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I. Wissenschaftliche Mittheilungen.

1. The Reproduction of Peripatus Leuckartii, Sänger.

By Arthur Dendy, D. Sc., Melbourne University.

eingeg. 14. September 1891.

Peripatus Leuckartii has proved to be by no means uncommon in Victoria; it is now recorded from a good many distinct localities, and forms a very characteristic constituent of what I have elsewhere[1] termed the »Cryptozoic Fauna«. I have already shewn[2] that it varies considerably in colour and marking, but it may always be readily distinguished from the only other Australian species of *Peripatus* (*P. insignis*[3]) by the number of its legs and the presence of an accessory tooth on the outer jaw. Hitherto 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 said anything concerning its life-history is Mr. Fletcher, who has described[4] 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*

[1] »Victorian Naturalist«, December 1889, p. 131.
[2] Proceedings of the Royal Society of Victoria. July 11. 1889.
[3] »Victorian Naturalist«, April 1890.
[4] Proceedings of the Linnean Society of New South Wales, October 31. 1888.

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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 shewed 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 Leuckartii*, 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 only July specimen wich I have yet dissected was captured at the end of the month and given to me by Professor Spencer; it contained neither eggs nor embryos; and as it appeared to be adult it is not unlikely that the eggs had been already 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, enclosing a quantity of 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 agreed so closely with those found in utero that there can, I think, be

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no doubt of its identity. It was of about the same shape and size ($^3/_{40}$ inch long by $^3/_{50}$ 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 papillae, 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, wherefore it is especially interesting in view of the relationships of *Peripatus*. 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 impossible 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* thus seems to differ widely from what is known in the other species, and to conform rather to the insect type. Considering the immense quantity of food yolk present, it is highly probable that the development also differs widely. 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.

Melbourne, July 31. 1891.

2. Über Echiurus chilensis Max Müller.

Von Dr. Ant. Collin, Berlin (Zoologische Sammlung).

eingeg. 19. September 1891.

In seinen »Observat. Anatom. de vermib. quibusdam maritimis«, (Berlin 1852) p. 21 erwähnt Max Müller eines chilenischen *Echiurus* des Berliner (anatomischen) Museums, über welchen nur angegeben wird, da die Länge des Körpers $6^1/_2$, die der Athemsäcke $1^3/_4$ Zoll sei. Obgleich Müller durch diese Notiz wohl kaum die Aufstellung einer neuen Art beabsichtigt hat, wird man gut thun, den Namen *E. chilensis* beizubehalten, da derselbe bereits in die spätere Litteratur Eingang gefunden hat (Diesing, Greeff). Bei Auflösung der hiesigen ehemaligen anatomischen Sammlung ist nun neben dem Original

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