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### On the molluscan fauna of the Varangerfjord

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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
Solenocochna . . . . .	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*, *Nacera 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).

comprised between  $-2^{\circ}$  and  $+10^{\circ}$  C. ( $=28^{\circ}4$  and  $50^{\circ}$  F.); the latter, observed in July, is probably about the maximum. In the middle of the fjord, at a depth of 350 metres and a temperature of  $37^{\circ}4$  F., upon very fine clayey mud, such forms as *Pecten grœnlandicus* and *Siphonodentalium vitreum* were met with.

The Varangerfjord and the neighbouring regions of the glacial sea do not freeze in winter. Whether this is to be explained by the very problematical extension of the Gulf-stream, or by the influence of the great south-east to north-west atmospheric current, the existence of which is now proved, the fact exists that while the condition of its superficial waters seems to unite the Varangerfjord with the Atlantic, the temperature of its bottom-waters, as also its molluscan fauna, approximate it to those seas which are covered with ice during the greater part of the year.—*Comptes Rendus*, December 11, 1882, p. 1231.

*Contributions to the Developmental History of the Prosobranchiata.*

By Dr. CARL RABL.

This memoir divides into two parts—the first treating of the question of the ultimate fate of the gastrula-mouth in *Paludina vivipara*, while the second relates to some later developmental processes in *Bythinia tentaculata*.

The question of the fate of the gastrula-mouth is of great theoretical importance; and there is at present scarcely a point indevelopmental history about which there has been more dispute, and upon which opinions are more divided. The author finds that in *Paludina vivipara* the gastrula-mouth gradually but completely closes in the median line of the ventral surface; that, further, soon after its closure the anus makes its appearance, but is in no way connected with the gastrula-mouth; and that, lastly, the permanent mouth appears at the spot where the last residue of the gastrula-mouth had closed up. These statements are certainly in contradiction to those of some other authors, but show that a common mode of development may be set up, at least for the Gasteropoda.

The second part treats of the structure of the velum, the origin of the upper œsophageal ganglion, the structure of the primitive kidneys and the intestine, and of the development of the persistent kidneys. The author finds that the velum in *Bythinia* is composed of large cells containing vacuoles, and differs in some other characters from the corresponding organ of other Gasteropod embryos; that the superior œsophageal ganglion originates in the form of a thickening of the outer germ-lamella (vertical plate); that the primitive kidneys are composed of a few, not very large, perforated cells; that the foundation of the persistent kidneys stands in no genetic relation to the ectoderm; and, finally, that in some respects the intestine possesses interesting peculiarities. The author has endeavoured to bring these results into agreement with his previous statements upon the development of *Planorbis*, and to show that the same laws which had proved to prevail in the case of *Planorbis* apply also to *Bythinia*, and that the differences result from the greater abundance of nutritive vitellus which is presented by the germs of the latter.—*Anzeiger Akad. Wiss. Wien*, January 18, 1883, p. 13.