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XII. ON PERIPATUS CAPENSIS.—By H. W. OAKLEY.

[Read 30th May, 1883.]

The *Peripatus* is not new to Natural History, or to the South African Philosophical Society, but it is of very great zoological interest, as lying near one of the main stems of the great zoological family tree, as Moseley says in his memoir read before the Royal Society on the 21st May, 1874. So that I offer no apology in again bringing it before you, especially as I have gained during many recent *Peripatus* hunts, to obtain specimens for Mr. Adam Sedgwick, M.A., of Trinity College, Cambridge, some facts which I think may prove of interest.

For those who are strangers to the *Peripatus* a short introduction may be necessary as regards its general characters and habits.

The *Peripatus* belongs to the group of animals termed the *Peripatidea*, and they in their turn belong to a division of the Annulosa known as the Arthropoda, in which also are placed the Crustacea (Crabs and Lobsters, &c.), Arachnida (Spiders and Scorpions, &c.), Myriapoda (Centipedes, &c.), Insecta (Butterflies, &c.).

The *Peripatus* has a distinct head, which is provided with a pair of many jointed antenna-like tentacula, and two simple eyes. The mouth, situated upon the under surface of the head, is surrounded by a prominent lip, which encloses a pair of jaws, each of which is terminated by two curved chitinous claws, similar to those of the feet. On each side of the mouth, the head supports a short obscurely jointed oral papilla, which is somewhat like one of the feet, but is devoid of claws and perforated at its extremity. The head is followed by an unsegmented body produced laterally into paired appendages, which vary in number from fourteen to more than thirty, according to the species—the Cape species has 17 pairs—and each of these appendages is indistinctly articulated, the terminal joint being provided with two small curved claws.

These creatures vary in colour, some being black, others brown, and others again dusky brick red—all have a narrow black dorsal stripe.

The *Peripatus* has the peculiar habit of ejecting from its oral papillæ—when irritated or handled—a web of transparent viscid filaments, which become rapidly indurated.

The great power of extension of the body is very remarkable, it being able to stretch itself more than double its ordinary length. It walks very much like a caterpillar, and moves easily either forwards or backwards.

Several species of *Peripati* are known from the West Indies, South America, New Zealand and the Cape.

They live in damp shady places under stones and in decaying trees.

I have found the Cape species under stones, and beneath the bark and in the woody tissue of the Oak, Poplar, Willow and Pine.

It is found on the Flats, though sparingly, becoming more plentiful on the slopes of Table Mountain.

Its food apparently consists of decayed vegetation.

The first Cape specimens were found many years ago, Mr. Trimen, F.R.S., being one of the first to discover them, but little appears to have been done with regard to the anatomy of this creature until Mr. H. N. Moseley, who came to the Cape as Naturalist to the *Challenger* Expedition, found some specimens at Wynberg in a plantation surrounding the house of Mr. Maynard, situated just behind Cogill's Hotel.

It was from these specimens that Mr. Moseley obtained the material for his Monograph on *Peripatus capensis*, which I have before stated was read before the Royal Society of London on the 21st May, 1874, but which as Mr. Moseley states is incomplete, and he left the gaps to be filled by other observers.

Prof. Balfour, of Cambridge, was the next to take the matter up, and on the 10th of April, 1879, wrote to Mr. Trimen requesting him to procure specimens of the *Peripatus* for dissection, but it was not until some months afterwards—I think in July, 1880—although diligent search was made, that any were found, Mr. Lloyd Morgan being lucky enough to find a good many specimens on the slopes of Table Mountain near Rondebosch. These were sent to Prof. Balfour, who obtained valuable information from them.

Unfortunately Prof. Balfour's untimely death on the Alps a few months ago put an end to his researches, and his unfinished memoir was taken up by Mr. Sedgwick and Mr. Moseley.

On the 4th Dec., 1882, Mr. Sedgwick wrote to the Museum for more specimens, but beyond a few collected by Mr. Lloyd Morgan and myself in July and August last year, from which Mr. Sedgwick writes that he has obtained some valuable embryos, it was not until the 29th April last that I and my brother and Mr. Richards were fortunate enough to obtain a good many specimens in the neighbourhood of the Waterfall Gorge, Rondebosch; and much to my surprise we found many newly born young ones, the breeding time hitherto having been supposed to be from the end of July to December.

Some of the adult specimens obtained I placed in boxes; but the first to bring forth young in captivity was one obtained by Mr. Richards, which he found during the *Peripatus* hunt with me on the 29th April.

This *Peripatus* has given birth to 19 young ones, viz. :—

2 on 2nd May
 4 „ 4th „
 7 between 4th and 8th May
 1 on 21st May
 3 „ 25th „
 2 „ 28th „

—
 19

The next *Peripatus* to give birth in captivity was one that I found under a stone on 3rd May.

She has produced 23 offspring, viz. : on 6th May she gave birth to

4 young ones
2 on 7th
4 „ night of 7th to 8th
4 „ „ „ 8th to 9th
2 „ „ „ 9th to 10th
3 „ 10th
3 „ 16th
1 „ 21st

23

The young *Peripati* vary in length from 6 to 9 lines ; they are of a pale livid red with a central dorsal and two lateral grey streaks ; the antennæ are also grey.

There are 17 pairs of legs as in the adult, they are of a grey colour. At the base of each antenna there is a bright conspicuous eye. When born the young *Peripatis* are undoubtedly quite of the adult form, and when irritated eject from their oral papillæ the web of viscid filaments precisely in the manner of their parents.

On placing an infant *Peripatus* in strong spirit it immediately ejects the filaments, resembling in this respect the adult ; and on dissecting one I found the glands which secrete this liquid to be well developed.

A small sized *Peripatus* produces young ones different in size and colour to those of a large or moderately large one ; for instance, the one in the small bottle has given birth to eleven, and two others in the tin boxes before you to 5, and the other to 5 young ones varying in length from 3 to 4 lines.

They are of a pale pinkish colour, and the legs, of which there are 17 pairs (as in the adult), do not differ but slightly in hue from the body ; the antennæ, however, are decidedly of a darker colour. The dorsal and lateral lines are less distinct than in the young specimen of the larger *Perapiti*. On irritating these very small infants I find they eject the viscid liquid in a similar manner to the adults.

XIII. THE BEAUFORT DAM.—By A. B. BRAND, C.E., of Beaufort West.

[Communicated by the President. Read 30th May, 1883.]

Before entering upon a description of the Beaufort dam, a brief allusion to the original water supply of the town may not be uninteresting.

A feature to which I wish particularly to refer is the Greenstone Dyke, crossing the upper part of the town in a line with the two ridges adjoining, which latter form the “kloof,” in which the original village was laid off. This dyke is one of many of a similar kind traversing the Karroo in every direction, and forming subterranean dams or walls, offering in many places, where breaks or neks occur, excellent sites for storage reservoirs. Generally at such places springs are to be found,