PARASITIC MITES OF SURINAM

XV. Nasal Ereynetid mites of bats with a key of the known species (Trombidiformes)[1]

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We are studying here the mites parasitizing the nasal cavities of bats and collected by the junior author in Surinam.

The nasal cavities of bats may harbour three different families of mites : Trombiculidae, Gastronyssidae and Ereynetidae. Only representatives of the first and of the last family have been found in Surinam.

FAIN (1970 b) has summarized our actual knowledge about the speleognathines living in the nasal cavities of mammals. Up to now 19 species have been described from this habitat and among those 8 species are parasitic in bats.

The material collected in Surinam contains 4 species, among them 3 are new and are described herein.

The types of the new species and specimens of the known species have been deposited in the Rijksmuseum van Natuurlijke Historie in Leiden, one paratype in the National Collection of Surinam, other paratypes in the collection of the authors.

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FAMILY EREYNETIDAE OUDEMANS, 1931
SUBFAMILY SPELEOGNATHINAE WOMERSLEY, 1936

Genus **Neospeleognathopsis** FAIN, 1958
Subgenus **Speleomyotis** FAIN, 1962

1. **Neospeleognathopsis (Speleomyotis) bastini bastini** (FAIN, 1958)

This species has been described from *Myotis myotis* in Belgium. HYLAND and GEIGER (1961) have found this species in *Eptesicus fuscus,* in U.S.A. FAIN (1970 b) recorded it from the nasal cavities of *Rhinolophus cornutus,* in Japan.

FAIN and AITKEN (1969) have described a new subspecies (*didelphis*) after specimens collected in a marsupial (*Didelphis marsupialis*) of Brazil.

In Surinam the typical forme of this species has been found in two new hosts : *Myotis nigricans,* from Lelydorp 10, on 26 February 1970 (bat n° 483) (1 female and 1 larva) and *Eptesicus melanopterus,* from Lelydorp, 24 and 26 February 1970 (bats n° 187 and 482) (8 females) and Meerzorg, 3 March 1970 (bat n° 504) (1 female and 1 larva).

2. **Neospeleognathopsis (Speleomyotis) molossus** spec. nov.

This species is distinguished from *N. (S.) bastini* (FAIN) by the following characters :

1. The different shape of some terminal hairs of tarsi I to IV, which are narrower, longer and membranous apically.
2. Different shape of the hairs of the palps and absence of the tibial hair.
3. The shape of the scutum, much broader in its anterior half.
4. The more posterior situation of the *v i* setae, situated at the same level as the sensillae.
5. The shape of the coxa IV more produced internally.

FEMALE (holotype) (fig. 1-3) : Length of the idiosoma 395 μ, maximum width 270 μ. Cuticle and sensillae as in *N. (S.) bastini.*

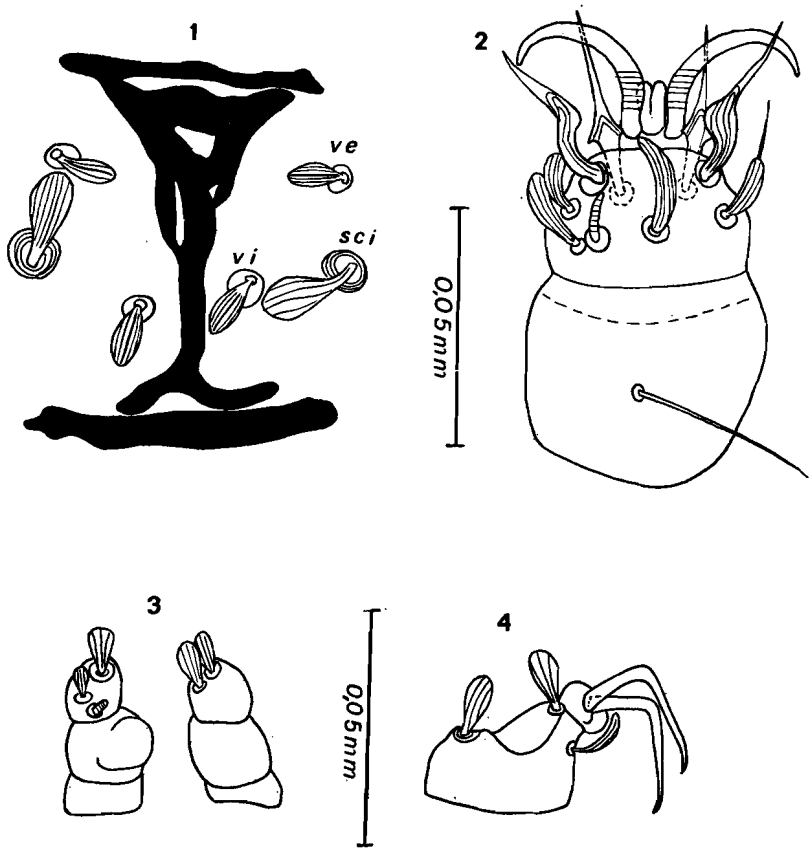

FIG. 1-4. — *Neospeleognathopsis* (*Speleomyotis*) *molossus* sp. n. Holotype female : region of the scutum (fig. 1) ; tibia and tarsus II dorsally (fig. 2) ; palp ventrally and dorsally (fig. 3). Larva : tarsus III (fig. 4).

Dorsal shield 84 μ long ; the anterior half is triangular and made of a network of thick bands ; the posterior half has the shape of an inverted T. Coxae with a well-formed network at their bases. Coxae I and IV distinctly produced internally. Other parts of the legs with transverse, broad sclerotized bands. Vulvar slit in the shape of an inverted T, 48 μ long. There is a small epigynial sclerite. Gnathosoma and legs as in *N. (S.) bastini.*

Chaetotaxy : Hairs of the idiosoma of the same number and shape as in *bastini* but the setae *v i* are more posterior and situated at the same level as the sensillae.

Palps : tarsus with 4 hairs of the Sa type, without terminal flagellum ; tibia without hair. Legs : tarsi with 4 apical hairs membranous with an elongate triangular and membranous process, and several other hairs without apical processes.

MALE (allotype) : Idiosoma 345 μ long, 225 μ wide. The abdomen contains an irregular granular mass (= testis). Cuticle and dorsal chaetotaxy as in the female. The scutum is represented only by two transverse bands about 60 μ distant from one another. Genital slit longitudinal, 25 μ long. There are 2-3 genital hairs (in two paratypes : 3-3 and 3-3) but this region is not in very good condition and one hair is probably lost. A sclerotized structure, probably the penis, is visible in the depth of the genital orifice.

LARVA (fig. 4) : One larva, strongly flattened, is 330 μ long and 280 μ wide. Claws I and II normal. Claws III resembling those of *N. (S.) bastini.* They are bent at an angle of 90°. Their total length is 35-40 μ. They differ from these of *bastini* by the fact that the apical part is relatively longer and that their apices are slightly recurved ventrally unlike those of *bastini.*

Hosts and localities :

1. *Molossus molossus,* Paramaribo, 30 November 1969 (holotype and 1 paratype female) ; 4 December 1969 (allotype male and 2 paratypes females) ; 30 December 1969 (bats n° 44 and 46) (5 females and 1 male, paratypes) ; 11 February 1970 (bat n° 169) (4 females, 1 male and 2 larvae, paratypes) ; 1 January 1970 (bat n° 208) (4 females, paratypes) ; 11 February 1970 (bat n° 427) (5 females and 2 larvae, paratypes) ; 13 February 1970 (bats n° 435 and 439) (4 females and 3 larvae, paratypes).

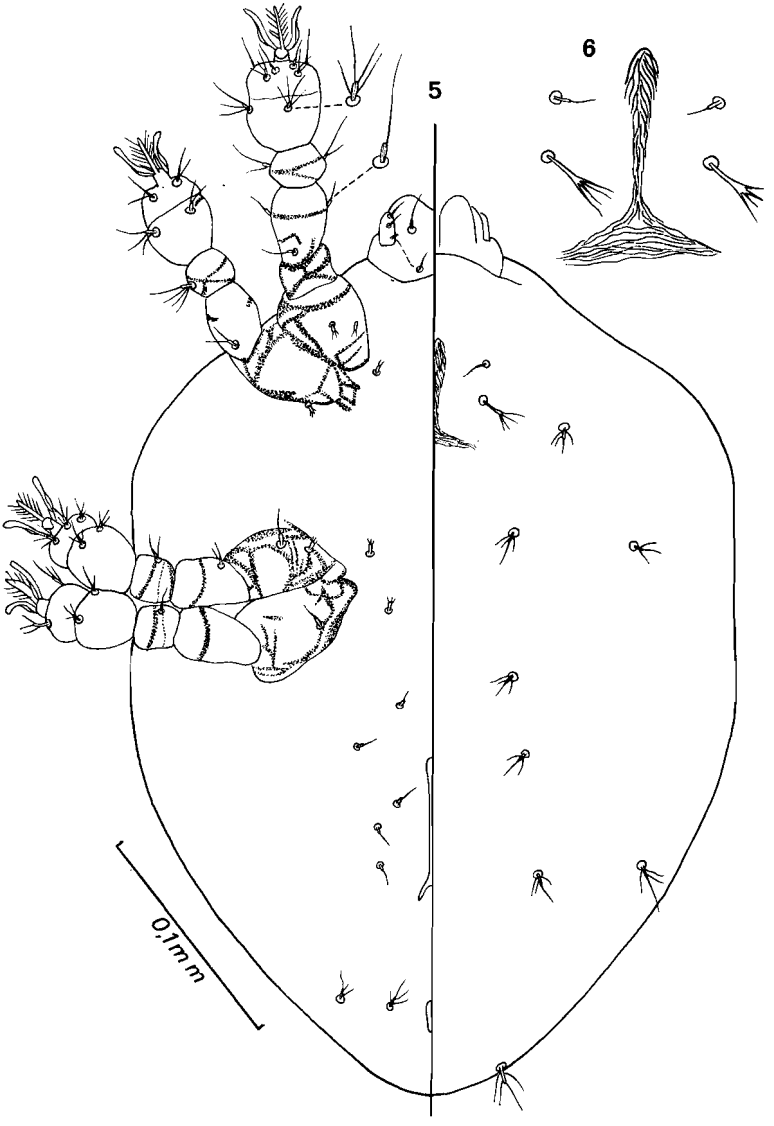

FIG. 5-6. — *Hipposideroptes saccopteryx* sp. n. Holotype female ventrally and dorsally (fig. 5); region of the scutum (fig. 6).

From the same host but in Lelydorp, 6 February, 1970 (bat n° 160) (7 females, 1 male and 3 larvae, paratypes).

2. *Molossus ater,* Lelydorp, 22 January 1970 (bat n° 230) (1 female and 1 male, paratype).

3. *Cynomops planirostris,* Paramaribo, 11 November 1969 (bat n° 24) (1 female and 1 larva, paratypes).

Genus **Hipposideroptes** FAIN, 1970

1. **Hipposideroptes saccopteryx** spec. nov.

This species is distinguished from *Hipposideroptes kimuenzae* FAIN, 1970, by the shape of the sensillae which are short and bearing apically several thin barbules, the slighter sclerotization of the dorsal shield and the different number of setae on the legs.

FEMALE (holotype) (fig. 5-9) : Idiosoma 370 µ long and 255 µ wide. Cuticle very finely striate-punctate. Dorsal shield poorly sclerotized, in the shape of an inverted T. Sensillae with a rather thick base, 10-12 µ long and slightly inflated apically where it bears three to five fine barbules, 10-12 µ long. Vulva in the shape of an inverted Y. Coxae with sclerotized bands forming a network basally. Other parts of the legs with sclerotized bands. Tibiae and tarsi broader than the other parts of the legs. Claws and pulvilli as in *H. kimuenzae*. Gnathosoma : palp with only one (tarsus) free article.

Chaetotaxy : Idiosoma : are present the setae : *v e* ; *sc i* (= sensillae) ; *sc e ; d 1 ; d 2 ; d 3 ; d 4 ; d 5 ; l 1 ; l 4 ; l 5 ; a ;* genitals 5-4 ; *ic 1 ; ic 2 ; ic 3*. Legs : Coxae 2-1-2-1 ; Trochanteres 0-0-0-0. Femora 5-3-2-1. Genua 4-4-3-3. Tibiae 5-3-3-3. Tarsi 12-8-7-7. Gnathosomal base 2-2 ; palp tarsus 3.

Most of the hairs of the dorsum and of the legs are very short, rather thick with an inconspicuous striation and bearing several very thin and rather long barbuli arising from near the base and one longer barbulus apical or subapical. The ventral surface of the idiosoma and of the coxae bears similar hairs but shorter and ending into a long barbulus. There is a solenidion on the tarsi of the palp and of the legs I and II.

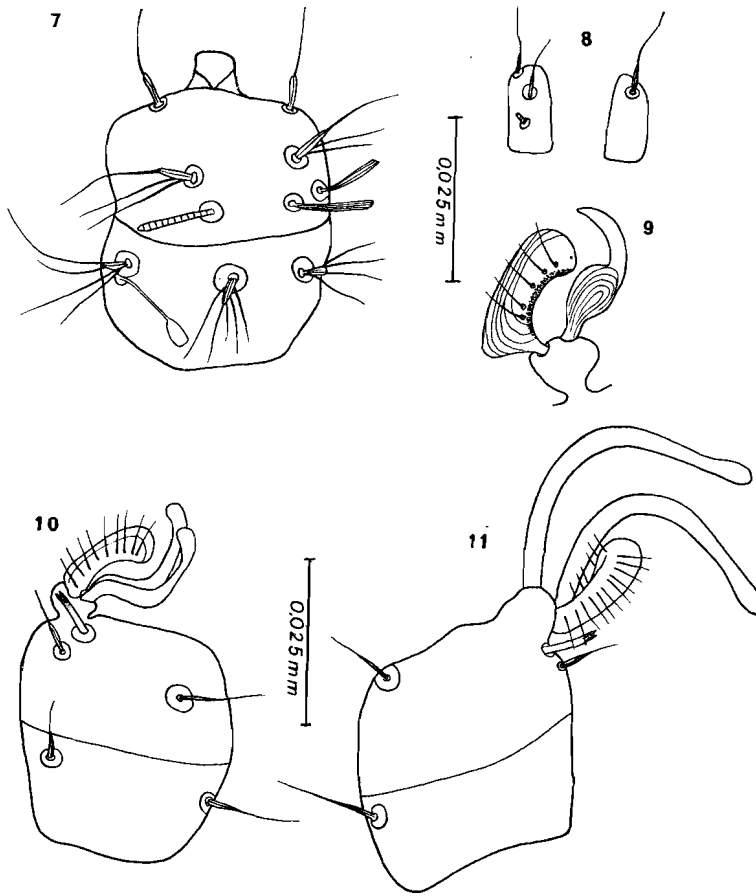

FIG. 7-11. — *Hipposideroptes saccopteryx* sp. n. Female : tibia and tarsus I, dorsally (fig. 7) ; palp tarsus ventrally and dorsally (fig. 8) ; claw and pulvillus of tarsus IV (fig. 9). Larva : tibia and tarsus II (fig. 10) and III (fig. 11).

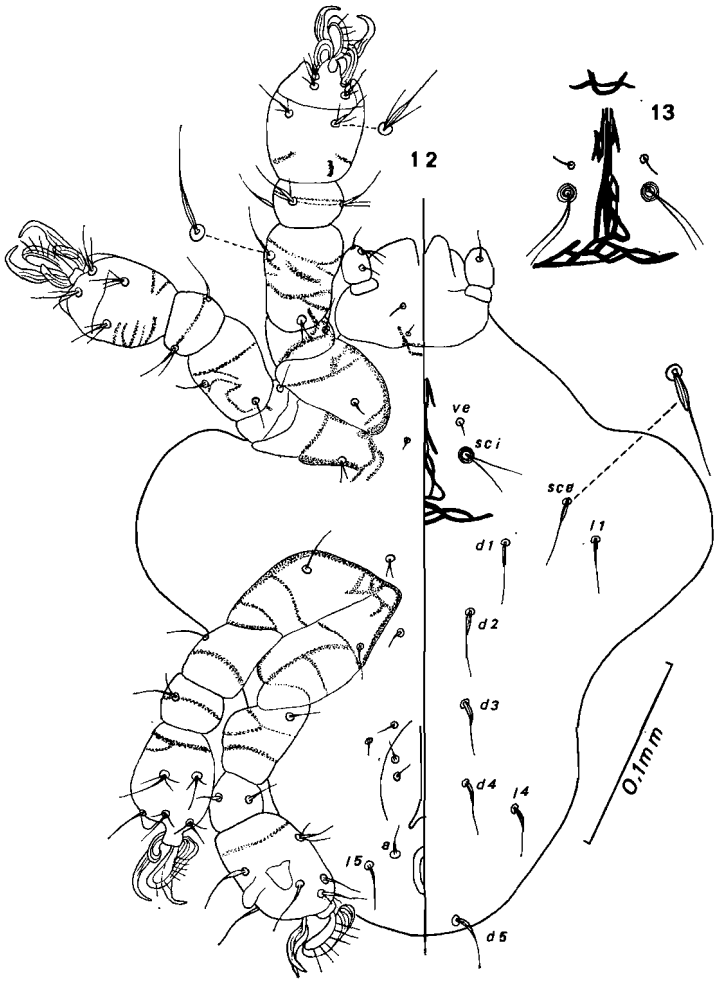

FIG. 12-13. — *Speleochir* (*Speleochir*) *carollia* sp. n. Holotype female ventrally and dorsally (fig. 12) ; scutal area (fig. 13).

MALE (allotype) : Idiosoma 265 µ long, 195 µ wide. Scutum inconspicuous. Genital slit 18 µ long, with a chitinous structure inside. A large bilobate granular testis is visible in the body, slightly in front of the genital slit. Legs and gnathosoma as in the female.

Chaetotaxy : number of setae as in the female but most of the setae are short, either cylindrical or slightly expanded apically, and terminated into a rather long apical or subapical flagellum.

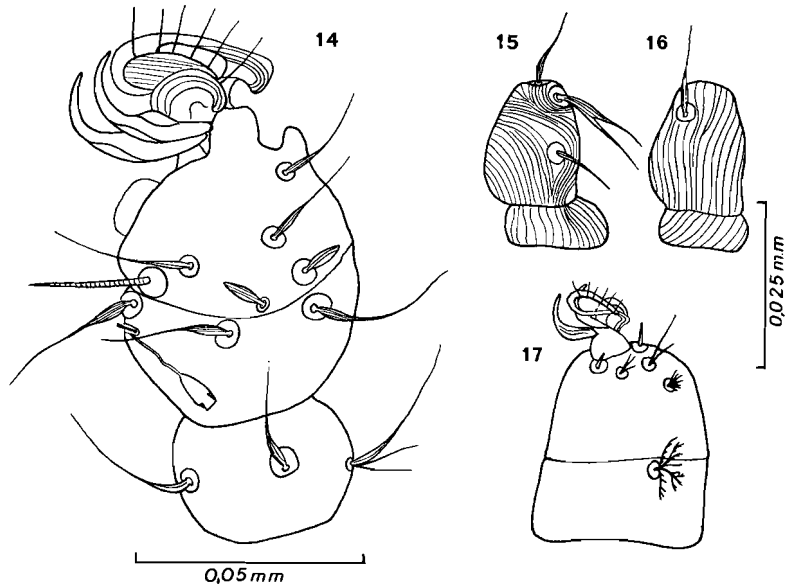

FIG. 14-17. — *Speleochir* (*Speleochir*) *carollia* sp. n.
Female : genu, tibia and tarsus I in lateral view (fig. 14) ; palp ventrally (fig. 15) and dorsally (fig. 16).
Larva : tibia and tarsus I (fig. 17).

LARVA (fig. 10-11) : One larva is 190 µ long and 120 µ wide. Claws of legs I and II are normal in size but with club-shaped apices. Claws III much larger with also the apices inflated, they are regularly rounded and are 45-50 µ long, in total. Pulvillus resembling that of the adult. Gnathosoma and sensillae as in the adult.

Hosts and localities:

1. *Saccopteryx bilineata,* from Lelydorp, 26 February 1970 (bats n° 484 ; 486, 487 and 488) (holotype and 19 paratypes

females ; allotype and 1 paratype male ; 5 larvae paratypes) ; 10 December 1969 (bat n° 11) (3 females and 1 male, paratypes) ; 28 February 1970 (bat n° 495) (1 female paratype).

2. *Saccopteryx leptura,* from Uitvlucht, 23 February 1970 (bat n° 184) (5 females, 1 male and 1 larva, paratypes).

Genus **Speleochir** FAIN, 1966
Subgenus **Speleochir** FAIN, 1966

1. **Speleochir (Speleochir) carollia** spec. nov.

This species has bifid sensillae as in *Speleochir phyllostomi* (CLARK, 1967) and in *Speleochir barbulata* FAIN and AITKEN, 1970. It is distinguished from these species mainly by the chaetotaxy of the coxae (1-1-1-1). Moreover it differs from *S. barbulata* by the absence of BN setae on the anterior legs and from *S. phyllostomi* by the different shape of the sensillae and of the chaetotaxy.

FEMALE (holotype) (fig. 12-16) : Idiosoma 300 µ long, 255 µ wide. Length of two paratypes : 330 µ and 345 µ. Cuticle finely striate-punctate. Scutum in an inverted T, with a rather well-formed network ; it is 75 µ long and its base is about 70 µ wide. Sensillae with a short base (3 µ long) and two longer furcae (20 to 25 µ long). Coxae and legs with sclerotized bands, forming a network on the legs. Genital slit 35 µ long (median part). Gnathosoma with the base bearing basally, at its ventral surface, a few sclerotized bands. Palps with a short tibia and a longer and broader tarsus. Legs with tibiae and tarsi much more swollen than the other segments. Claws and pulvilli as in the other species of the genus.

Chaetotaxy : Idiosoma with the following setae : *v e, sc i* (= sensillae), *sc e, d 1* to *d 5, l 1, l 4, l 5, a,* 4 pairs of genitals, *ic 1* to *ic 3*. Gnathosoma : base of gnathosoma with 2 pairs of setae ; palp tarsus with 4 setae (3 simple and 1 furcate). Legs : Coxae 1-1-1-1. Trochanteres 1-1-0-0. Femora 6-4-2-3. Genua 4-4-3-3. Tibiae 5-3-3-3. Tarsi 12-8-7-7. There is a long external solenidion on leg-tarsus I and a very short solenidion on tarsus II.

MALE (allotype) : Idiosoma 320 µ long, 243 µ wide. The scutum is much less conspicuous than in female ; genital slit wider and

shorter (25 μ). There are three large rounded granular masses in the anterior part of the opisthosoma (= testis). Other characters as in the female.

LARVA (fig. 17) : All the legs end into small and normal formed claws. Some hairs of the legs and of the idiosoma are curiously branched and resembling fern-leafs.

Hosts and localities:

All our specimens were collected on *Carollia perspicillata,* from three different localities *a*) Lelydorp, 15 and 16 December 1969 (two bats) (14 females, 2 males and 1 larva, all paratypes) ; 23 December 1969 (bat n° 52) (1 female paratype) ; 28 January 1970 (bats n° 124 and 129) (allotype and 1 paratype males, 2 females paratypes) ; 28 January 1970 (bat n° 135 and 248) (5 females and 2 larvae paratypes) ; *b*) Zandery, 2 and 3 January 1970 (bats n° 213, 214, 216, 218, 220) (female holotype and 7 paratypes, 2 males, paratypes, and 4 larvae paratypes) ; *c*) Onverwacht, 5 February 1970 (bat n° 338) (4 females and 1 male, paratypes).

KEY TO THE EREYNETIDAE PARASITIC IN THE NASAL CAVITIES OF BATS

FEMALES

1. Pulvillus long, striate, without accessory basal lobes. Palp with only one free article. Scutum present. The *v i* absent. Coxae with 2-1-2-1 hairs	Genus *Hipposideroptes* FAIN, 1970 (2)
Pulvillus variable, with two accessory basal lobes. Other characters variable . . .	3
2. Sensillae simple, piliform. Femora with 7-4-3-3 hairs	*H. kimuenzae* FAIN, 1970
Sensillae formed by a thick and short base bearing apically three to five fine barbules. Femora with 5-3-2-1 hairs	*H. saccopteryx* sp. n.
3. The two accessory lobes of the pulvillus are small and paramedian. The *v i* are present .	Genus *Neospeleognathopsis* FAIN, 1958 (4)

The two accessory lobes of the pulvillus are large, strongly striate and situated laterally. The *v i* are lacking	Genus *Speleochir* FAIN, 1966 (6)
4. Palps with two free segments. Sensillae thin, piliform. One pair of hypostomal hairs. The *l 5* are lacking. With three to five pairs of genital hairs	Subgenus *Neospeleognathopsis* FAIN, 1958 (One species : *N. (N.) chiropteri*) FAIN, 1955)
Palps with three free segments. Sensillae globulous or subglobulous. Two pairs of hypostomal hairs. The *l 5* are present. With seven pairs of genital hairs	Subgenus *Speleomyotis* FAIN, 1962 (5)
5. The *v i* are situated a little in front or on the same transverse line as the *v e*. Scutum not enlarged anteriorly. Apical hairs of tarsi I to IV not especially elongate	*N. (S.) bastini* (FAIN, 1958)
The *v i* are situated on the same transverse line as the sensillae. Scutum enlarged in front. Some apical hairs of tarsi I to IV elongate . .	*N. (S.) molossus* sp. n.
6. Sensillae piliform. Palps with two free segments	Subgenus *Speleochir* FAIN, 1966 (7)
Sensillae globulous. Palps with one free segment	Subgenus *Neospeleochir* FAIN, 1971 (One species : *S. (N.) duboisi* (FAIN, 1955)
7. Sensillae simple. Scutum lacking. Palp tarsus with three or four hairs	8
Sensillae bifid apically. Scutum present. Palp tarsus with four hairs	9
8. Idiosomal hairs of the Na type and with their base slightly conical. Palpal tarsus with three hairs	*S. (S.) aitkeni* FAIN, 1966

Idiosomal hairs distinctly foliate-striate (SNe or SNf type). Palpal tarsus bearing four hairs : three with a single flagellum and one with two flagella . . . . . *S. (S.) brasiliensis* FAIN et AITKEN, 1969

9. Coxae with 1-1-1-1 hairs. Sensilla with a very short base dividing into two longer hairs . . *S. (S.) carollia* sp. n.

Coxae with 2-1-2-1 hairs 10

10. Presence of hairs of the type BNe on the tibia, genu, femur and trochanter . . . . *S. (S.) barbulata* FAIN et AITKEN, 1970

Absence of these hairs which are replaced by SN setae . . . . . *S. (S.) phyllostomi* (CLARK, 1967)

LARVAE

(N.B. : The larvae of the following species are unknown : *Speleochir aitkeni* FAIN, *S. barbulata* FAIN and AITKEN, *S. phyllostomi* (CLARK), *S. brasiliensis* FAIN and AITKEN, *S. duboisi* (FAIN), *Hipposideroptes kimuenzae* FAIN)

1. All tarsal claws small, of equal size . . . 2
Claws of leg III much enlarged . . . 3

2. Presence on the legs of some curiously modified fernleaf-like hairs . . . . . *Speleochir carollia* sp. n.

Absence of such hairs . . . . . *Neospeleognathopsis chiropteri* (FAIN, 1955)

3. Claws of legs I and II small with bulbous apices. Claws III much enlarged, regularly recurved and with the apices swollen ; total length 45-50 μ. Pulvullus long, without accessory lobes. Palps with one free segment . . *Hipposideroptes saccopteryx* sp. n.

Claws of legs I and II small and pointed. Claws III much enlarged and abruptly bent at an angle of 90°. Pulvillus very short. Palps three-articulate 4

4. Basal part of the claw III distinctly shorter (15 μ) than apical part (24 μ) and with apices slightly recurved ventrally . . . . *Neospeleognathopsis (Speleomyotis) molossus* sp. n.

Basal part of claw III longer (22 μ) than apical part (18 μ) and with straight apices . . . *Neospeleognathopsis (Speleomyotis) bastini* (FAIN, 1958)

BIBLIOGRAPHY

CLARK G.M. (1967). — New Speleognathinae from Central and South American Mammals (Acarina, Trombidiformes). *Proc. Helm. Soc. Wash.*, 34 (2) : 240-243.

FAIN A. (1958). — Un nouveau Spéléognathe (Acarina-Ereynetidae) parasitant les fosses nasales du Murin [*Myotis myotis* (BORKH.)] en Belgique : *Speleognathopsis bastini* n. sp. *Bull. Ann. Soc. roy. Ent. Belg.*, 94 (XI-XII) : 342-345.

FAIN A. (1963). — Chaetotaxie et classification des Speleognathinae. *Bull. Inst. roy. Sci. nat. Belg.*, 39 (9) : 1-80.

FAIN A. (1966). — L'acariase des fosses nasales chez les Mammifères. Description d'une nouvelle espèce de Speleognathinae (Acarina : Trombidiformes). *Acta Zool. Pathol.* Antwerp. n° 41 : 103-108.

FAIN A. (1970 a). — Nomenclature des poils idiosomaux et description de trois espèces nouvelles dans la famille Ereynetidae (Trombidiformes). *Acarologia* XII (2) : 314-325.

FAIN A. (1970 b). — Notes sur les Spéléognathines parasites nasicoles des Mammifères (Ereynetidae : Trombidiformes). *Acarologia* XII (3) : 509-521.

FAIN A. et AITKEN T.H.G. (1969). — Acariens nasicoles d'oiseaux et de mammifères du Brésil. II. Ereynetidae de la région de Belém (Nord Brésil). *Bull. Ann. Soc. roy. Ent. Belg.*, 105 : 33-44.

FAIN A. et AITKEN T.H.G. (1970). — Acariens nasicoles d'Oiseaux et de Mammifères du Brésil. IV. Nouveaux Ereynetidae (Trombidiformes) et Turbinoptidae (Sarcoptiformes) de la région de Belém (Nord Brésil). *Acarologia* XII (2) : 326-338.