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### On rapid change of colour in Gasterosteus

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and Freshwater Mollusks collected in Japan by Frederick Stearns," and on the "Mollusca in the Collection of Frederick Stearns from the Middle Loo-Choo Islands;" also a generic index and an explanation of the plates.

A Catalogue of this description is of enormous value to the student if it possesses the one all-important feature—completeness. Lacking this, its utility is in a great measure diminished. It is satisfactory to find that in the present Catalogue this condition has been in a great measure realized. To ensure no omissions, however, would be all but impossible, and entail enormous labour and research. One catalogue we have examined contains more than twenty species, quoted from Japan, which are unrecorded by Mr. Pilsbry; but as this was issued as recently as January 1894, it may have escaped the author's attention. It is possible that a few other oversights could be pointed out; but, considering the extent of the task, the author is to be congratulated on the success achieved. "The current generic nomenclature has been revised in certain cases;" but Professor Pilsbry appears to object to emended names, as *Rissoia* is still left *Rissoa*, *Scutum* remains *Scutus*, and *Solemya* is preferred to *Solenomya*. On p. 28 *Neptunea* has crept in in place of *Chrysodomus*, two species of *Macoma* have gone astray on p. 124, and certain untenable generic names, such as *Volvula*, *Aspergillum*, *Macrodon*, and *Leda*, are still retained.

The Catalogue is the most complete as yet published; it is issued in a convenient octavo form, very clearly printed, and the eleven plates, two of which are reproductions from the Proc. Acad. Nat. Sci. Philadelphia, 1891, are excellent. The artist is fortunate in possessing a "conchological eye," and seems to have caught the individuality of the numerous forms depicted.

To the student of Japanese Mollusca this useful work will be found indispensable.

#### MISCELLANEOUS.

*On rapid Change of Colour in Gasterosteus.* By JAMES DALLAS,  
F.L.S., Curator of the Albert Memorial Museum, Exeter.

SOME time ago I made the following memorandum of observations upon a stickleback, which has until now been mislaid.

On the 28th January I obtained a solitary specimen of a stickleback (*Gasterosteus aculeatus*), which was placed in an aquarium at some distance from the window, and where consequently the light was at no time brilliant, and was generally dull. When first captured the fish was of a bright dark-greenish colour on the dorsal

and silvery white on the ventral surface. Towards the end of March it had lost its dark colour and was of a palish olive-yellow, but the red colour, which seems to be connected with the phenomena of reproduction, and which is frequently very vivid in full-grown males about the region of the head and gills, was slightly developed. On the 30th March my fish made a curious small excavation in the sandy bottom of the aquarium, and for the next two days I observed that it went frequently to this nest, apparently for the purpose of sexual deposition. On the 1st April I obtained a further supply of sticklebacks, which were placed in the aquarium on the evening of the same day. These were dark in colour, and presented a marked contrast to the pale yellow of the original tenant. It is needless to say that violent warfare ensued upon the introduction of the strangers. The nest was destroyed almost immediately, and its erstwhile proprietor devoted itself to making savage attacks upon the newcomers. On examining the pale-coloured individual about half an hour later it appeared to me, and to a friend who had throughout followed my observations, that it had assumed a somewhat darker hue, while in two hours it could not be distinguished from the darkest of the later introductions. We had, however, no difficulty in still recognizing the original specimen by certain habits it had acquired during its solitary confinement, and notably by the fact that it would attack the end of the finger or a pencil placed in the water, whereas the new arrivals immediately retreated.

This rapid and complete change of colour struck me as very remarkable, the more so as it seems quite impossible to account for it. No change was made in the quality of the water, nor was there any change in the quality or quantity of light, even for the shortest time, so that the alteration observed seems to be attributable solely to inexplicable sympathetic influence. I am not aware that such a change has heretofore been observed in any animal, and I thought it might be worth recording in your pages.

*On Sexual Dimorphism in the Nautilus.* By A. VATSIÈRE.

Our knowledge of the external sexual differences of Cephalopods is in many respects still deficient.

As I had the privilege, in 1887, of examining some specimens of *Nautilus macromphalus*, Sow., and this year of studying a certain number of *N. pompilius*, L., I have thought that it would be interesting to point out the external sexual dimorphism that is found to exist in these mollusks.

On examining a certain number of *Nautilus* shells, taking care to place them with their mouths facing us and the outer lips of the latter uppermost, we find that the shape of the mouth of the shell is somewhat variable. The orifice is sometimes ovoido-conical,