

ON THREE SPECIES OF RHINONYSSIDS DESCRIBED BY HIRST.

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RECENTLY Fain (1960) redescribed several species of rhinonyssids described originally by Hirst. These redescrptions were based on the paratypes received from the British Museum (Nat. Hist.) through Dr. G. O. Evans.

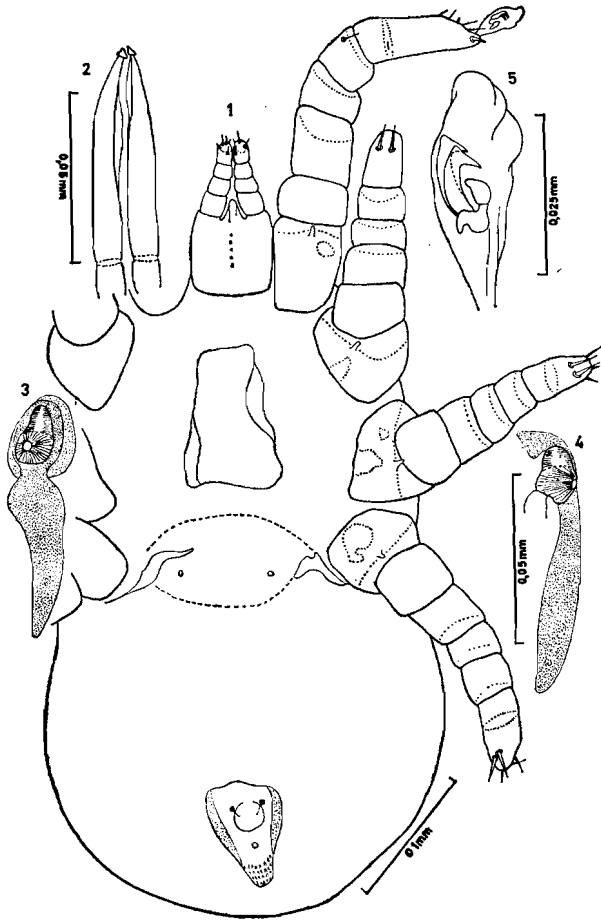
Several other species described by Hirst, considered very important in the systematics of this group, could not be examined at this time because they were represented only by the type. The most important among these is *Neonyssus intermedius*, the type of the genus *Neonyssus*. We were able to visit the British Museum recently and to fill this gap. The results of our examinations follow.

Neonyssus intermedius Hirst, 1921. (Figs. 1-5).

Previously Dr. G. O. Evans had agreed, at our request, to examine certain characteristics of this species and to relate what he observed: "I have examined the types of *Neonyssus intermedius* and *Rhinonyssus novae-guineae*. Unfortunately, both specimens are in poor condition. In *N. intermedius* the chelicerae do not appear to be attenuated distally but the digits are not visible. The stigmata in this species lack peritremes but have 'circular membranes'. The ambulacra are missing except for left leg I and right leg III; the claws being similar on both." (G. O. Evans, in litt.) The absence of a peritreme does not agree with that which is currently accepted for the genus *Neonyssus*. All the species described in this genus, except the type, possess an elongated peritreme; they do not therefore conform with the known type and can no longer be placed in the genus *Neonyssus*. We have, consequently, erected for them a new genus *Mesonyssus*, genotype *Mesonyssus treronis* Fain, 1956. (Fain, 1960).

It remained further to define the status of the genus *Neonyssus*, represented solely by its genotype *N. intermedius*, but in order to do this it was necessary to know the structure of the chelicerae, especially to measure the length of the cheliceral digits. Such a study necessitated an examination with the oil immersion objective, but this was impossible with the type of *N. intermedius* because the cover slip was too thick. With the permission of Dr. Evans we have remounted this specimen, utilizing a very thin cover slip (N^o0) and Hoyers mounting medium. Thus we have been

Fig. 1-5.



Ptilonyssus intermedius (Hirst, 1921), nov. comb.

Type female in ventral view (1); chelicerae (2); stigma and peritreme, right (3) and left (4); ambulaerum I (5).

able to study in detail not only the cheliceral digits but also other structures, especially legs I and the stigmata. From this examination we have seen that the chelicerae are not very swollen at the base, that they terminate in two very short digits, and that they are therefore of the type found in the sub-family Ptilonyssinae. We noted also that the first pair of claws are not regularly rounded but angular toward their median part as figured by Hirst, and that a short peritreme exists in front of the stigma. These characters correspond to those of the genus *Ptilonyssus*. It is *Ptilonyssus capensis* Zumpt and Till, and *Ptilonyssus ploceanus* Fain

which *N. intermedius* approaches most nearly, but it is impossible to say more because of the bad condition of the specimen, especially the great transparency of the structures and, to a certain degree, the rolled condition of the plates.

DESCRIPTION OF *NEONYSSUS INTERMEDIUS* HIRST.

The type is an extremely clear female containing a completely developed larva. The idiosoma is 490μ in length (gnathosoma not included), 262μ in width (between coxæ III and IV).

Dorsal aspect : The shape of the plates corresponds to the original drawing of Hirst (1921 : fig. 18). Podosomal plate resembles in form that of *Ptilonyssus ploceanus* Fain, but it is wider (185μ) than long (175μ) and bears some small rounded discs which are probably the bases for the insertion of setæ. The setæ themselves are not visible. The opisthosomal plate is about 200μ in length ; its greatest width is found in the anterior part (about 170μ). These dimensions are approximate since the limits of the plates are rather indistinct because of a certain degree of rolling of the surrounding cuticles which is due to the softening of the specimen. A network of lines is visible on the opisthosomal plate and exists also on the podosomal plate, but is less clear. Two small triangular spines are visible on the posterior border of the opisthosomal plate. They exist in many other species of *Ptilonyssus* but are not reported in the genus *Sternostoma*. The stigma is located at the level of coxa III. It is surrounded by a circular membrane which extends anteriorly forming a short peritreme. The total length of this membrane is 17μ , its maximum width 10μ . Peristigmatic membrane and peritreme are situated on a long and narrow chitinized plate tapering toward the rear.

Ventral aspect : There is no tritosternum. The sternal plate is about 90μ in length ; its width is not measurable because the plate is rolled. Sternal setæ have not been observed. The genital plate appears very wide but its lateral edges are indistinct and one has the impression that it is cut in two in the middle. Its length is not measurable because the posterior portion is rolled. It bears two small, smooth discs which are probably the bases of insertion of the genital setæ. In the posterior portion of the opisthosoma the cuticle is torn and rolled. The anal plate measures at least 75μ long and has a maximum width of 50μ ; its anterior portion is indistinct ; its lateral borders are reinforced by a chitinous band, and there is a well marked cribrum. The anus is large ; paired setæ are located approximately at the level of the anterior border of the anus, the third median seta is lacking but its base is found a bit anterior of the cribrum.

Gnathosoma : Length 100μ (from the posterior border of the base, ventral view, to the end of the palps), maximum width 56μ . Palps alone, 54μ long. There are five or six deutosternal teeth. The chelicerae are 70μ in length, narrow and of uniform diameter ($8-9\mu$) ; cheliceral digits very short (about 2.5 to 3.0μ).

Legs : Their length (ambulacrum excluded) is : I=262 μ ; II and III=190 μ ; leg IV is not measurable. Their thickness measured at the level of the femura is respectively (I to IV) : 40, 43, 39, and 40 μ . No setæ are visible on the coxæ. Tarsi II, III and IV bear simple setæ and ventro-apically two long tapered spines. Tarsus III bears in addition, dorsally, a strong thorny seta 18 to 20 μ in length. Only the ambulacrum of leg III on one side and of leg I on the other are preserved. Claws I are modified, they are in the form of a hook but display a sudden angulation toward their middle : this character has been accurately observed and drawn by Hirst (Hirst 1921 ; p. 772, fig. 18a). It should be pointed out that it is on the basis of this character that Fain (1957, p. 52) supposed that this species was probably a *Ptilonyssus*.

Host and Locality : The slide gives this information : On a bird of Madagascar. Trouessart's coll. (1954. 6.28.1).

STATUS OF *NEONYSSUS INTERMEDIUS* HIRST.

This species shows all the characteristics of the genus *Ptilonyssus*, and is placed near *Ptilonyssus capensis* Zumpt and Till and *P. plocceanus* Fain. Its generic status, therefore, becomes :

Ptilonyssus intermedius (Hirst, 1921) nov. comb.

Neonyssus intermedius Hirst, 1921 : 771 ; Vitzthum, 1935 : 578 ; Castro, 1948 : 268 ; Pereira and Castro, 1949 : 228, Zumpt and Patterson, 1951 : 77 ; Zumpt and Till, 1955 : 62 ; Fain, 1957 : 52.

Rhinonyssus or *Sternostoma intermedius*, Fain, 1960 : 312.

At the same time the genus *Neonyssus* becomes a synonym of the genus *Ptilonyssus*. Note that previously we placed all the species of the genus *Neonyssus* with the exception of the type in the genus *Mesonyssus* (Fain, 1960, p. 313.).

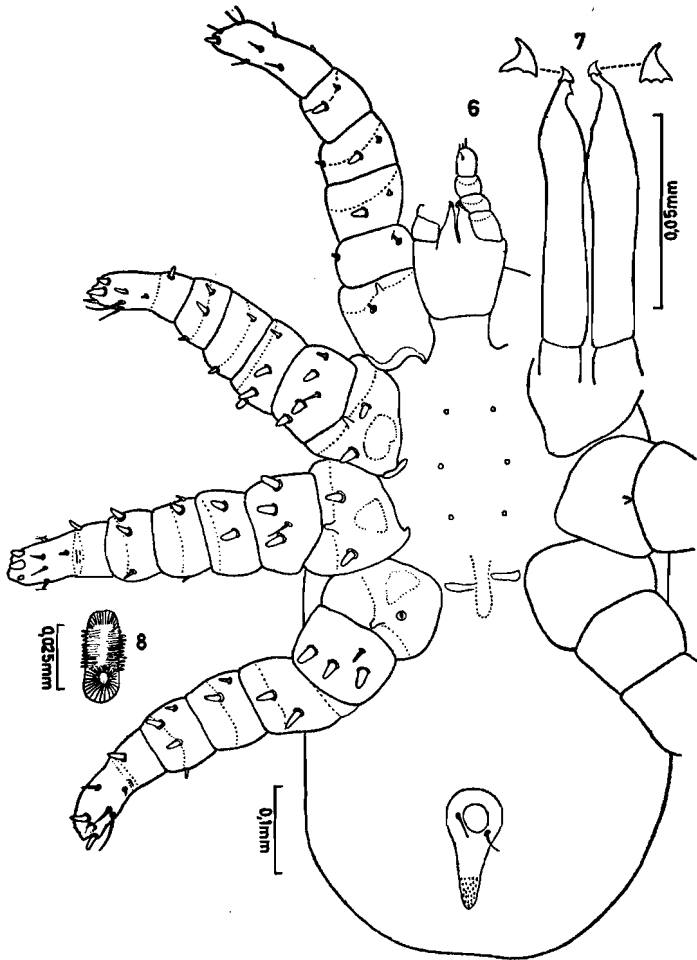
Rhinonyssus novae-guineae Hirst, 1921. (Fig. 6-8).

This species is represented only by the type. We were obliged to remount it in order to be able to examine it with the oil immersion objective. This specimen is a female, extremely cleared, and the cuticle is soft and wrinkled in certain places. The idiosoma is 785 μ long, 461 μ wide.

Dorsal aspect : There is a large podosomal plate but it is impossible to give either the dimensions or the exact form because it is very transparent and is greatly wrinkled. It does not appear to have an opisthosomal plate but one has the impression that a portion of the opisthosomal cuticle has been torn. On the posterior portion of the dorsum there is a small punctate zone of rather indistinct outline which is probably a pygidial plate. Stigma located dorsally between coxæ III and IV ; there is a peritreme 36 μ in total length and 14 μ in width.

Ventral aspect : There is no tritosternum. One has the impression that there is a large sternal plate bearing six very short sternal setæ. Genital plate very narrow (15 to 20 μ in its posterior half). Anal plate

Fig. 6-8.



Ptilonyssus novae-guineae (Hirst, 1921), nov. comb.

Type female in ventral view (6); chelicerae and movable digits (7); stigma and peritreme (8).

elongated, oval, 120μ in length and with a maximum width of 65μ . Anus is large and situated in the anterior third of the plate. Paired setae strong and relatively long, one situated at the side of the anus, the other at the level of its posterior border; the third seta has not been observed. Cribrum present.

Gnathosoma: 185μ long, 106μ wide; the palps measure 104μ . Deuto-sternal teeth not observed. Chelicerae 90μ in length; of uniform diameter, 16μ in width; cheliceral digits 3 to 4μ in length.

Legs : Length (I through IV) 478, 416, 434, 512 μ . They have all lost their ambulacra. Thickness of femurs I through IV respectively, 90, 95, 99, and 95 μ . Most leg segments bear on their ventral surface strong conical spurs with a rounded tip heavily chitinized. These spurs do not exist on coxæ I and IV, trochanters I and genu II ; their arrangement appears characteristic of the species.

Host and Locality : The slide gives the following information : " Off *Craspedophora magnifica*, New Guinea, E. L. Trouessart coll." It bears in addition a second, older label which appears to be in Trouessart's handwriting : " Sur *Craspedophora magnifica* (Vieill.) Nelle. Guinée " .

SYSTEMATIC POSITION OF *RHINONYSSUS NOVAE-GUINEAE* HIRST.

This species shows all the characteristics of the genus *Ptilonyssus*, notably the presence of chelicerae with very short digits and an elongated peritreme, combined with the absence of metasternal setae and tritosternum. Its generic status becomes therefore :

Ptilonyssus novae-guineae (Hirst, 1921) nov. comb.

= *Rhinonyssus novae-guineae* Hirst, 1921 : 769 ; Vitzthum, 1935 : 572 ; Castro, 1948 : 257 ; Strandtmann, 1956 : 129 ; Fain, 1957 : 44.

= *Passeronyssus novae-guineae* Fain, 1960 : 313.

Rhinonyssoides trouessarti Hirst, 1921. (Figs. 9-12).

This species is the type of the genus *Rhinonyssoides* Hirst, (1921) and its study, therefore, is of particular importance. Fain (1957) basing his conclusions on the analogies which this species showed with *Ptilonyssus orioli* Fain, (1956), has synonymized this genus with the genus *Ptilonyssus*. In his description Hirst does not mention the dorsal aspect of this mite and does not mention whether or not a peritreme is present.

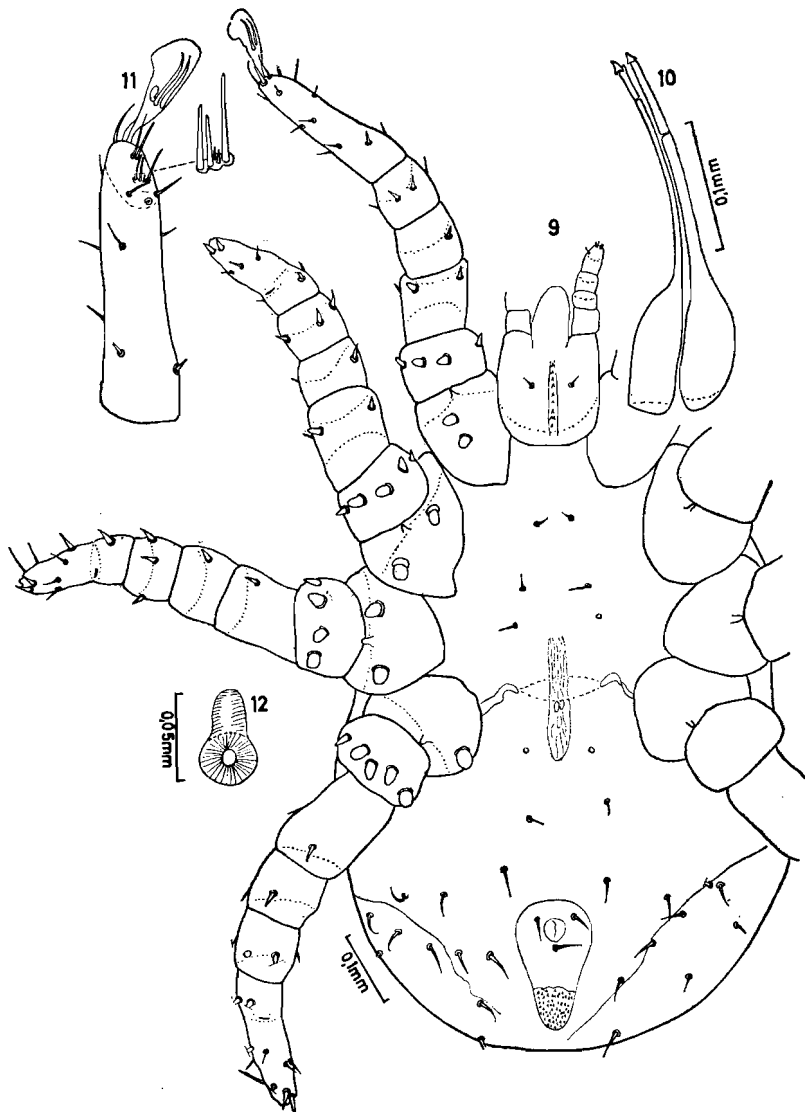
The type is a female in which the idiosoma is 740 μ long. If one includes the gnathosoma the length becomes 920 μ , which is exactly the length given by Hirst. Width between coxæ III and IV is 506 μ .

Dorsal aspect : there is a podosomal plate wider (360 μ) than long (about 300 μ), the anterior half of which resembles that of *P. orioli* Fain. Posteriorly its limits are very indistinct. There remains only a single seta on the soft cuticle at one of the postero-lateral angles of the scutum and this seta is weaker and shorter (10 μ) than those in *P. orioli*. The cuticle of the dorsal surface is rolled in the posterior part but one distinguishes nevertheless a small pygidial plate bearing on its posterior border two short pygidial spines. Stigmata dorsal at the level of coxa III, prolonged into a peritreme 48 μ long, with a maximum width (in its posterior, rounded part) of 27 μ .

Ventral aspect : It corresponds closely to the original drawing of Hirst (p. 770, fig. 17), except that one leg IV is lacking as well as the tip of one of the palps.

The genital plate is about 150 μ long and 25 μ wide. The anal plate measures 144 μ in length to about 90 μ in maximum width.

Fig. 9-12.



Ptilonyssus trouessarti (Hirst, 1921) Fain, 1956.

Type female in ventral view (9); chelicerae (10); tarsus I in dorsal view (11); stigma and peritreme (12).

Gnathosoma: 227 μ long (to the tip of the palp); its base is 126 μ in maximum width. Ventrally the base bears 2 fine setae and 9 or 10 small

deutosternal teeth arranged in a longitudinal row, except that one of these teeth is double. Chelicerae 271 μ long, with a basal bulb 95 μ long, 36 μ wide. Cheliceral digits 7 to 8 μ long.

Legs : Length of legs I through IV (ambulacra not included) 580, 488, 488, 543 μ respectively. Thickness of femurs : 76, 82, 86, 90 μ . Claws I highly modified, straight. Chaetotaxy very characteristic : the ventral setae of the coxae and trochanters are very transparent and very wide, subglobular (or flattened into a disc ?) or in the form of very short cone with rounded apex. Those of coxae II, III and IV are 18 to 21 μ in length, 15 to 19 μ in width. The setae of the trochanters are slightly smaller but have approximately the same form.

Host and Locality : The type preparation bears the mention "*Rhinonyssoides trouessarti* Hirst. Host : *Sphecotheres maxillaris*, Australia. Trouessart coll. (1954. 6.28.2)''.

Systematic position of Rhinonyssoides trouessarti : This species belongs incontestably to the genus *Ptilonyssus* as we had previously thought. It is most closely related to *P. oriolii* Fain. The characters which differentiate this species from *P. oriolii*, insofar as one is able to base them on a type in 'bad condition, are : the different form of the coxal and trochanteral setae, the presence of two setae on the ventral surface of the gnathosomal base, the distinctly greater number of setae on the soft cuticle of the ventral surface of the opisthosoma, the different form of the dorsal chaetotaxy, and the smaller dimensions of the body and anal plate.

The generic status of this species becomes :

Ptilonyssus trouessarti (Hirst, 1921) Fain, 1956.

= *Rhinonyssoides trouessarti* Hirst, 1921 : 770 ; Pereira and Castro, 1949 : 222 ; Zumpt and Till, 1955 : 89.

= *Ptilonyssus trouessarti*, Fain, 1956 : 144, and 1957 : 109 ; Strandtmann, 1960 : 150.

Since we have seen above that this species is the type of the genus *Rhinonyssoides*, the latter genus falls into synonymy with *Ptilonyssus*.

ACKNOWLEDGMENTS.

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