



On the power possessed by certain mites, with or without mouths, of living without food through entire phases of their existence or even during their whole lives

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outermost layer of chitinous membrane (last skin), which, at an early date, *pari passu* with the formation of the new antennæ, tends to separate off from the rest, and thereafter serves as a capsule or sheath wherein the two series of pectinations are developed by a process of budding from the antennal segments between the basal 5 and the apical 12-15; that as the pectinations grow they press upon so as to distend the walls of the sheath, completely obliterating all traces of its previous segmentation; and that if the sheath be carefully dissected away when distention of its walls has proceeded almost to the bursting-point (last moult), the completely bipectinated antenna of the adult male is disclosed, but with the teeth of each comb all glued and compressed together and with the two striated plates thus formed apposed to one another at their free ends, so as to enclose a compressed spindle-shaped cavity.—*Proceedings of the Asiatic Society of Bengal*, December 1876.

On the Power possessed by certain Mites, with or without Mouths, of living without Food through entire Phases of their Existence or even during their whole Lives. By M. MÉGNIN.

The specimens of *Ixodes* found adhering to animals, to whatever species they may belong, are always fecundated females—a fact which the author has ascertained by the examination of hundreds of individuals obtained from dogs, cattle, sheep, horses, different species of rodents, birds, reptiles, &c. He has frequently found adhering to the lower surface of these sucking females, another very different small *Ixodes*, which is entirely coriaceous, and is the male, the lip of which, forming an obtuse triangle with salient lateral angles, is introduced into the subthoracic vulva of the female, and serves as a guide to the penis (which emerges from its base), and at the same time as a means of firm sexual union instead of the copulatory suckers met with in many other mites.

The *Ixodes* are oviparous, and deposit a considerable number of eggs, not by the mouth as Latreille believed, on the testimony of Chabrier, but by a subthoracic vulva which opens close to the base of the rostrum, as demonstrated by M. Lucas (*Ann. Soc. Ent. Franc.* 1836, p. 630); but the mode of life and organization of the larvæ are quite unknown. The author found on an African ox an enormous female *Ixodes* ready to lay, and was thus enabled to study her numerous progeny. Between May 22 and June 23 this female laid 12,000 eggs filled with a brownish yellow vitelline matter, composed of granular polyhedric or rounded cells of very variable diameters. The average diameter of the ovoidal eggs was $\frac{1}{2}$ millim.

The eggs hatched between July 25 and August 9, producing very active hexapod larvæ, with the rostrum apparently complete, an oval-triangular cephalothoracic plastron, furnished with a pair of eyes as in the mother, but quite destitute of stigmata and of the tracheary respiratory apparatus so visible in the adults. Five or six days before hatching, when the egg appeared still three fourths

filled with the vitellus, the author saw the abdominal integuments of the larvæ formed, completely enveloping the vitelline mass; and he then saw the hard parts of the skeleton thicken and become darker in colour, the abdomen, which was at first spheroidal, become flattened and regularly festooned behind, and the stomach and its symmetrical cæca formed, circumscribing the vitelline matter, which was gradually retracted, furnishing the material for new organs. That the business of nutrition went on actively in the bodies of these larvæ was shown by their depositing upon the glass much white matter, which proved to consist of alkaline urates. The mother had also produced a large quantity of similar excrement. The author states that these larvæ lived and digested for three months without his being able to induce them to take any nourishment; they lived on the provision derived from their mother, which was contained in the stomach.

These larvæ undergo their metamorphoses and become adult, when the males seek the females, fecundate them, and die without taking any food, which, indeed, the conversion of their rostrum into an accessory organ of copulation would prevent their doing; the females, either during or after fecundation, attach themselves to animals, from which they absorb the quantity of blood which enables them to acquire sometimes ten times their original size, and provides the materials for their numerous progeny, even throughout life in the case of the males.

The mouthless Acarina, which have been formed into the genera *Hypopus*, *Homopus*, *Trichodactylus*, *Astoma*, &c., but which the author has shown to be nymphs, also live without food in an analogous manner. Their bodies are filled with a granular amorphous matter, a sort of highly vitalized sarcode, produced by the liquefaction of the internal organs, and especially the muscles of the larvæ; life is sustained without loss, since there are no evacuations, in consequence of the complete absence of anal, respiratory, or other apertures, during the whole of this phase of their existence. The adult form which succeeds this phase is remarkable (especially in the case of the adult female) for great voracity; but many of the males, like those of *Ixodes*, eat very little or not at all, and the author believes that the males of *Sarcoptes* belong to the latter category.

M. Mégnin remarks that this fact is by no means without a parallel, and mentions the Ephemera and the Cæstridæ as furnishing cases in point. He also refers to the same category the astomatous and fertile form of the *Phylloxera* of the oak observed by M. Lichtenstein (Bull. Soc. Ent. Fr. 1876, p. 164).—*Comptes Rendus*, Nov. 20, 1876, p. 993.

Note on the Nidification of the Aye-Aye.

By MM. A. MILNE-EDWARDS and A. GRANDIDIER.

Any facts that may contribute towards a more complete knowledge of the aye-aye (*Chiromys madagascariensis*) deserve the