NOTES ON THE TROMBICULIDAE

BY

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NOTE 1 :

Oudemansidium n. sg.

In the genus *Chiroptella*, V-G., 1960. Created for the following species :

1. *Allothrombidium muscae* Oudemans, 1906 (the type species of the subgenus).
2. *Trombicula subakamushi* Schluger, 1948.

SUBGENERIC DIAGNOSIS : SIF = 7B.S-B-3-2111.0001. *Chiroptella* of medium size, Ip = 680-720. Scutum trapezoidal with slight shoulders. Sensillae with distal halves branched. Eyes (2 pairs). Galeala branched. Nude mastifemorala on leg 3, no other mastisetae, single genuala. Palpal setation : N/N/NNN. Palaearctic region ; bat parasites.

TYPE SPECIES : *Chiroptella (Oudemansidium) muscae* (Oudemans, 1906), n. comb.

NOTE 2 :

Neosomia V.-G. & Nadchatram, 1965.

It was included in *Riedlinia* Oudemans, 1914, for the following reasons :

1. Apparent neosomy.
2. Peniscutum (similar to those of certain *Trombigastia*).
3. Absence of eye lenses.
4. Presence of large epiostracal body pleats.
5. Leg claws with lanceolate apex.
6. Presence of thick chelostyles (= cheliceral blades).

In fact, the leg and palpal chaetotaxy demonstrate that it is a genuine member of the *Leptotrombidium* line and, more precisely, that it belongs — morphologically speaking — to the genus *Chiroptella* V.-G., 1960. Its peculiar peniscutum (off-scutal PL's) does not prohibit congeneric ranking with *revelae* and, for instance,

another member with reduced scutum is well known among the closely related *Leptotrombidium* : *L. peniscutum* V.-G., Traub & Nadchatram (in press).

This subgenus contains two species :

1. *Chiroptella (Neosomia) audyi* (V.-G. & Nadchatram, 1965) n. comb. (the type species of the subgenus).
2. *Chiroptella (Neosomia) revelae* (Audy, 1952) n. comb.

SUBGENERIC DIAGNOSIS : SIF = 7 B-N-3-2111.0011. *Chiroptella* of medium size, Ip = 640-770. Scutum trapezoidal (peniscutum in the case of *audyi*). Eyes (2 pairs) or blind (*audyi*). On leg 3 : one extra genuala (or mastigenuala) and one mastifemorala, both nude. No mastitarsala, nor mastitibiala. Neosomy observed. Palpal setation : $\frac{N}{B}$/N/NNN. Asia or Pacific Islands ; on bats.

TYPE SPECIES : *Chiroptella (Neosomia) audyi* (V.-G. & Nadchatram, 1965), n. comb.

NOTE 3

Miyacarus n. sg.

In the genus *Miyatrombicula* Sasa, Kawashima & Egashira, 1952. It is created for four species which do not possess a nude subterminala on the palpo-tarsus [1].

The type species of the new subgenus is *Microthrombidium muris* Oudemans, 1910 ; the other three species are :

1. *Pentagonella ilesi* Radford, 1948.
2. *Trombicula pentagona* Womersley, 1952.
3. *Trombicula (Miyatrombicula) tokyoensis* Kumada, 1954.

SUBGENERIC DIAGNOSIS : SIF = 7B-$\frac{N}{B}$-3-$\frac{3}{2}$111.$\frac{1}{0}$000. *Miyatrombicula* of medium size, Ip = 640-700. Palpo-tarsal gross formula, fT = 7B. As an exception, only two genualae 1 in *pentagona*, instead of three. World-wide species (America excepted) ; on rodents and reptiles.

TYPE SPECIES : *Miyatrombicula (Miyacarus) muris* (Oudemans, 1910), n. comb.

NOTE 4

Diplectria n. sg.

In the genus *Trombicula* Berlese, 1905. Differs from the two neighboring subgenera *Trombicula* Berlese, 1905 and *Cotrombicula* V.-G., 1960, by the following characters :

1. The palpotarsal gross formula, fT = 7B.S, for *Miyatrombicula* s. str. while it is fT = 7B for *Miyacarus*.

1. Palpo-tarsal gross formula, fT = 5B (fT = 6B in *Cotrombicula*, 5B in *Trombicula*).
2. Presence of two pretarsala on tarsus 1.
3. Sometimes absence of pretarsala on leg tarsus 2.
4. Subterminala and parasubterminala of leg tarsus 1 are branched and not nude as in the two neighboring subgenera.

The species type is *Trombicula (Trombicula) reticulata* V.-G. & Nadchatram, 1963 ; the other three species are :

1. *Trombicula calva* Domrow, 1962.
2. *Trombicula koongi* Domrow, 1962.
3. *Trombicula taphozous* Womersley, 1952.

SUBGENERIC DIAGNOSIS : SIF = 5B-$\frac{B}{N}$-3-3111.$\frac{0}{1}$000. *Trombicula* of medium size, Ip = 800-910. Nude subterminala and parasubterminala absent, two pretarsalae 1 and sometimes no pretarsala 2 : ST = 0, pST = 0, PT′ = 2, PT″ = 1 or 0. PL>AM>AL. Mastitarsala 3 rare, sometimes with basal barbs. Asia and Africa ; on bats.

TYPE SPECIES : *Trombicula (Diplectria) reticulata* V.-G. & Nadchatram, 1963, n. comb.

NOTE 5

Euneocula n. sg.

In the genus *Fonsecia* Radford, 1942. It is created for two groups of species morphologically very close to *Fonsecia* s.str., from which they differ by the following characters :

1. Scutum nearly two times wider than long with anterior and posterior sinuous margins (anteromargin triconvex ; posteromargin biconvex).
2. Sensilla branched from near the base.
3. Antero-lateral setae (AL) thin ; not short and peg-like as in *Fonsecia* s.str.

The type species of this new subgenus is *Trombicula manueli* Brennan & Jones, 1960 and is at the same time the chief of the *manueli* group. This group is characterized by trifurcate palpo-tibial claws while the second group, of which the chief is *Trombicula gurneyi* Ewing, 1937, possesses bifid palpo-tibial claws [1].

1. *gurneyi* group (Gr = 2) : *Trombicula gurneyi* Loomis, 1955 = *Tr. campestris* ; *Trombicula gurneyi* Ewing, 1937 ; *Trombicula kansasensis* Loomis, 1955.

1. It is to be noted that the subgenus *Fonsecia* is itself divided into two groups on the same basis (the palpo-tibial claw is bifid in *coluberina* group, and trifurcate in the *ewingi* group).

2. *manueli* group (Gr = 3) : *Trombicula aitkeni* Brennan & Jones, 1960 ; *Trombicula chara* Wharton, 1948 ; *Trombicula longicalcar* Brennan & Jones, 1960 ; *Trombicula manueli* Brennan & Jones, 1960 ; *Trombicula psittaci* Floch & Abonnenc, 1949.

SUBGENERIC DIAGNOSIS : 1) *gurnevi* gr., SIF = 7B.S-N-2-3111.0000
2) *manueli* gr., SIF = 7B.S-N-3-3111.1000.

Fonsecia of medium size, Ip = 660-900. Scutum almost twice as wide as long, with biconvex postero-margin. Sensillae branched from near the base, except in *psittaci*. AL similar to PL (not peg-like). Eyes present, one or two pairs of small lenses. American species ; found on reptiles, birds and mammals.

TYPE SPECIES : *Fonsecia (Euneocula) manueli* (Brennan & Jones, 1960), n. comb.

NOTE 6

Anoploschoengastia V.-G., 1960

It was erected for two species of which the chelostyle does not possess any teeth or denticulation on the dorsal edge. Considering other similar features among trombiculids, we estimate it as insignificant on a generic and even subgeneric status. *Anoploschoengastia* has thus to be considered as a synonym of *Schoengastia* s.str. in which the two following species constitute a group ; the type species is *Schoengastia (Anoploschoengastia) schoengastoides* V.-G., 1960 :

schoengastoides group [1] :

1. *Schoengastia (Schoengastia) capensis* (Lawrence, 1949), n. comb.
2. *Schoengastia (Schoengastia) schoengastoides* V.-G., 1960, n. comb.

NOTE 7

Proschoengastia n. sg.

In the genus *Schoengastia* Oudemans, 1910. It is created for two South American species which show an apparent connection with *Schoengastia* and *Guntherana*. These two species are morphologically close to *Schoengastia* s.str. and more precisely with the *schoengastoides* group (ex. *Anoploschoengastia* sg. — see Note 6) possessing

1. The five groups in *Schoengastia (Schoengastia)* are :
   1. *vandersandei* gr. : long chelicerae ; palpotibial claw bifid (Gr = 2).
   2. *lavoipierrei* gr. : normal chelicerae, serrated ; Gr = 3.
   3. *schoengastoides* gr. : non-serrated chelicerae ; Gr = 3.
   4. *archaea* gr. : serrated normal chelicerae ; Gr = 3 ; two genuala 1 (instead of three) ; big eyes (2 × 2) ; scutum pleated as in *Neoschoengastia* ; multibars in all leg tarsi.
   5. *fitzsimmonsi* gr. : serrated normal chelicerae ; Gr = 3 ; two to four solenidia on leg tarsus 1.

nonserrated chelicera. Their palpo-tarsal gross formula, fT = 7B, differentiates them from *Schoengastia* s.lato (fT = 7B.S).

The type species of this new subgenus is *Euschoengastia herniosa* Brennan & Jones, 1961 ; the second species is *Euschoengastia insolita* Brennan & Jones, 1961. It seems that these species are the American representatives of the large *Schoengastia* genus of the old world.

SUBGENERIC DIAGNOSIS : SIF = 7B-N-3-$\frac{2}{3}$111.000. *Schoengastia* of medium size. fT = 7B. Cheliceral blade with tricuspid cap, no serration, as is also the case in *schoengastoides* gr. America ; on mammals.

TYPE SPECIES : *Schoengastia (Proschoengastia) herniosa* (Brennan & Jones, 1961), n. comb.

NOTE 8

Trisetoisia n. sg.

In the genus *Doloisia* Oudemans, 1910. It is created for *Doloisia hooperi* Domrow & Nadchatram, 1962. It differs from *Doloisia*, s.str. in its peculiar gross palpo-tarsal formula, fT = 3B, a character that it shares with *Trisetichia* V.-G., 1958, in the genus *Schoutedenichia*.

SUBGENERIC DIAGNOSIS : SIF = 3B-N-3-2110.0000. *Doloisia* of small size, Ip = 748. Scutum roughly pentagonal, with AM before ALs line, on an antero-marginal projection. No eyes, and PL>AM>AL. Multiple coxalae 2 and 3 (fCx = 1/2/6-10). fPp = B/N/NNB. Asia ; on rodents.

TYPE SPECIES : *Doloisia (Trisetoisia) hooperi* Domrov & Nadchatram, 1962, n. comb.

NOTE 9

Euryphylla n. sg.

In the genus *Helenicula* Audy, 1954. It is created for two species possessing the fundamental characters of the genus ; but having foliate dorsal and scutal setae (PL's).

The type species is *Euschoengastia euryphylla* Brennan & Jones, 1962 ; the second species is *Euschoengastia frondosa* Brennan & Jones, 1961. Both species are the types of two separate groups differing basically in their synthetic identification formula (SIF) as follows :

1. *euryphylla* group : SIF = 6B-N-3-2001.0000 (close to *lanius* group, in *Helenicula* s.str.).
2. *frondosa* group : SIF = 5B-N-3-2111.0000 (morphologically close to *mutabilis* group, in *Helenicula* s.str.).

SUBGENERIC DIAGNOSIS : *Helenicula* of medium size. Scutum punctate, trapezoidal, wider than long. Sensilla bases contiguous (omorostigmal). PLs and dorsal setae foliate. Palpo-tarsal formula, fT = 5 or 6B. South America ; on rodents.

TYPE SPECIES : *Helenicula (Euryphylla) euryphylla* (Brennan & Jones, 1962), n. comb.

NOTE 10

Trombewingia Fonseca, 1955.

Possesses the fundamental characters of the genus *Guntherana* Womersley & Heaslip, 1943, and has to be considered as a subgenus of the latter, near *Susa* Audy, 1960. *Trombewingia* is split into two distinct groups according to their palpo-tarsal gross formula as follows :

a) *bakeri* gr. : (fT = 4B) : *Euschoengastia (Trombewingia) bakeri* Fonseca, 1955.
b) *foliata* gr. : (fT = 5B) :
   1. *Neoschoengastia foliata* Gunther, 1940.
   2. *Neoschoengastia mccullochi* Womersley, 1944.
   3. *Ascoschoengastia uromys* Womersley & Kohls, 1947.

SUBGENERIC DIAGNOSIS : a) *bakeri* gr., SIF = 4B-N-3-3111.0000.
b) *foliata* gr., SIF = 5B-N-3-2111.0000.

Guntherana of medium size, Ip = 630-760. Scutum punctate, trapezoidal with convex posterior margin. Scutal and dorsal body setae foliate. Few body setae. Eyes (2 × 2). Mammal parasites ; *bakeri* gr. is American, *foliata* gr. is Austro-malaysian.

TYPE SPECIES : *Guntherana (Trombewingia) bakeri* (Fonseca, 1955), n. comb.

NOTE 11

Phyllacarus n. sg.

In the genus *Derrickiella* Audy & Domrow, 1957, is created for the single species and type *Schoengastia (Ascoschoengastia) pseudomys* Womersley, 1952, which possesses all of the fundamental characters of the genus *Derrickiella*, except for the PLs and dorsal setae which are foliate.

SUBGENERIC DIAGNOSIS : SIF = 5B-N-3-2111.0000. *Derrickiella* of medium size, Ip = 770. Scutum punctate, posteromargin prominently expanded. PL and dorsal body setae foliate. PL>AM>AL. Eyes, two pairs. Australia ; on mammals.

TYPE SPECIES : *Derrickiella (Phyllacarus) pseudomys* (Womersley), 1952, n. comb.

Note 12

Subfonsecia V.-G., 1960.

It was a subgenus of *Fonsecia* Radford, 1942. The type species, *Eutrombicula gymnodactyla* Womersley & Kohls, 1947, and also certain neighboring species were recognized recently as morphologically related to the genus *Neotrombicula* Hirst, 1915. The important difference resides in its palpo-tarsal gross formula, fT = 6B.S, instead of 7B.S in *Neo-trombicula* s.str., and 7B in *Neotrombiculoides* V.-G., 1960. Four other species are included in *Subfonsecia* :

1. *Trombicula naultini* Dumbleton, 1947.
2. *Trombicula ophidica* Fonseca, 1932.
3. *Neotrombicula (Subfonsecia) "s"*, to be published.
4. *Trombicula (Trombicula) universitatis* Hoffmann, 1963.

Subgeneric diagnosis : SIF = 6B.S-N-$\frac{2}{3}$-$\frac{3}{2}$III.$\frac{0}{1}$000. *Neotrombicula* of small to medium size, Ip = 450-620. In relation with *Hexidionis*, onychotriches can be seen on the leg claws of certain species ("s"). Mastitarsala 3 rarely present. *S. gymnodactyla* is the only species with bifid palpal claw. Worldwide (Europe and Asia excepted) ; on reptiles, rarely on mammals.

Type species : *Neotrombicula (Subfonsecia) gymnodactyla* (Womersley & Kohls, 1947), n. comb.

Note 13

Hypogastia n. sg.

In the genus *Neoschoengastia* Ewing, 1929. It is created to replace the former *Hyponeoschoengastia* V.-G., 1960. The type species of the latter subgenus, *Neoschoengastia brennani* Crossley & Loomis, 1955, having been identified as *Neoschoengastia* s.str., *Hyponeoschoengastia* is *ipso facto* a synonym of *Neoschoengastia* (subgenus). Therefore *Hypogastia* is erected for the remaining species of the dismembered subgenus.

Trombicula gallinarum Hatori, 1920 is the type species ; the species are :

1. *Neoschoengastia blanci* Taufflieb, 1960.
2. *Neoschoengastia fullbergae* Brennan, 1948.
3. *Trombicula gallinarum* Hatori, 1920.
4. *Neoschoengastia moucheti* Brennan, 1956.
5. *Neoschoengastia (Hypogastia)* sp. "a", to be published.
6. *Neoschoengastia (Hypogastia)* sp. "g", to be published.

7. *Neoschoengastia (Hypogastia)* sp. "n", to be published.
8. *Neoschoengastia (Hypogastia)* sp. "s", to be published.

SUBGENERIC DIAGNOSIS : SIF = 7-B-3-$\frac{2}{3}$III.$\frac{0}{1}$000. *Neoschoengastia* of medium size, Ip = 600-900. Subtrapezoidal scutum with epiostracum pleated from the sensilla bases to the posterior margin. Asia, America, Africa ; on birds, mammals, and reptiles.

TYPE SPECIES : *Neoschoengastia (Hypogastia) gallinarum* (Hatori, 1920), n. comb.