

## LETTERS TO THE EDITOR

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The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

## Urticating Organs of Planarian Worms

THERE exist, as is well known to all comparative anatomists, in the skin of most planarian worms certain rod-like bodies (Stäbchenkörperchen of German authors) concerning the function and homologies of which there has been considerable speculation and difference of opinion. By some authors these bodies, which always at an early stage of their existence are contained in cells, "the rod-cells" have been compared to the thread-cells or nematocysts of coelenterata, the rod-cells being considered homologous to or possibly homogenous with these coelenterate nematocysts. In the July number of the *Quarterly Journal of Microscopical Science*, vol. lxvii., new series, 1877, I published a paper on the structure of several forms of land planarians obtained by me during the voyage of H.M.S. *Challenger*. In this paper is described and figured the structure of the rod-cells of several genera of land planarians as observed in the fresh and living condition. In an American form *Geoplana flava* and also in a *Geoplana* from New Zealand and a *Rhynchodemus* from the Cape of Good Hope rod-cells were observed in which the rods are much longer than the cells and are in their quiescent condition coiled spirally within the cells (*l.c.*, Pl. xx. Figs. 15, 20, 21, 22, 23), but which rods are shot out from the cells and protruded for a long distance beyond the surface of the epidermis when the animal is compressed or irritated. Such probably is the mature condition of the cells in question in all land planarians. Mecznirow has described a somewhat similar form of cell as existing in his *Geodesmus bilineatus*.

In some microscopic sections of land planarians hardened in alcohol, the shot-rods or threads may be seen in abundance when closely looked for, projecting from the edges of the section of the epidermis. The demonstration of the spiral coiling of the rods within the cells, and of their protrusion on irritation, would at first sight seem to ally these bodies more closely than ever with coelenterate nematocysts, but there is this great difference between the two structures, that several rods are present in each cell in the planarians, and that the rods are solid and apparently free within the cell, and when protruded by the bursting of the cell are shot clear of it. In coelenterates, as is familiarly known, the thread is continuous with the cell and hollow, and is everted in the act of protrusion.

In the summary of my paper above referred to (*l.c.*, p. 292) I suggested that it would be interesting to test the action of the rod bodies of land planarians by applying a living worm to the tongue and observing whether urtication was produced. I wrote at the time to my friend, Mr. Thwaites, F.R.S., curator of the Royal Botanic Gardens at Peradeniya, Ceylon, and asked him to make the experiment, which he did forthwith, and the result shows that planarians do undoubtedly produce urtication in much the same way as coelenterates, and there can be no doubt that this function is performed by the rod-bodies, which are thus weapons of defence, and no doubt used also to secure prey.

Mr. Thwaites writes:—"I have lost no time before attending to your request touching the planarians. I applied the tip of my tongue to two of them brought fresh and lively to me, and quite sensible was I to a feeling of unpleasant tingling, and it was accompanied with slight swelling. The sensations very similar to what is experienced upon a slight scalding. The planarian itself evidently felt very uncomfortable, as it became dilated laterally to a considerable extent during contact with the tip of the tongue, though it soon recovered its normal condition."

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## The Satellites of Mars

IT seems worthy of notice that the prophetic genius of Homer has already not only identified but even given names to the two satellites of Mars. I allude, of course, to the passage in the fifteenth book of the *Iliad*, where Ares is preparing to descend to the earth (possibly this refers to an unusually near approach at opposition, as at the present time):—

ὅς φάτο· καὶ β' ἵππους κέλετο Δεῖμόν τε Φόβον τε  
ζευγόμεν. . . . II., xv. 119.

which Pope renders—

"With that he gives command to Fear and Flight  
To join his rapid coursers for the fight."

Deimus and Phobus are not, perhaps, very euphonious names; but astronomers will not lightly reject the authority of Homer.

Eton, September 29

H. G. MADAN

## On the Coming Winter

HAVING recently computed the remaining observations of our earth-thermometers here, and prepared a new projection of all the observations from their beginning in 1837 to their calamitous close last year—results generally confirmatory of those arrived at in 1870 have been obtained, but with more pointed and immediate bearing on the weather now before us.

The chief features undoubtedly deducible for the past thirty-nine years, after eliminating the more seasonal effects of ordinary summer and winter, are:—

1. Between 1837 and 1876 three great heat-waves, from without, struck this part of the earth; viz., the first in 1846-5, the second in 1858-60, and the third in 1868-7. And unless some very complete alteration in the weather is to take place, the next such visitation may be looked for in 1879-5, within limits of half a year each way.

2. The next feature in magnitude and certainty is, that the periods of minimum temperature, or cold, are not either in, or anywhere near, the middle time between the crests of those three chronologically identified heat-waves, but are comparatively close up to them on *either side*, at a distance of about a year and a half, so that the next such cold wave is due at the end of the present year.

This is, perhaps, not an agreeable prospect, especially if political agitators are at this time moving amongst the colliers, striving to persuade them to decrease the out-put of coal at every pit's-mouth. Being, therefore, quite willing, for the general good, to suppose myself mistaken, I beg to send you a first impression of plate 17 of the forthcoming volume of observations of this Royal Observatory, and shall be very happy if you can bring out from the measures recorded there, any more comfortable view for the public at large.

PIAZZI SMYTH

Astronomer-Royal for Scotland

Royal Observatory, Edinburgh, September 27

## The Australian Monotremes

I OBSERVE in *NATURE* (vol. xvi. p. 439) that a doubt arises respecting the *Echidna* or Australian porcupine (recently re-named *Tachyglossus*) and the *Ornithorhynchus* being found in Northern Australia. It does exist in Queensland, but how far north it is impossible to decide until we are better acquainted with that extensive territory. The fact of one having been found by Mr. Kennedy, as mentioned by Mr. Forbes at Plain Creek in lat. 21° S. is, as far as the published statement can be depended upon, correct, and was never considered by any Australian in Queensland as a matter of doubt, as they were well acquainted with the animal; but whether the *Tachyglossus* was the same or of a different species I do not consider has been sufficiently noticed; whether it was the *Tachyglossus hystrix*, or with sufficient distinctive characters, as has been recently found in that of New Guinea to make it a new species, is not known, as ordinary travellers are not able to distinguish those characteristic differences which would immediately strike the experienced naturalist. The species found in the vicinity of Darling Downs, &c., is evidently the *Tachyglossus hystrix*, and from a recent letter received from my son, Mr. G. F. Bennett, he finds no difficulty in procuring specimens of this species near Fwooomba by offering rewards for those procured at certain intervals of time, to enable him to carry out his investigations on the mode of generation of the *Monotremata*, and if possible to procure the impregnated uterus of that animal, as well as that of the *Ornithorhynchus*, as in both animals it no doubt will be identical. As far as regards the rudimental pouch in the *Echidna* it is only able to be found in that animal during the breeding season, and I could never detect it at any other time. It is mentioned by Prof. Owen in his memoir on the young of the *Echidna* (*Philosophical Transactions*, 1865, p. 678), and indeed it has been a well-known fact for some period of time, as some years ago I doubted the assertion and public attention was most particularly drawn to it, and the fact was ascertained beyond doubt even before the publication of Prof. Owen's paper.