

## LETTERS TO THE EDITOR.

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## A New Mammal from Sumatra.

A FEW years ago a new and interesting mammal, which is exceedingly rare even in its native haunts, was brought to the then President of Palembang—Mr. A. Pruijs van der Hoeven. This gentleman, who is not only an eager sportsman, but also well versed in natural history, recognized it to be new to science, and to be more closely allied to certain representatives of the Edentata than to any other order of mammals.

The type-specimen was preserved in captivity for several weeks, was fed on ants, and afterwards on cooked rice, and was sent alive to Europe in order to be examined, described, and ultimately preserved in the Royal Museum at Leyden. It unfortunately died on board the vessel on its way to Holland, and, by an unaccountable blunder on the part of one of those in charge, its remains were not preserved, but thrown overboard.

During my own stay in Sumatra, from February till May 1891, I took particular trouble to obtain further information concerning this animal, and have found the fact of its existence—though, at the same time, of its exceeding rarity—confirmed in a way which does not allow me to doubt that, ere long, further specimens will be available for a thorough examination, also with respect to anatomical detail. My own attempts to secure a second specimen have not as yet been successful, but as they have drawn the attention of many persons to this animal, I feel bound, in deference to the claims to priority of its original discoverer, who has put his preliminary description as well as sketches of the animal at my disposal, to introduce this peculiar mammal into science, notwithstanding the fact that the type-specimen has been lost. The generic name has been selected, not with a view of indicating any closer anatomical relations with the genus *Manis*, but only to indicate that a hairy anteater is meant.

*Trichomanis Hooewenii*, gen. et sp. nov.—“Animal of the size of a very large cat. Fur grey, with a black longitudinal band along the middle of the back. Snout elongated and more or less conical, with a small mouth at the extremity. A long cylindrical tongue, which is thrust out, serves the animal in the collection of ants, which are its natural food. A more or less bushy tail. Ears not conspicuous. Legs higher than those of *Manis*, strong claws to the feet.”

I have no doubt that this description—however superficial—is more than sufficient for the recognition of the animal as soon as it will have been reobtained. The type-specimen was caught in the mountainous districts that separate the Residencies of Palembang and Bencoolen in Sumatra.

A. A. W. HUBRECHT.

Utrecht, September 7.

An Oviparous Species of *Peripatus*.

*Peripatus leuckartii* has proved to be by no means uncommon in Victoria, being now recorded from a good many distinct localities, and forming a very characteristic constituent of our cryptozoic fauna. Hitherto, however, little has been known of its habits, and nothing of its mode of reproduction. The only observer, so far as I am aware, who has recorded anything concerning its life-history, is Mr. Fletcher, who has described (Proc. Linn. Soc. N.S.W., October 31, 1888) four very young individuals, the progeny of a female kept by him in captivity in damp moss and leaves for four months (July to October inclusive). Mr. Fletcher did not observe the birth of the young, but found them in company with the mother when apparently only a few days old. He assumes, naturally enough, that they were born alive, as in all other species of *Peripatus* whose life-history is known; this viviparous habit being, indeed, one of the most remarkable characters of the genus.

In May last I secured a few good specimens of *Peripatus leuckartii*, which I have since kept alive in a small vivarium specially arranged for the purpose. The vivarium consists of a large glass jar, with a flat glass cover supported above the rim

of the jar on two thin slips of glass, so as to admit of free ventilation. I keep a small open jar full of water inside the large one, and the floor of the vivarium is covered with a thick layer of very rotten wood, kept moist by the evaporation of the water.

Under these conditions *Peripatus* flourishes well, and the specimens may be inspected when desired, by turning over the bits of rotten wood. On making such an inspection to-day, I found that some twelve or fifteen eggs had been deposited beneath some of the pieces of rotten wood, and in crevices of the same. Careful examination showed that these eggs were undoubtedly those of *Peripatus leuckartii*. I collected all I could find, and removed them, with some of the rotten wood, to a separate receptacle, and then carefully turned out the vivarium and examined its contents. I found that there were present four specimens of *Peripatus*, one male and three females, all apparently in good health, and that there was nothing else which could have laid the eggs; a very small ant being about the largest living thing present except the *Peripatus*. It is now some ten weeks since the vivarium was stocked, and as I have carefully examined it several times during that period, I am sure that the eggs must have been recently deposited.

The view that *Peripatus leuckartii* is really oviparous receives strong confirmation from anatomical examination of adult females. In these I have nearly always found eggs in the uterus, but, although I have dissected specimens taken in December, May, and July, I have never found any embryos. The single July specimen which I have yet dissected was captured at the end of the month and given to me by Prof. Spencer; it contained neither eggs nor embryos; as it appeared to be adult, it is not unlikely that the eggs had been laid. Moreover, the structure of the eggs *in utero* is very characteristic, and argues strongly against the probability of intra-uterine development. They are very large, oval in shape, and consist of a very tough, thick, elastic membrane inclosing a quantity of thick milky fluid full of yolk granules.

I have examined microscopically only one egg after laying, as I wish, if possible, to observe the development; but this one agrees so closely with those found *in utero* that there can be no doubt of its identity. It was of just about the same shape and size ( $\frac{3}{16}$  inch long by  $\frac{3}{16}$  inch broad), of a very pale yellow colour, with a very tough, elastic membrane, and a milky fluid contents containing very many yolk granules. The only difference concerns the almost chitinous-looking membrane, which, instead of having a smooth surface, or nearly so, as when *in utero*, is exquisitely sculptured or embossed in a beautiful and regular design. The design consists of curious little papillæ, somewhat resembling worm casts, arranged at fairly regular intervals over the surface of the egg, with much finer, close-set, meandering ridges occupying the spaces between them. Such sculpturing is, as is well known, characteristic of many insect eggs, and it renders those of *Peripatus* especially interesting in view of the relationships of that animal. As it is not present in intra-uterine eggs, it must be formed as the egg passes through the vagina, which is large and thick-walled.

It thus appears that *Peripatus leuckartii* lays eggs in July, and it appears also, from Mr. Fletcher's observations, that the young are hatched at the end of October. As, however, I have also found large eggs in the uterus of a specimen captured in December, I think it not improbable that the animal may be double-brooded. (I have used the term “uterus” in accordance with the customary nomenclature; it would be better, perhaps, to speak only of “oviducts” in *P. leuckartii*.)

The mode of reproduction of *Peripatus leuckartii* seems thus to differ widely from that known in all other species, and to conform rather to the insect type; and, considering the immense quantity of food-yolk present, it is probable that the development also differs in a similar way. This I hope to be able to work out, but the presence of so much fluid and granular yolk will, I fear, render the task very difficult.

ARTHUR DENDY.

University, Melbourne, July 31.

## The Sun's Radiation of Heat.

A FEW months ago I sent to the *National Review* a paper, which the editors kindly inserted, on the sun's radiation of heat. So far as I am aware, my theory has been completely ignored by those best competent to form an opinion upon the