hist.* Ser. 5. Vol. viii. 20

Bütschli has no reason for doubting that the former supposition is the only correct one. Among a great number of these animals I have not seen a single one in which there were not always the two kinds of spicules, and always arranged in the same manner—that is to say, the longer ones implanted only by one end at the surface of the head, and the smaller ones entirely immersed in the organic substance of the head and peduncle; further I have never observed any other spicules, small grains of sand, or other foreign substances. I believe, therefore, that we may, without hesitation, accept my opinion that these spicules are the product of the organism itself, as, indeed, we not unfrequently find siliceous spicules formed by the protoplasm of the Heliozoa.

As regards the classification of the animal, there is only a single point that makes me hesitate before placing it among the Heliozoa; and that is the absence of pseudopodia. I have never been able to observe pseudopodia issuing from any part of the body, just as I have also never seen them in *Haliphysma ramulosa*; and M. Paul Mayer has also told me that he never saw them in *Wagnerella*. With the exception of this difference there is a very great resemblance between *Wagnerella* and the Heliozoa, such as *Clathrulina*, for example—a resemblance much closer than with any Rhizopod or, in general, any other Protozoa. It must consequently form a distinct family in the group of the Heliozoa—a family which will be characterized by the presence of separate spicules forming the skeleton, and by the presence of a peduncle which attaches the animal to foreign objects. This family should undoubtedly be called WAGNERELLIDA, from the generic name of the single species known.

XXIX.—*Notes on Longicorn Coleoptera.—Revision of the Ærénicides and Amphionychides of Tropical America.*
By H. W. BATES, F.R.S., F.L.S.

[Continued from p. 204.]

Isomerida fimbriata.

I. albicollis major et robustior, elytris postice paullo dilatato-explanatis. Niger, griseo subtiliter pubescens, thorace lateribus obtuse tumidis vittaque angusta indistincta grisea; elytris apice rotundatis et planatis, carina laterali paullo ante apicem desinente, dorso subcrebre punctulatis, lateribus vitta alba (spatium inter carinam et marginem occupante) longe ante apicem terminata; antennis (♂) corpore longioribus nigris, articulis secundo ad sextum infra sparsim ciliatis, cæteris pubescentibus: corpore subtus nigro,