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Miscellaneous

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the species would also have been acceptable. The photographic figures of the shells are inimitable; but the same unqualified praise cannot be bestowed on the three figures of animals in the first plate. There are copious particulars of the geological stations and a full explanation of the plates. An index nominum would also have been useful. The work is a first-rate contribution to natural history; and the further memoirs of this author will be equally welcome to conchologists.

MISCELLANEOUS.

On the Suctociliata of M. de Mereschkowsky. By M. E. MAUPAS.

IN the 'Comptes Rendus' of the meeting of 11th December (p. 1232) M. de Mereschkowsky has published a note upon an Infusorian, containing conclusions of too great importance to be accepted without their being previously submitted to a severe examination. This examination is the more necessary because the authority of this observer, who is well known by other important memoirs on the Protozoa, may lead to the acceptance as well founded of facts which are far from being correct, or from having the significance that is ascribed to them by the Russian naturalist.

And, in the first place, we find that M. de Mereschkowsky in asserting that no form intermediate between the Ciliata and the Tentaculifera had been previously indicated, seems not to have taken account of the previous works. As long ago as 1867 Stein* made known a new form, baptized by him by the name of *Actinobolus varians*, which, according to his short description, would answer much better to the *desideratum* in question than the type now proposed by M. de Mereschkowsky. But it might be objected to the authors who have been inclined to make this intermediate type of *Actinobolus*, that Stein had given no indication of the mode of action of the tentacles of this Infusorian. This being the case, it is impossible to appreciate their true morphological value, and there is nothing to guarantee that we have to do with organs perfectly homologous with the tentacles of the Acinetans. It is a fundamental objection which we shall oppose afresh to the Infusorian of M. de Mereschkowsky.

This author also affirms that all the Acinetina bear vibratile cilia only during their embryonic state. But every one now-a-days knows very well that certain *Podophryæ* and all the *Sphærophryæ* can at pleasure, during the whole of their existence, resume their ciliary covering, and thus become again as free and vagabond as the most active of the Ciliata. These facts have long been well established by the labours of Stein, Balbiani, Engelmann, and myself. In 1876†, attaching an exaggerated importance to this return to a higher form, I put forward the notion that we might make these types into a separate group under the denomination of *Ciliosuctoria*. Since then more thoroughgoing investigations have led me to quite different ideas.

* 'Der Organismus der Infusionsthier,' ii. p. 169, note.

† Archives de Zoologie expérimentale, v. p. 425.

Coming now to the new Infusorian proposed as an intermediate form, we shall see that M. de Mereschkowsky is equally ill-informed with respect to it. This type, in fact, is much better known, and has been so for a longer time, than he thinks. It was first discovered in the North Sea, and published by Claparède and Lachmann* under the name of *Hatteria pulex*. Since then it has been met with, first in the marine aquarium of Frankfort by Fresenius†, who gave it the name of *Hatteria tenuicollis*; a second time in the marine aquarium of Breslau by Cohn‡, who baptized it by a third name *Acarella siro*; and, finally, for the third time by Quennerstedt§, upon the coast of Sweden. All these different names belong to a single species more or less imperfectly seen or studied. For my own part I have met with it on the coast of Brittany, at the Zoological Laboratory of Roscoff, and very frequently upon the Algerian coast. Stein ||, without having personally observed it, classes it, I think definitively, in his genus *Mesodinium*. We see therefore that it is a widely distributed type, and has been already much studied by good observers. All these authors, without a single exception, have regarded *Mesodinium pulex* as a Ciliated Infusorian nearly related to the *Hatteria*.

The whole of the new theory of M. de Mereschkowsky is founded on the presence of small appendages arranged upon the margin of the orifice of the neck, and which he thinks he has been the first to perceive. But they are already very well figured in the drawings of Claparède and Lachmann, as well as in those of Fresenius, who, moreover, has described them in his text. I have myself observed them many times. The Russian naturalist makes them out to be suckers identical with those of the *Acinetina*; but I must declare that I have seen nothing in them to make me regard them as such, any more than Claparède, Lachmann, and Fresenius; and it must be admitted that M. de Mereschkowsky has got no further than we have in this respect. Their assimilation to the suckers of the *Acinetina* is a purely gratuitous assumption on his part, and not founded upon any positive observations. To assert a fact of such importance, and draw from it such important conclusions, he ought to have positively seen these appendages acting as true suckers: this we are not told; and it has evidently not been seen.

I think, moreover, that it was useless to go so far to seek the explanation of the function and significance of these appendages. All observers, including M. de Mereschkowsky himself, have remarked that *Mesodinium pulex* often attached itself to objects by its anterior extremity, and remained thus for a long time motionless. Hence, I am convinced that these appendages have no other function than that of serving as organs of fixation; and the Russian naturalist assures us that he has seen them act as such.

Another consideration, drawn from comparative morphology, may

* Etudes sur les Infusoires et les Rhizopodes, p. 370, pl. xiii. figs. 10, 11 (1858-60).

† Der Zoologische Garten, 1865, p. 84, figs. 11-13.

‡ Zeitschr. f. wiss. Zool. xvi. p. 293, figs. 32, 34 (1866).

§ Bidrag till Sveriges Infusorie-fauna, iii. p. 32 (1869).

|| Der Organismus &c. ii. p. 162, note 2 (1867).

also be opposed to M. de Mereschkowsky's conception. In all known Acinetina which, in the embryonic or adult state, may bear vibratile appendages, these appendages always belong to the category of simple vibratile cilia. The vibratile appendages of *Mesodinium pulex*, on the contrary, are true cirri—that is to say, composite cilia much thicker at the base than at the apical extremity, and consequently corresponding to a stage of development superior to that represented by the vibratile cilia of the Acinetina. This fact, of itself, suffices to dispel all notions of relationship between the latter and *Mesodinium pulex*.

I think I have now sufficiently demonstrated that the new group Suctociliata was founded only upon insufficient observations badly interpreted. I will, however, repeat what I have already stated (with details in its support) in a more extended memoir* :—the ancestral affinities of the Acinetina ought to be sought rather in the direction of the Heliozoa than in that of the Ciliata.—*Comptes Rendus*, December 26, 1882, p. 1381.

On the Molluscan Fauna of the Varangerfjord.

By MM. G. POUCHET and J. DE GUERNE.

During the expedition of the corvette 'Coligny,' last year, some dredgings were made in various parts of the Varangerfjord and in the tributary fjords on its south side. The greatest depth was 445 metres. The Mollusca are represented by more than 1500 specimens, as follows :—

	Genera.	Species.
Lamellibranchiata	24	38
Solenocoacha	2	3
Gasteropoda (exclusive of Nudibranchs)	29	53
Total	55	94

Certain forms, such as *Cardium ciliatum*, *Chrysodomus Turtoni*, &c., regarded by Sars as very rare in these localities, were collected alive. *Astarte sulcata*, *Macra subtruncata*, *Necera obesa*, *Panopæa norvegica*, *Dentalium entalis*, and *Rissoa proxima* have to be added to the list of Mollusca of Eastern Finmark given by G. O. Sars in 1878 (Moll. Region. Arct. Norveg.). These species extend southwards into the boreal and celtic regions, and some even into the Mediterranean. All are rare in the Varangerfjord.

The character of the fauna is decidedly arctic. More than a third of the species obtained are circumpolar. Sixty-six are known in glacial deposits. To obtain them living at their maximum of present development, we have to go to higher latitudes. Some are also met with in the cold waters of the great depths of the ocean, or in regions much further south than Finmark, on the east coast of North America (Labrador, Newfoundland, Massachusetts).

Of the ninety-four species, sixty-three are noted from Greenland, fifty-five from Spitzbergen, forty-two from Novaia Zemlia and the Kara Sea, and forty-one from Behring's Straits.

At the surface, the temperatures in which these Mollusca live are

* Arch. de Zool. expér. ix. p. 362 (1881).