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# ON SOME NEW OR LITTLE KNOWN SPECIES OF PARASITIC CHEYLETIDAE (ACARI: PROSTIGMATA)

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# ON SOME NEW OR LITTLE KNOWN SPECIES OF PARASITIC CHEYLETIDAE (ACARI: PROSTIGMATA)

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(Accepted April 2001)

ACARI CHEYLETIDAE PARASITES VERTEBRATES SUMMARY: Seven new species of parasitic Cheyletidae (Acari: Prostigmata) most of them originating from the Afrotropical region are described: *Thryonomycheyla angolensis* sp. nov. ex *Thryonomys* sp. (Rodentia: Thryonomyidae), from Angola; *Ornithocheyletia columbigallinae* sp. nov. ex *Columbigallina* sp. (Columbiformes: Columbidae), from Brasil; *O. orioli* sp. nov. ex *Oriolus oriolus* (Passeriformes: Oriolidae), from Rwanda; *O. wauthyi* sp. nov. ex *Lamprocolius* sp. (Passeriformes: Sturnidae), from Rwanda; *Neocheyletiella queleae* sp. nov. ex *Quelea quelea* (Passeriformes: Ploceidae), from Rwanda; *N. athene* sp. nov. ex *Athene brama* (Strigiformes: Strigidae), from India and *N. lonchurae* sp. n. ex *Lonchura tricolor* (Passeriformes: Estrildidae), from Rwanda. In addition, *Apodicheles apus* FAIN, 1979, recorded from Rwanda, ex *Apus caffer* (Apodiformes: Apodidae) is redescribed and depicted here for the first time.

Résumé : Sept nouvelles espèces de Cheyletidae (Acari : Prostigmata) parasites d'oiseaux ou de mammifères la plupart originaires de la region Afrotropicale, sont décrites : *Thryonomycheyla angolensis* sp. nov. ex *Thryonomys* sp. (Rodentia: Thryonomyidae), du Angola; *Ornithocheyletia columbigallinae* sp. nov. ex *Columbigallina* sp. (Columbiformes: Columbidae), du Brésil ; O. orioli sp. nov. ex *Oriolus oriolus* (Passeriformes: Oriolidae), du Rwanda; O. wauthyi sp. nov. ex *Lamprocolius* sp. (Passeriformes: Sturnidae), du Rwanda ; *Neocheyletiella queleae* sp. nov. ex *Quelea quelea* (Passeriformes: Ploceidae), du Rwanda; *N. athene* sp. nov. ex *Athene brama* (Strigiformes: Strigidae), d'Inde et *N. lonchurae* sp. n. ex *Lonchura tricolor* (Passeriformes: Estrildidae), du Rwanda. En outre, *Apodicheles apus* FAIN, 1979 ex *Apus caffer* (Apodiformes: Apodidae), briévement décrite du Rwanda est redécrite ici et figurée pour la première fois.

## INTRODUCTION

ACARI CHEYLETIDAE

PARASITES

VERTEBRATES

The present paper is devoted to the descriptions of seven new species of parasitic mites of the family Cheyletidae (Acari: Prostigmata). Four of these species were collected from afrotropical birds, one from an afrotropical rodent, one from an oriental bird and one from a neotropical bird. In addition, we give here a more complete description and the first figures of *Apodicheles apus* FAIN, 1979.

The holotypes and paratypes of the African material have been deposited in the Musée royal de l'Afri-

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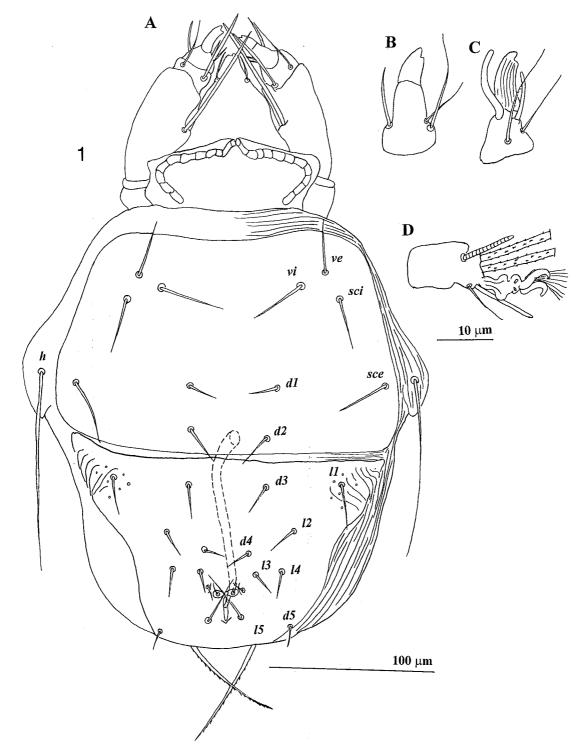


FIG. 1: Thryonomycheyla angolensis sp. nov., male holotype. Dorsal view (A); palpal tarsus in dorsal view (B) and in ventral view (C); tarsus I in dorsal view (D). Scale lines 100 µm (A) and 10 µm (B-D).

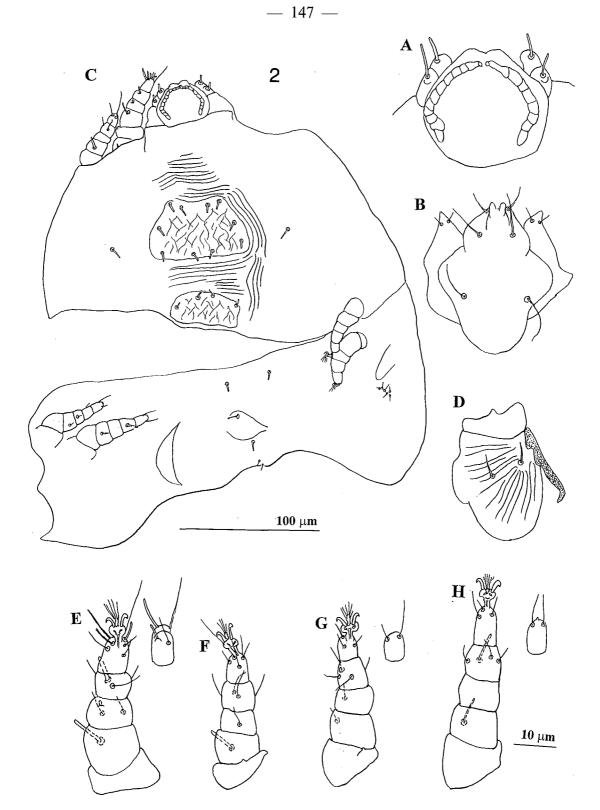


FIG. 2: Thryonomycheyla angolensis sp. nov., nymph. Gnathosoma in dorsal view (A) and ventral view (B); idiosoma in dorsal view (C); coxa I. (D); legs in ventral view: leg I (E), leg II (F), leg III (G) and leg IV (H). Scale lines 10 μm (A, B, D-H) and 100 μm (C).

que Centrale (MRAC), the typical material of the Oriental and of the neotropical species has been deposited in the Institut royal des Sciences naturelles de Belgique (IRSNB)

The nomenclature of the idiosomal chaetotaxy follows Fain (1979c). All the measurements are given in micrometers ( $\mu$ m).

## Genus Thryonomycheyla FAIN, 1972

This genus has been redefined by FAIN (1979a).

## 1. Thryonomycheyla angolensis sp. nov.

# (Figs 1, 2)

MALE (holotype): Gnathosoma 105 long in midline and 120 wide. Palpal claw covered by fine striations. Peritremes with 10 links at each side. Idiosoma 230 long and 265 wide. Propodosomal shield 132 long, it bears 6 pairs of piliform setae: 4 lateral pairs, each seta about 50 long, and 2 median pairs, about 13 long. Setae h 130 long, situated off the propodosomal shield. Hysterosomal shield trapezoidal, bearing 8 pairs of setae. Setae 11 similar to the lateral setae of propodosoma, setae 15 thickened, 75 long, the other 6 pairs of setae are similar to the median setae of the propodosoma. Distance between the propodosomal and the hysterosomal shields very short (about 3). Genital orifice dorsal, surrounded by 3 pairs of setae. Length of the posterior genital setae 25. Penis very narrow, 120 long.

FEMALE. Unknown.

NYMPH: Only represented by a moulting skin that had contained the holotype male. *Gnathosoma* poorly developed, 46 long and 41 wide. Palps consisting of 3 segments and without thumb-claw complex. Peritremes arch-like, with 8-10 links at each side. *Idiosoma* ovoid. *Dorsum*: All dorsal setae rod-like, about 13 long. Propodosomal shield 40 long and 85 wide, it bears 4 pairs of lateral and 1 pair of median setae. Setae h situated off the propodosomal shield. Hysterosomal shield 25 long and 58 wide, it bears 1 lateral pair and 1 median pair of the setae. The distance between propodosomal and hysterosomal shields is about 20. There are 2 pairs of setae behind the hysterosomal shield. *Venter*: Anus surrounded by 3 pairs of very short setae. All legs normally developed, with 2 claws and an empodium.

HOST AND LOCALITY: Holotype male and paratype nymph ex *Thryonomys* sp. (Rodentia: Thryonomyidae) from Angola, 1946. Coll. B. MACHADO. Holotype and nymph paratype in MRAC.

COMPARATIVE MATERIAL: Holotype male of *Thryonomycheyla congolensis* Fain, 1972 ex *Thryonomys swinderianus* from Bagata, Zaire, 1946. Coll. A. FAIN.

REMARKS: This new species is distinguished from the other known species of the genus *Thryonomycheyla*, *T. congolensis* by the following characters: In the male of *T. angolensis* sp. nov., the peritremes consist of 10 links, the penis is 120 long, the hysterosomal shield is trapizoidal, setae *l1* and *d5* are situated on the hysterosomal shield. In the male of *T. congolensis*, the peritremes consist of 11-12 links, the penis is 66 long, the hysterosomal shield is oval and setae *l1* and *d5* are situated off the propodosomal shield.

### Genus Ornithocheyletia VOLGIN, 1964

This genus has been revised by FAIN (1981).

# 2. Ornithocheyletia columbigallinae sp. nov. (Figs. 3, 4)

FEMALE (holotype): Gnathosoma 80 long and 65 wide. Setae rd with one basal tine. Peritremes with 3 links. Idiosoma 345 long and 280 wide. Dorsum: Shields well sclerotized and punctate, without striations. Propodosomal shield 112 long and 65 wide; it bears setae vi, ve, sci and d1. Hysterosomal shield 78 long and 110 wide; it bears setae l2 and l3. Distance between these shields 35. Setae l5 set on the pygidial shield, distance l5-l5 35. Length of setae: vi, ve, sce, l1 and l2 26, sci 130, h 150, d1 157, l4 33, l5 145, all these setae are smooth. Distance sci-sce 63, which is almost 2 times longer than the distance sce-h 32; distance between the posterior edge of the hysterosomal shield and l4 is 28. Venter: All setae smooth except the external seta of the coxae III which is barbed. Inter-

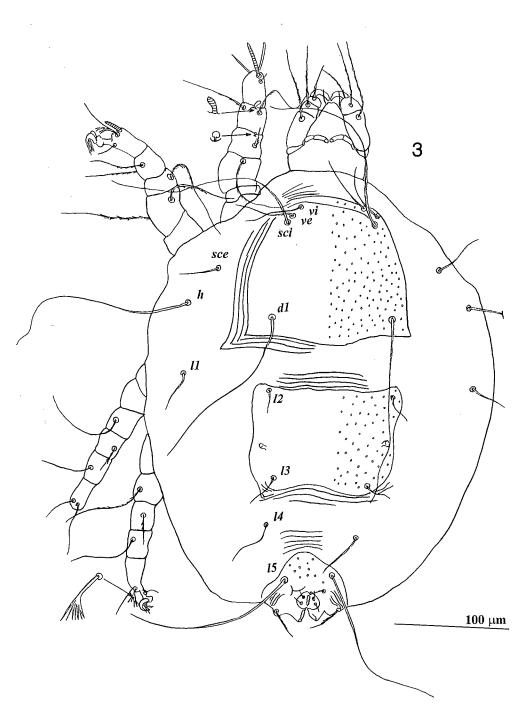


FIG. 3: Ornithocheyletia columbigallinae sp. nov., female holotype in dorsal view. Scale line 100 µm.

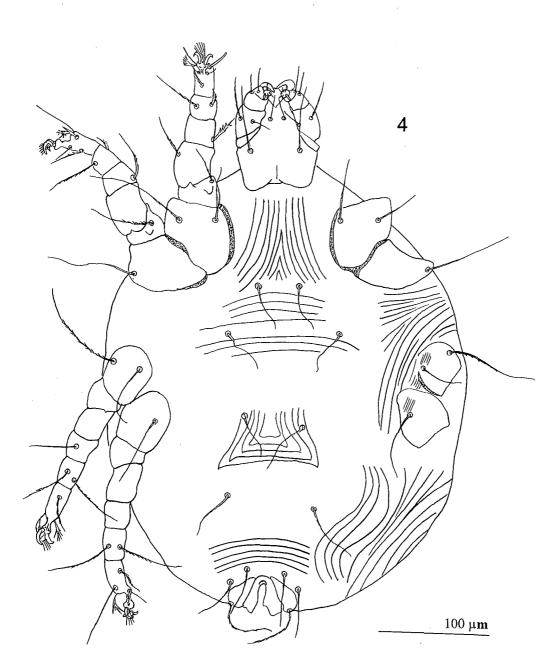


FIG. 4: Ornithocheyletia columbigallinae sp. nov., female holotype in ventral view. Scale line 100  $\mu$ m.

— 150 —

nal part of the coxae I-II without striations. Intercoxal setae (*ic1*, *ic3*, *ic4*) subequal in length. Genital setae *g1* and *g2* serrate. Anal setae *a1-a3* smooth. *Legs.* Tibiae I-II with a short ventral spur. Tibiae III-IV with 3 setae. Setae p', p'' of legs I-IV with about 8 tines. Solenidion of tibia I curved laterally, 5 long; solenidion of genu I ovoid. Setal structures of the legs as in Figs. 3, 4, most of the dorsal setae long. Claws without basal angle.

MALE: Unknown.

HOST AND LOCALITY: Holotype female ex *Columbi*gallina sp. (Columbiformes: Columbidae), Piracicaba, Brasil, 10. IX. 1977. Coll. C. A. ROSA. Holotype and paratypes in IRSNB.

COMPARATIVE MATERIAL: 6 females of *Ornithocheyletia hallae* SMILEY, 1970 ex *Columba livia* (Columbiformes : Columbidae) from Jutland, DENMARK, X. 1971. Coll. Haarlov.

REMARKS: The female of this new species is closest to Ornithocheyletia hallae SMILEY, 1970 ex Columba livia from USA. It may be distinguished from this species by the following characters: In O. columbigallinae sp. nov., setae vi, ve, sce and l1 are smooth and solenidion of tibia I is curved laterally. In O. hallae, setae vi, ve, sce and l1 are serrate and solenidion of tibia I is straight.

# 3. Ornithocheyletia orioli sp. nov. (FIG. 5)

FEMALE (holotype): Gnathosoma 78 long and 122 wide. Setae rd with one basal tine. Peritremes with 3 links. Idiosoma 430 long (320-500 long in 10 paratypes) and 310 wide. Dorsum: Shields well sclerotized and punctate, with very poorly distinct striations. Propodosomal shield 157 long and 166 wide; bearing the setae vi, ve, sci and d1. Hysterosomal shield 140 long and 166 wide; bearing setae l2 and l3. Distance between the propodosomal and the hysterosomal shields 18. Pygidial shield 58 wide, setae l5 off the pygidial shield, separated by 80. Length of setae : vi, ve and sci about 65, sce 75, l1 70 - all barbed; h 160, d1 155 (116-150 long in 10 paratypes), d2 30, l2 43 (35-50 long in 10 paratypes), l4 83 (50-85 long in 10 paratypes), l5 220 - all smooth. Distances sci-sce 58 and

sce-h 50; distance between the posterior edge of the hysterosomal shield and l4 25. Venter: All setae smooth except the external seta of the coxa III which is barbed. Internal part of the coxae I-II with very fine striations. Intercoxal setae (*ic1*, *ic3*, *ic4*) subequal in length. Genital setae g1 and g2 serrate. Anal setae a1-a3 smooth. Legs. Tibiae III-IV with 3 setae. Setae p', p" of the legs I-IV with 4-5 tines. Solenidion of the tibia I curved, 6 long; solenidion of the genu I 3 long and subcylindrical. Most of the dorsal setae of legs are long. Claws without basal angle.

MALE: Gnathosoma as in the female. Idiosoma 250 long and 185 wide. Dorsum: Propodosomal and hysterosomal shields large covering the entire dorsal surface, without striations and punctuations. Length of setae: vi, ve, sci and sce about 58, 11 53, all barbed; h 130, d1 115, d2 15, l2 28 and l4 45, all smooth. Penis 80 long. Genital setae g1-g4 smooth. Venter: Medial shields absent. Legs. All legs with the same chaetotaxy and solenidiotaxy as in the female.

HOST AND LOCALITY: Holotype female and paratypes (14 females, 3 males, 5 teleonymphs, 2 protonymphs and 7 larvae ex *Oriolus oriolus* (Passeriformes: Oriolidae) from Akanyaru river, Rwanda, XII. 1955. Coll. A. FAIN. Holotype and paratypes in MRAC.

ADDITIONAL MATERIAL: 1 female ex Lybius sp. (Piciformes: Capitonidae), Akanyaru river, Rwanda, XII. 1955. Coll. A. FAIN; I female ex Indicator indicator (Piciformes : Indicatoridae) with the same data; 2 females and one male ex Pachyphantes superciliosa (Passeriformes: Ploceidae) with the same data; female ex Chrysococcyx klaasi (Cuculiformes: Cuculidae) with the same data.

COMPARATIVE MATERIAL: Holotype and paratypes (3 females, 5 males, 5 teleonymphs, 5 protonymphs and 5 larvae) of *Ornithocheyletia aitkeni* FAIN, 1972 ex *Turdus fumigatus* (Passeriformes: Turdidae) from Ecological Research of Guama, Brasil, 1969. Coll. T. H. G. Aitken.

REMARKS: (i) This new species is closest to *O. aitkeni* and it is distinguished from this species by the following characters: In the female of *O. orioli* sp. nov., the length of setae *l2* is 35-50 and *l4* is 50-85; in teleonymph (5 paratypes), setae *l2* are 20-35 long and *l4* are 50-66 long; in larva (3 specimens), posterior anal setae (65 long) are 1. 2 times shorter than *l5* (80

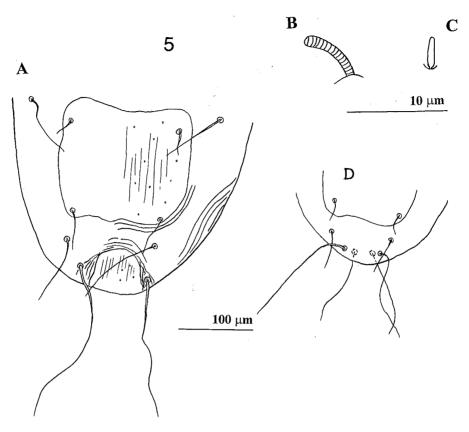


FIG. 5: Ornithocheyletia orioli sp. nov. Female holotype: hysterosoma in dorsal view (A); solenidion of tibia I (B) and solenidion of genu I (C). Opisthosoma of larva in dorsal view (D). Scale lines 100  $\mu$ m (A, D) and 10  $\mu$ m (B, C).

long). In the female of *O. aitkeni* (holotype and 3 paratypes), the length of setae *l*<sup>2</sup> is 20-35 and *l*<sup>4</sup> is 35-48; in teleonymph (5 paratypes), setae *l*<sup>2</sup> are 17-20 and *l*<sup>4</sup> are 25-33; in larva (5 paratypes), posterior anal setae (30-40 long) are twice shorter than *l*5 (70-80 long).

(ii) The mites were embedded in the hypertrophied epidermic layer of the skin.

# 4. Ornithocheyletia wauthyi sp. nov.

# (FIG. 6)

FEMALE (holotype): *Gnathosoma* 86 long and 80 wide. Setae *rd* with basal tine. Peritremes with 3 links. *Idiosoma* 300 long (270 long in paratype) and 200 wide. *Dorsum*: Shields well sclerotized, with almost

indistinguishable striations. Propodosomal shield 115 long and 175 wide; it bears setae vi, ve, sci and d1. Hysterosomal shield 135 long and 160 wide; it bears setae 12 and 13. Distance between propodosomal and hysterosomal shields is 23. Setae 15 set off the pygidial shield, separated by 60. Length of setae: vi 37, ve 43 and sci 50, sce 46 (52 in paratype), 11 27 (35 in paratype), all barbed; h 180, d1 150, d2 13, l2 17, l4 29 (31 in paratype), 15 200, all smooth, setae 14 slightly thickened. Distances sci-sce 27 and sce-h 36 are subequal; distance between the posterior edge of the hysterosomal shield and 14 is 10. Venter: All setae smooth except the external seta of the coxa III which is barbed. Internal part of the coxae I-II with fine striations. Intercoxal setae (ic1, ic3, ic4) subequal in the length. Genital setae g1, g2 serrate. Anal setae a1-a3 smooth. Legs. Tibiae III-IV each bears 3 setae. Setae

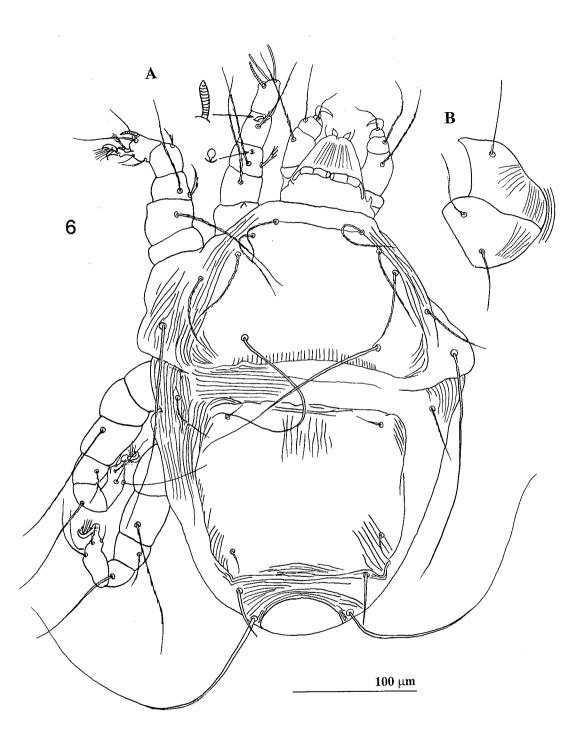


FIG. 6: Ornithocheyletia wauthyi sp. nov., female holotype. Dorsal view (A); coxae I-II (B). Scale line 100 µm.

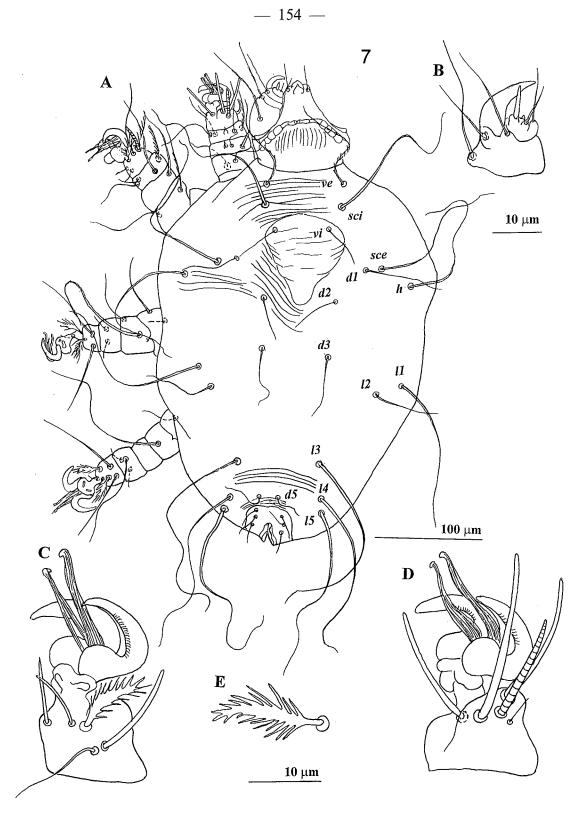


FIG. 7: Neocheyletiella queleae sp. nov., female holotype. Dorsal view (A); palpal tarsus and palpal tibia in ventral view (B); tarsus I in ventral view (C) and dorsal view (D); seta p' of tarsus I (E). Scale lines 100 μm (A) and 10 μm (B-E).

p', p'' of legs I-IV with 4-5 tines. Solenidion of the tibia I curved, 5 long; solenidion of the genu I ovoid. Most of the dorsal setae of legs are long. Claws without basal angle.

HOST AND LOCALITY: Holotype and 1 paratype, both females ex *Lamprocolius* sp. (Passeriformes: Sturnidae) from Rwanda. 6. II. 1958. Coll. A. FAIN. Holotype and paratype -in MRAC.

COMPARATIVE MATERIAL: Holotype and female paratype of *Ornithocheyletia lamprocolius* FAIN, 1972 ex *Lamprocolius chloropterus* (Passeriformes: Sturnidae) from Rwanda, 20. III. 1967. Coll. A. FAIN.

ETYMOLOGY: This species is named in honour of Dr. G. WAUTHY (Institut royal des Sciences naturelles de Belgique).

REMARKS: The new species is closest to *O. lampro*colius and it is distinguished from this species by the following characters: In the female of *O. wauthyi* sp. nov., the idiosoma is 270-300 long, setae *l1* (27-35 long) 1. 7 times shorter than *sce*, setae *l4* are 29-31 long and slightly thickened. In *O. lamprocolius*, the idiosoma is 390 long, setae *l1* and *sce* are subequal (58-65 long), setae *l4* are 63-75, not thickened.

#### Genus Neocheyletiella BAKER, 1949

This genus has been redefined and partly revised by FAIN (1980).

# 5. Neocheyletiella queleae sp. nov.

# (FIG. 7)

FEMALE (holotype): Gnathosoma 83 long and 95 wide. Peritremes with 6 links, the 4 laterals being much larger than the internals. Dorsal setae of the palpal femur and the palpal genu are serrate. *Idiosoma* 360 long and 280 wide. *Dorsum*: Propodosomal shield triangular, 88 long, it covered by very fine transverse striations; setae vi situated on the anterior border of the shield. Setae ve distinctly barbed, all other setae smooth. Length of setae : vi 50, ve 90, sci 165, sce, h 130, d1 66, d2 50, d3 75, d5 50, l1 150, l2 80, l4 and l5 169. Venter: Epimera I-II fused. Length of setae: pg1 95, pg2 115 and pg3 165. Legs. Chaetotaxy

as in FIG. 7A. Tibia III bears 2 short ventral setae; tibia IV bears 1 long and strong dorsal setae and 2 short ventral setae.

MALE: Unknown.

HOST AND LOCALITY: Holotype female and 1 teleonymph paratype ex *Quelea quelea* (Passeriformes: Ploceidae) from Rubona, Rwanda, 11. X. 1955. Coll. A. FAIN. Holotype in IRSNB.

ADDITIONAL MATERIAL: Female ex Streptopelia semitorquata (Columbiformes: Columbidae) from Kaninya, Rwanda, 18. V. 1955. Coll. A. FAIN.

COMPARATIVE MATERIAL: Female, male and teleonymph of *Neocheyletiella megaphallos* (LAWRENCE, 1959) ex *Estrilda* sp. (Passeriformes: Estrildidae) from Butare, Rwanda, 1955. Coll. A. FAIN.

REMARKS: This new species is closest to N. megaphallos and it is distinguished from this species by the following characters: In the female of N. queleae sp. nov., setae pgI are present, setae sci are 165 long, the propodosomal shield is covered by very fine transverse striations. In the female of N. megaphallos, setae pgI are absent, setae sci are 110 long, the propodosomal shield is covered by strong longitudinal striations.

# 6. Neocheyletiella athene sp. nov. (FIG. 8)

FEMALE (holotype): Gnathosoma 85 long and 90 wide. Peritremes with 6 links, the 4 laterals being much larger than the internals. Dorsal setae of the palpal femur and the palpal genu are serrate. Idiosoma 355 long and 265 wide. Dorsum: Propodosomal shield covered by fine longitudinal striations; setae vi situated on the anterior border of the shield. All setae smooth. Length of setae: vi 20, ve incomplete, sci 140, sce 130, h 140, d1, d2 and d3 17, d5 short, incomplete, l1 150, l2 75, l3 and l4 about 200, l5 incomplete. Venter: Epimera I-II fused. Setae pg1 absent. Setae pg2 and pg3 about 140 long. Legs. Chaetotaxy as in Fig. 8A. Tibiae III and IV bearing 2 short ventral setae.

## MALE: Unknown.

HOST AND LOCALITY: Holotype female ex *Athene* brama (Strigiformes: Strigidae) from India (bird died

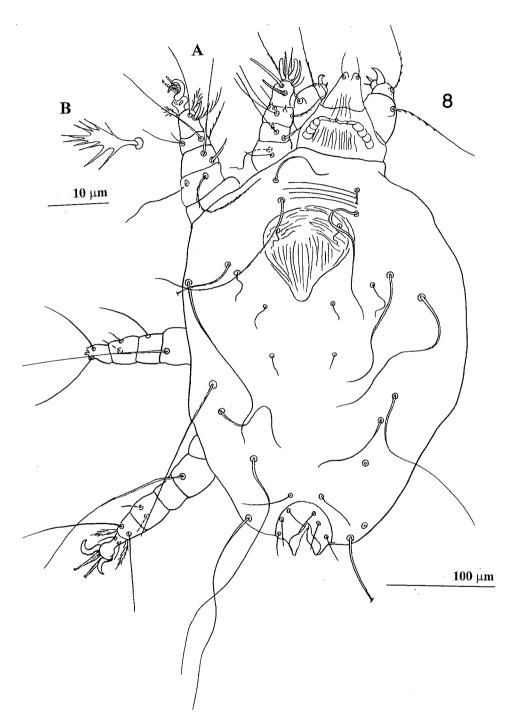


FIG. 8: Neocheyletiella athene sp. nov., female holotype. Dorsal view (A); seta p' of tarsus II (B). Scale lines 100 µm (A) and 10 µm (B).



F1G. 9: Neocheyletiella lonchurae sp. nov., male holotype in dorsal view. Scale line 100  $\mu$ m.

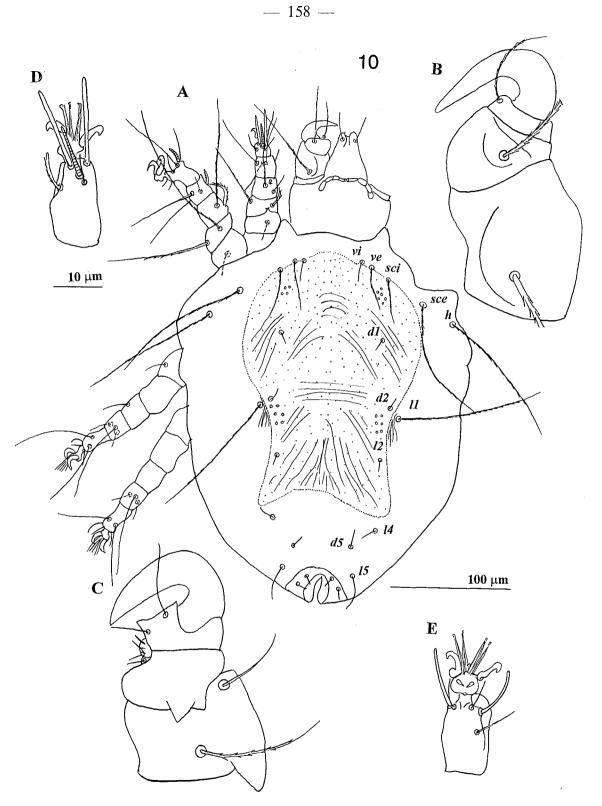


FIG. 10: *Apodicheles apus* FAIN, 1979, female holotype. Dorsal view (**A**); palp in dorsal view (**B**) and ventral view (**C**); tarsus I in dorsal view (**D**) and ventral view (**E**). Scale lines 100 μm (**A**) and 10 μm (**C**-**E**).

in Antwerp Zoo), 22. XII. 1967. Coll. A. FAIN. Holotype in IRSNB

COMPARATIVE MATERIAL: Holotype female and 1 female paratype of *Neocheyletiella amandavae* FAIN, 1972 ex *Amandava amandava* (Passeriformes: Estrildidae) from Java (bird died in Antwerp Zoo), 14. V. 1967. Coll. A. FAIN.

REMARKS: This species is closest to N. amandavae and it is distinguished from this species by the following characters. In the female of O. athene sp. nov., setae pg1 are absent, setae l2 are 75 long. In female of O. amandavae, setae pg1 are present, setae l2 are 35 long.

# 7. Neocheyletiella lonchurae sp. nov. (FIG. 9)

MALE (holotype): Gnathosoma 70 long and 80 wide. Peritremes with 6 links, the 4 laterals being much larger than the internals. Dorsal setae of the palpal femur and the palpal genu are smooth. Idiosoma 280 long and 120 wide. Dorsum: Propodosomal shield without striations; setae vi situated on the anterior border of the shield. All setae smooth. Length of setae: vi 22, ve 43, sci 60, sce 105, h 130, d1 30, d2 40, d3 25, l1 130, l2 200, l4 and l5 about 165. Venter: Epimera I-II fused. Penis 280 long. Legs. Chaetotaxy as in FIG. 9. Tibiae III-IV bear 2 short ventral setae.

Female: Unknown.

HOST AND LOCALITY: Holotype male ex *Lonchura* sp. (Passeriformes: Estrildidae) from Akanyaru river, Rwanda, 19. II. 1955. Coll. A. FAIN. Holotype in IRSNB

**REMARKS:** The male of this new species clearly differs from males of the other related species by the length of the penis.

#### Genus Apodicheles FAIN, 1979

## 8. Apodicheles apus FAIN, 1979

(FIG. 10)

This species has been shortly described ex Apus caffer (Apodiformes: Apodidae), from Rwanda

(FAIN, 1979b). We give here a more complete description and the first figures of this species.

FEMALE (holotype): Total length including the gnathosoma, in midline 365. Gnathosoma: Peritremes with 4 links. Palpal femur bears 4 setae: 1 serrate seta dorsally, 2 serrate setae and 1 smooth seta ventrally. Palpal genu with 1 dorsal serrate seta. Palpal tibia with 1 dorsal serrate seta and 2 smooth ventral setae. Palpal tarsus with 4 short and nude setae, solenidion of the palpal tarsus not visible. Dorsum: Propodosomal and hysterosomal shields are completely fused forming a common dorsal shield. This shield, about 195 long and 150 wide, is very poorly sclerotized and entirely striated. It bears the setae vi, ve, sci, d1, d2 and 12. Setae h; 14, 15 d4, d5 situated off this shield. Setae h, ve, sci and l1 barbed, all other setae smooth. Venter: Ano -genital region bearing 2 pairs of paragenital setae (pg), 2 pairs of genital setae (g) and 2 pairs of anal setae (a). Length of setae: vi 25, ve 45, sci 33, sce 130, h 130, d1, d2, d4, d5, l2 and l4 17, 15 30, pg1 40, pg2 45, g1 and g2 25. Leg chaetotaxy as in FIG. 10A.

HOST AND LOCALITY: Holotype female and 1 female paratype ex *Apus caffer* from Butare, Rwanda, VIII. 1954. Coll. A. FAIN.

#### **ACKNOWLEDGEMENTS**

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