

THE PRELARVA IN THE PYROGLYPHIDAE (ACARINA:ASTIGMATA)

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----- **ABSTRACT** — A prelarva is present in various genera of Pyroglyphidae. It is represented by a very thin membrane intimately applied to the internal surface of the egg shell and bearing two sclerotized hemispheric excrescences with pointed apices. The role of these excrescences is probably to break the shell of the egg and to allow the larva to escape. -----

In several families of parasitic Astigmata a vestigial prelarva may develop inside the egg shell. The prelarva consists only of a very thin membrane (= deutovial membrane) intimately applied to the internal surface of the egg shell. This membrane bears two sclerotized hemispheric excrescences with pointed apices on its external surface which are in contact with the egg-shell. The role of these structures is probably to break the shell of the egg and to allow the larva to escape from the egg.

A prelarva has been observed in the genus *Myialges* (Evans, Fain and Bafort, 1963) as well as in various other genera of Epidermoptidae and Turbinoptidae (Fain, 1965). We have also found it in various genera of Epidermoptidae and Tubinoptidae (Fain, 1965), and in various genera of Psoroptidae (unpublished).

A prelarva seems to be constant in the Oribates (Grandjean, 1962). So far it had not been observed in free living Astigmata. However, we had already reported that in some species of the family Pyroglyphidae (e. g. *Sturnophagoides brasiliensis* Fain) the females may contain larvigerous eggs (Fain, 1967). A reexamination of our collection of Pyroglyphidae has revealed that ovoviviparity exists in fact in several genera of this family. Moreover all the eggs that contain a larva exhibit the same structures as in the Epidermoptidae (Fig. 2, 3). We have also found these excrescences in intrauterine eggs which do not yet contain a larva (Fig. 1).

These sclerotized excrescences are situated in the apical third of the egg, at the place where the dorsal shield of the larva will appear. One may surmise that it is the distension of the developing larva that press the two pointed excrescences against the inner surface of the shell and finally ruptures it.

When one examines these excrescences in lateral position it becomes clear that they are not part of the shell nor of the larva itself (Fig. 3) but that they are an intermediate structure lying between the two.

One may surmise that the prelarva is present in all the eggs produced by a species. The scarcity of its occurrence in intrauterine eggs is explainable by the fact that generally the eggs are expelled in a very young stage presumably before the prelarva is formed. The presence of eggs containing a prelarva or a larva within the female could indicate either that the eggs have been retained by her, or that their maturation has been accelerated. Another hypothesis is that the eggs have continued their intrauterine development after the death of the female mite.

We give here a list of the species in which we have found females containing eggs with a prelarva bearing these sclerotized excrescences. All these specimens were found in house dust.

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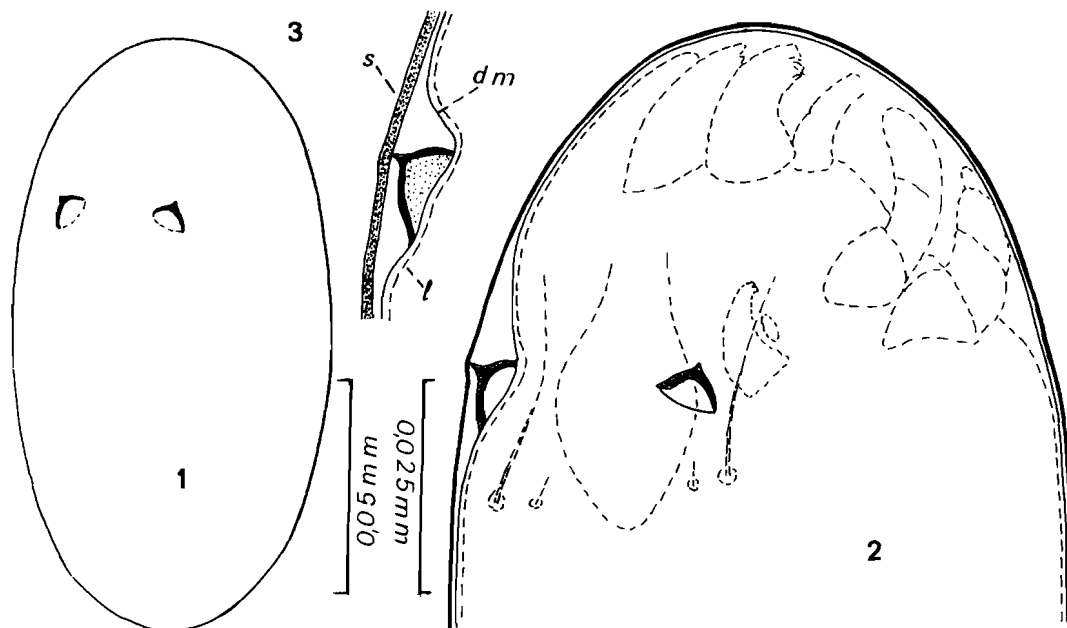


Fig. 1-Non larvigerous intrauterine egg of *Dermatophagoides pteronyssinus* with sclerotized excrescences (specimens from New York, August 1968); Fig. 2-Larvigerous intrauterine egg of *D. farinae* showing the sclerotized excrescences (specimen from Singapore, XI. 1968); Fig. 3-Part of figure 2 enlarged: *l* = larva (in broken lines), *dm* = deutovial or prelarval membrane, *s* = egg shell.

1. *Dermatophagoides pteronyssinus* (Trouessart)- 2 females containing each one larvigerous egg, Kigali, Rwanda, 23. III. 1967; 1 female containing 3 non-larvigerous eggs of which 1 has sclerotized excrescences, New York, August 1968.
2. *D. farinae* Hughes- 1 female with 1 larvigerous egg, Singapore, XI. 1968.
3. *D. neotropicalis* Fain & van Bronswijk- 3 female paratypes with each 1 larvigerous egg, Surinam, 26. VIII. 1971.
4. *D. evansi* Fain, Hughes & Johnston- 1 female with 1 larvigerous egg, Colombia, 5. VI. 1973.
5. *Euroglyphus maynei* (Cooreman)- 1 female with 1 larvigerous egg, La Louvière, Belgium, XI. 1965; 1 female containing 2 larvigerous eggs, Hasselt, Belgium.
6. *Sturnophagoides brasiliensis* Fain- 1 female with 1 larvigerous egg, Singapore, XI. 1968.

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