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REVISION OF WOMERSLEY'S APOLONIINAE (ACARINA, LEEUWENHOEKIDAE) FROM THE ASIATIC-PACIFIC REGION*

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Abstract. Womersley (1954) had tentatively grouped in the subfamily Apoloniinae several species difficult to place. This tentative group was discussed by Audy (1957) and Southcott (1957), but without other materialization or adequate revision.

Three other species, not considered by Womersley, are incorporated in the present revision by reason of opportune association; one of them inaugurating a new subfamily, Polydiscinae. All the revised species are redescribed and taxonomically distributed as follows:

Super-Family	Family	Sub-Family	Species
PROSTIGMATA	JOHNSTONIANIDAE	*LASSENINAE*	*Nothotrombicula deinacridae*, *Grossia onychia* *Pteridopus pseudhannemania*
		POLYDISCINAE	*Polydiscia squamata*
	TROMBIDIIDAE	*TROMBELLINAE*	*Womersleyia minuta* *Audyana thompsoni*
		NEOTROMBIDINAE	*Neotrombidium tenuipes* (= *Cockingsia tenuipes*);
HYDRYPHANTAE	HYDRYPHANTIDAE	*HYDRYPHANTINAE*	*Hydryphantes globus* (= *Mackerrasiella globus*)

An addendum contains the brief presentation of the results of observations on the numbers of barbed setae on tarsi, tibiae, genu and femurs of the legs. A simple table reports the data of the revised species and also other interesting groups.

In his 1954 publication called "New genera and species, apparently of Apoloniinae (Acarina, Leeuwenhoekiidae) from the Asiatic-Pacific region," Womersley described or redescribed five larval species which he ascribed to the subfamily Apoloniinae: 1. *Nothotrombicula deinacridae* Dumbleton, 1947, 2. *Grossia onychia*, 3. *Mackerrasiella globus*, 4. *Womersleyia minuta* Radford, 1946, 5. *Cockingsia tenuipes*.

Audy (1957) suggested for the above species a different taxonomical position, and the same year, 1957, Southcott raised the same question. Careful study of the material examined originally by Womersley enables us to allocate these species to the groups to which they genuinely pertain. All the species are valid. The three genera *Nothotrombicula*, *Grossia* and *Womersleyia* are also valid but belong to families other than Leeuwenhoekidae. As for *Mackerrasiella*, it is a water mite and a synonym of *Hydryphantes*. *Cockingsia* is obviously a synonym of *Neotrombidium*.

In order to complete the work of Womersley, who made an addendum for his new genus *Audyana* — which he placed in the subfamily Trombellinae —, we will also revise the generotype of the latter.

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We also got the opportunity to study the single specimen of *Polydiscia squamata* Methlagl, 1928, which Newell reported in his 1957 work as pertaining to the subfamily Lasseninae. The revision of this species will also be presented hereafter, although, in our opinion, it evidently does not belong to the subfamily Lasseninae. Consequently, the subfamily Polydiscinae is hereafter created for it.

REVISION PLAN

1. *Nothotrombicula deinacridae* Dumbleton, 1947
2. *Grossia onychia* Womersley, 1954
3. *Pteridopus pseudhannemania* Newell & Vercammen-Grandjean, 1964
4. *Polydiscia squamata* Methlagl, 1928
5. *Womersleyia minuta* Radford, 1946
6. *Audyana thompsoni* Womersley, 1954
7. *Neotrombidium tenuipes* (=*Cockingsia tenuipes* Womersley, 1954)
8. *Hydryphantes globus* (= *Mackerrasiella globus* Womersley, 1954)

The new notion of "Ordinary barbed leg setae" or L. S. T. has been introduced in this work and is now part of the taxonomical data or bionomics. On page 250 is also an L. S. T. table for a certain number of species, for comparative anatomy.

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REVISION

A — SUPERFAMILY PROSTIGMATA KRAMER, 1877

I — FAMILY JOHNSTONIANIDAE NEWELL, 1957

a — SUBFAMILY LASSENINAE NEWELL, 1957

1 — GENUS *NOTHOTROMBICULA* COMB. NOV.

Nothotrombicula Dumbleton, 1947, Baker and Wharton, 1952, Audy, 1954, 1957, Womersley, 1954, Robaux, 1969.
Genus type: *Nothotrombicula deinacridae* Dimbleton, 1947.
Distribution: New Zealand.

Resembles very much *Pteridopus*, but possesses only one pair of scutal sensillae (the anterior feathered pair being missing), and the posterior tarsus being as long as the anterior, whereas in *Pteridopus*, it is almost twice as long as the anterior, tapering, and dorsally clothed with about a dozen long, feathered setae (auditory organs?).
Diagnosis: Scutum with rounded anterior shoulders, trapezoidal, densely punctate, a pointed nasus; four thick, spiculated setae and a pair of long sensillae. Paired eyes on both sides of scutum. Legs all seven-segmented, fsp = 7.7.7; coxal setae, fCx = 2.1.1;

intercoxal (or sternal setae), fSt = 0.2. Urstigma well developed, between the two closely joined anterior and mid coxae; lassenia organ not visible. Supracoxalae (or supracoxal setae) spinelike, present on both gnathobase and dorsal edge of anterior coxa. Gnathobasal setae (or tritorostrals) long, nude and tapering. No deutorostral setae. Chelobase bulbous and strongly sclerotized, its chelostyle (or blade) abundantly dentate on its edges, as well as on its outer surface (verrucose aspect). Odontus (or palpotibial claw) powerful and deeply divided into three incisors (Pl. A, Figs. 1 and 2). Palpotarsus shorter than in *Pteridopus* but well developed and bearing six feathered setae and two long, nude tarsalae (2T); the basal solenidion (S_0) slightly pushed forward; palpotarsal formula, fT = 6B.2T (instead of 7B.2T in *Pteridopus*).

Special nude setae of legs almost identical in aspect and disposition to those commonly seen in Trombiculidae. Anterior tarsus with a solenidion (S_1), famulus (f_1), subterminala (ST), parasubterminala (pST) and pretarsala (PT^1); mid tarsus with solenidion (S_2), famulus (f_2) and pretarsala (PT^2); no special nude setae on posterior tarsus. Anterior tibia with apical tibiala and microspur, and basal second tibiala; mid tibia with two tibialae, one apical, the other basal; one basal tibiala on posterior tibia. No genuala on any leg, but a microspur on anterior and mid genu. Barbed leg setae as tabulated (L. S. T.). Of the three leg claws, the central — or empodium — is sicklelike, stronger and longer than the two outer claws, but undivided on its tip; the two outer claws have a characteristic flattened, leaflike subapex (Plate A, Fig. 8).

Body setae few in number, the dorsal ones inserted on platelets, or sclerotized discs. Anal pore — or uropore — opening between two kidney-shaped sclerites, each bearing two relatively short, barbed setae. Index pedibus — or sum of the leg lengths — around 2240. Synthetic Identification Formula, SIF = 6B.2T-N-3-0001.0000. Parasitic on acridids.

Nothotrombicula deinacridae (Plate A, Figs. 1—8)

Nothotrombicula deinacridae Dumbleton, 1947. Baker and Wharton. 1952. Audy, 1954, 1957. Womersley, 1954.

a) **Ecological data:** Parasitic on *Deinacrida rugosa?* (Giant Wota or King Cricket of New Zealand), collected on Mt. Peel, Nelson (New Zealand).

b) **Taxonomical data:**

SIF = 6B.2T-N-3-0001.0000
fCx = 2.1.1
pST = N (17μ)
fSe = PL > AL lp = 2240
fD = 6.6.6.6.2 = 26
fPp = (B)-(B)-(N).N.N
fSt = 0.2
PT^1 = N (30μ)
Gr = 25μ Ch = 63μ
fV = 6.2.4.4.4u2.2 = 24
fsp = 7/7/7
ST = N (45μ)
PT^2 = N (25μ)
Ga = 35μ
NDV = 50

Measurements of the holotype, one paratype and mean of the two (given classically as for trombiculid larvae):

	AW	PW	SB	ASB	PSB	SD	AP	AL	PL	S	D
HT	101	154	43	50	46	96	60	76	88	189	104/126
PT	103	162	47	50	48	98	60	80	84	184	82/126
M/2	102	158	45	50	47	97	60	78	86	187	93/216

	L. S. T.		
	a	m	p
T	36	32	24
t	6	6	6
C	4	4	4
F	7	6	5

	P	V	pa	pm	pp	lp	T_1	T_2	T_3	Nasus l/w
HT	130	76/126	762	708	770	2240	236	206	223	53/26
PT	134	72/130	760	680	800	2240	246	215	239	59/32
M/2	132	74/128	761	694	785	2240	240	210	231	56/29

N.B.: $T_{1, 2}$, and $_3$ = lengths of the three leg-tarsi.

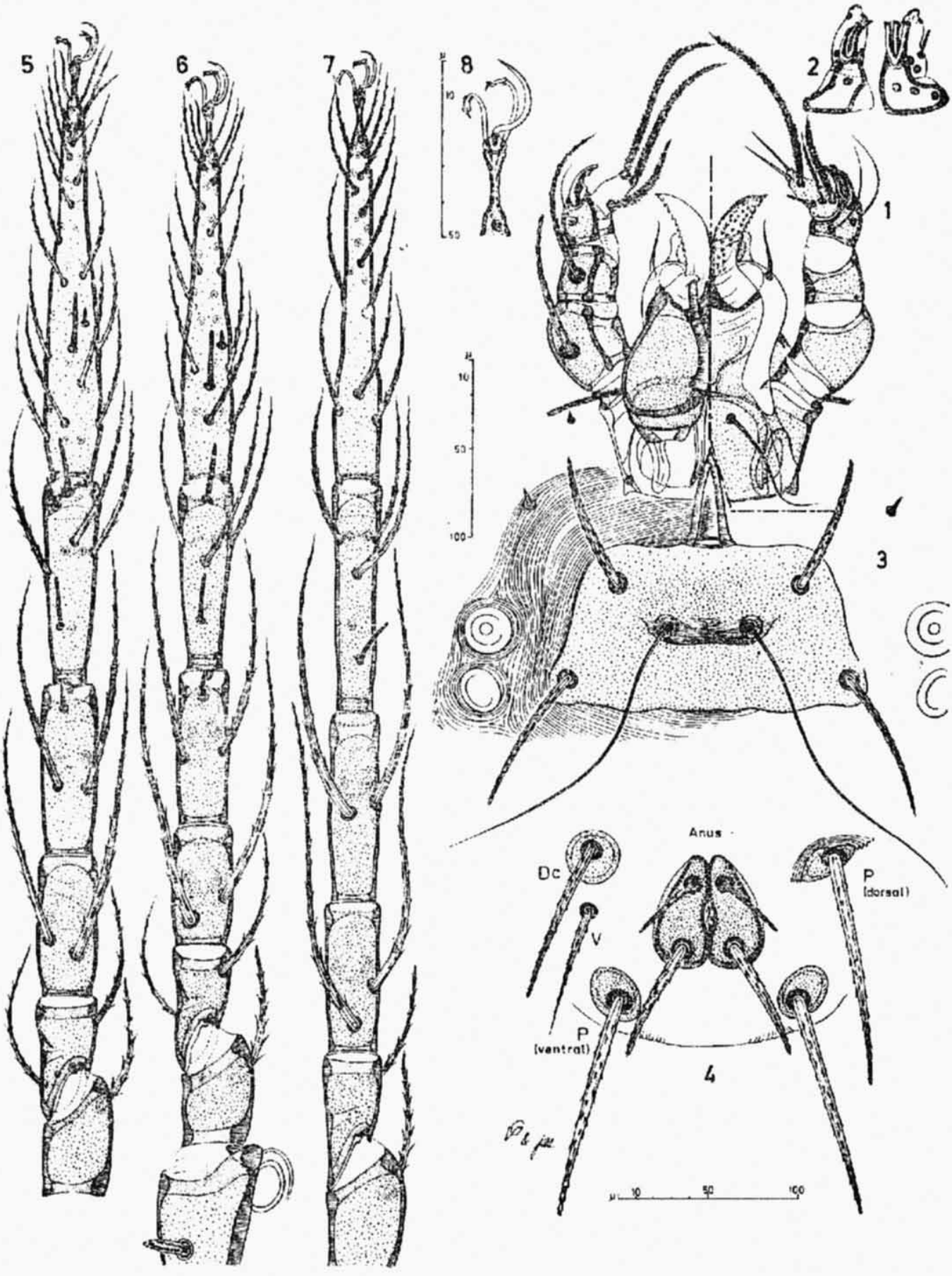

Fig. 1.

c) **Diagnosis**: According to its index pedibus, Ip = 2240, it is a very large species. Coxal setae peglike, like small "Belgian endives" (25×7μ). The anal pore sclerite measures 64 by 30μ, and bears two setae (40×70μ, posterior seta twice as thick as the anterior). Subterminala thicker and longer (45μ) than parasubterminala (17μ). Solenidia S_1 and S_2 equal in length (33μ), each preceded by its respective famulus (10μ). Apical nude tibialae (anterior and mid legs), 34μ; identical to S_1 and S_2. Next to the apical tibiala of anterior leg is a microspur of 17μ. Basal tibialae of three legs, all 28μ. Microspurs on anterior and mid genu, 16μ. Gnathobasal supracoxal is a small spine of 5μ; anterior supracoxal a spine of 10μ. Barbed leg setae as tabulated (L.S.T.).

2 — GENUS *GROSSIA* COMB. NOV.

Grossia Womersley, 1954, Audy, 1954, 1957.
Genus type: *Grossia onychia* Womersley, 1954.
Distribution: South Australia.

This is a close genus to the preceding and to *Pteridopus*. Its scutum is very like that of *Nothotrombicula*, but does not possess an anteromedian nasus. In addition, the legs are much shorter and the tarsi — all proportions considered — are similar to those of classical trombiculids and definitely unconnected with those of *Pteridopus*.

Diagnosis: Scutum trapezoidal, densely punctate without nasus, but with rounded anterior shoulders, four barbed setae and two sensillae bearing almost inconspicuous but numerous ciliae. Paired eyes on a sclerite on each side of the scutum. Legs all seven-segmented, fsp = 7.7.7; coxal setae, fCx = 2.1.1; intercoxal, or sternal setae, fSt = 0.2. Urstigma well developed between the contiguous anterior and mid coxae. Lassenia organ not visible. Chelobase bulbous, strongly sclerotized; chelostyle abundantly dentate on its edges, as well as on its outer surface (verrucose aspect). Gnathobasal and anterior leg supracoxalae spinelike. Galeala (= protorostral) present. Deutorostral (velum seta) also present and spiniform (Plate B, Fig. 1). Tritorostral (or gnathobasal setae) nude and tapering. Odontus (or palpotibial claw) very powerful and deeply divided into three big and sharply tapering claws. Palpotarsus contorted, with a strong clawlike seta emerging from its dorsum (C); five slender/feathered setae and two apical nude/tapering terminalae; the solenidion is basal. Palpotarsal formula, fT = 5B.C.2T (instead of 6B.2T in *Nothotrombicula* and 7B.2T in *Pteridopus*).

Special nude and barbed setation of legs similar to those of *Nothotrombicula*, in number and disposition. Here also, the lack of classical leg genualae — as in *Nothotrombicula* — is remarkable and definitely separates the two genera from *Pteridopus* where there is always one genuala on each leg. Barbed leg setae as tabulated (L. S. T.).

Body setae few in number, inserted on round or oval platelets. Uropore between two sclerites, each bearing a pair of barbed setae. Synthetic Identification Formula, SIF = 5B.C.2T-B-3-0001.0000. Parasitic on arthropods.

Grossia onychia (Plate B, Figs. 1—6)

Grossia onychia Womersley, 1954, Audy, 1954, 1957.

a) **Ecological data:** Found parasitizing another mite, an adult of the Trombellinae subfamily: *Chyzeria australiensis* Hirst, 1928, collected by G. F. Gross from Ottway Ranges, Victoria (South Australia).

b) **Taxonomical data:**

SIF = 5B.C.2T-B-3-0001.0000
fCx = 2.1.1
pST = N (22μ)
fSc = AL > PL Ip = 1648
fD = 6.6.6.6.2 = 26

fPp = (B)-(B)-(N).N.N
fSt = 0.2
PT^1 = N (30μ)
Gr = 48μ Ch = 48μ
fV = 4.4.2u4.2.2 = 18

fsp = 7/7/7
ST = N (52μ)
PT^2 = N (28μ)
Ga = 37μ
NDV = 44

B. *Grossia onychia*

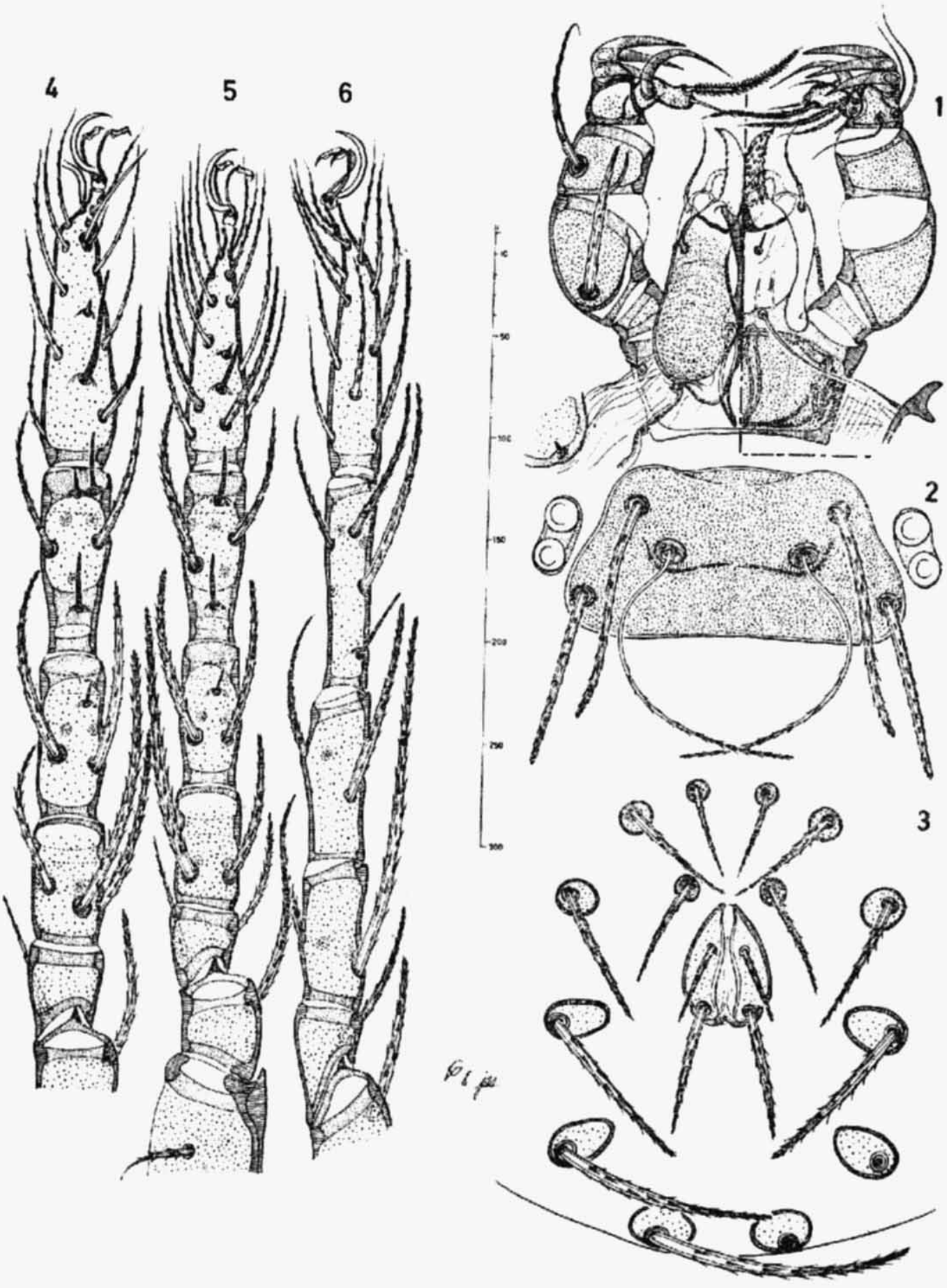

Fig. 2.

Measurements of the holotype (given classically as for trombiculid larvae):

AW	PW	SB	ASB	PSB	SD	AP	AL	PL	S	D
97	149	65	42	42	84	50	110	88	162	102/174

P	V	pa	pm	pp	lp	T_1	T_2	T_3
136	46/104	542	522	584	1648	146	128	140

L. S. T.	a	m	p
T	34	31	25
t	6	6	6
G	4	4	4
F	6	6	5

c) **Diagnosis:** According to its lp = 1648, it is a large species. Coxal setae short and thick, carrot-shaped (41 × 3μ). Uroporal sclerites (60 × 18μ), bearing two setae (40 and 65μ, the posterior being twice as thick as the anterior). Subterminala much thicker and longer (52μ) than the parasubterminala (22μ). Solenidion, S_1 = 56μ, much longer than S_2 = 24μ; microspurs or famuli in front of the solenidion (8μ long). Anterior and mid leg tibialae, apical, 29μ, basal, 27μ. Anterior microtibiala, 12μ. Posterior leg tibiala basal, 36μ. Anterior and mid microgenualae, 21μ. In addition to the galeala, or ciliated protorostral (37μ), and the long, tapering tritorostral, or gnathobasal seta (64μ), there is a pair of spiniform deutorostral, or velum setae (9μ). Odontus (palpotibial claw) deeply divided into three sharply pointed and big claws. Palpotarsus with its dorsal sub-basal seta modified in a thick, clawlike process (68μ × 5μ at its base). Palpotarsal solenidion, S_0 = 15μ and the two terminalae, 20 and 24μ. Gnathobasal supracoxal, 10μ and anterior leg supracoxal, 8μ, both spiniform. Ordinary leg setae as tabulated (L. S. T.).

3 — GENUS *PTERIDOPUS*

Pteridopus Newell and Vercammen-Grandjean, 1964, Vercammen-Grandjean, Watkins and Beck 1965.
Genus type: *Pteridopus auditor* Newell and Vercammen-Grandjean, 1964.
Distribution: Africa (Rhodesia, Angola).

For comparison with the two preceding genera, it is useful to have here a short revision of *Pteridopus*. This remarkable genus was created for two species. Their scutum possesses a "nasus" and two pairs of sensillae, in addition to two pairs of thick lateral setae. They also have considerable elongated and tapering posterior tarsi, on the dorsum of which, like a crest, is a row of 14 very long, feathered setae (250μ).

Diagnosis: Scutum trapezoidal, densely punctate, with a pointed or round nasus, and rounded anterior shoulders, four thick spiculated setae, and two pairs of ciliated sensillae. On both sides of the scutum are paired corneae on kidney-shaped sclerites. Legs all seven-segmented, fsp = 7.7.7; coxal setae, fCx = 2.1.1; intercoxal, or sternal setae, fSt = 0.2. Well-developed urstigma between the contiguous anterior and mid coxae. Lassenia visible on *P. auditor*; not recorded on *P. pseudhannemania*. One supracoxala each on gnathobase and anterior coxa. Galeala (protorostral), nude or ciliated. Gnathobasal seta (tritorostral) present. No deutrostral visible. Chelobase only half as long as wide; chelostyle, or blade, abundantly dentate on its edges, as well as on its outer surface (verrucose aspect). Bifid odontus. Palpotarsus very elongated, with seven feathered, long and more or less tapering setae; two nude tarsalae (2T) and a solenidion inserted ventrally and separated from the base by two branched setae; palpotarsal formula, fT = 7B.2T. Special nude setae of legs similar to those of the two preceding genera in aspect as well as in disposition; although one nude genuala is present on each leg (none in *Nothotrombicula* and *Grossia*, as seen above.).

Leg tarsi considerably elongated and, at their basal third, they suddenly narrow and continue to taper and curve on their apical two-thirds. The posterior tarsus is particularly long (over 1000μ) and possesses a dorsal row of 14 long, feathered setae, 240—260μ long). The base of these setae shows a weak ring of interrupted actinochitin constituting a "zone of fracture."*) The leg claws are similar to those of the two preceding genera, although the apex of the empodium also flattened and divided. Synthetic Identification Formula, SIF = 7B.2T-B-2-1111.0000. Parasitic on acridids.

Pteridopus pseudhannemania (Plate C, Figs. 1—8)

Pteridopus pseudhannemania Newell and Vercammen-Grandjean, 1964, Vercammen-Grandjean, Watkins and Beck, 1965.

a) **Ecological data:** Found free, dwelling in forest soil in Furi, Dundo (Angola). One specimen collected by Dr. Barros Machado in January 1948.

b) **Taxonomical data:**

SIF = 7B.2T-B-2-1111.0000
fCx = 2.1.1
pST = N (14μ)
fSe = AL ⩾ PL Ip = 2456
fD = 6.6.6.4.4.2 = 28

fPp = (B)-(B)-(B).B.B
fSt = 0.2
PT¹ = N (14μ)
Gr = 34μ Ch = 83μ
fV = 4.4.4.4u8.8.4 = 36

fsp = 7/7/7
ST = N (28μ)
PT² = N (14μ)
Ga = B (50μ)
NDV = 64

Comparative measurents of the single specimen (*P.p*) with those of *Nothotrombicula deinacridae* (*N.d.*), *Grossia onychia* (*G.o.*) and *Polydiscia squamata* (*P.s.*):

	AW	PW	SB	ASB	PSB	SD	AP	AL	PL	S	D
P.p.	102	170	20/42	96	60	156	84	176	68	92/156	106/110
N.d.	102	158	45	50	47	97	60	78	86	187	93/126
G.o.	97	149	65	42	42	84	50	110	88	162	102/174
P.s.	39	46	14/15	27	40	67	33	38	50	54/66	44/49

	L. S. T.		
	a	m	p
T	57	51	63
t	8	8	8
G	4	4	4
F	6	6	6

	P	V	pa	pm	pp	Ip	T_1	T_2	T_3	Nasus l/w
P.p.	46	40/55	774	704	1008	2456	260	248	462	24/30
N.d.	132	74/128	761	694	785	2240	240	210	231	56/29
G.o.	136	46/104	542	522	584	1648	146	128	140	—/—
P.s.	30	30/42	268	258	274	800	66	64	60	—/—

c) **Diagnosis:** According to its Ip = 2456, it is a gigantic species. Palpotarsus rather long (48μ) and narrow (11μ near base). On its outer side one can see two very elongated, slender and feathered setae (52μ), one nude subterminal tarsala (18μ), and the usual solenidion (18μ) separated from the base by two feathered setae (56μ); on its inner side are three bushy setae (24—36μ) and a nude tarsala (15μ) inserted not far from the base; fT = 7B.2T. Chelostyle typical, with its external surface verrucose. Galeala sparsely ciliated, Ga = 50μ. Tritorostrals long (88μ) and feathered. Palpal pilous formula, fPp = (B)-(B)-(B).B.B; the barbed femorala being thicker and stiff, while the others are more or less ciliated or feathered. Uropore opening between two

*) In their extensive revision of *Whartonia glenni* (1965), Vercammen-Grandjean, Watkins and Beck noticed the analogy of the weakened area in the flexure of the mastitarsala of that chigger with that of *Pteridopus*. They suggest the possibility of the wreckage of the useless seta, once the mite has reached its host and parasitope, possibly by sympathetic vibration and rupture of the zone of fragility.

C. *Pteridopus pseudhannemania*

Fig. 3.

sclerites (36×14μ), bearing paired setae (42 and 38μ). Body setae on round platelets (17 to 30μ diameter). Anterior leg supracoxal spine, 11μ; the gnathobasal one could not be seen, although it more than likely exists. Subterminala twice as thick and long (26μ) as parasubterminala (13μ). Solenidia, $S_1 = 36\mu$, with its famulus spine (5μ) located 14μ anterior to it; solenidion $S_2 = 38\mu$, its 4μ famulus inserted 26μ distal to it. Anterior and mid leg tibia with dorso-apical tibiala = 24μ and basal tibiala = = 27μ. Dorso-apical microspur of anterior tibia and of anterior and mid genu, 12μ each. Posterior tibiala, 36μ. The three leg genu, each with one genuala (28μ). Near the small pretarsus on anterior and mid tarsus is one nude pretarsala 30μ long. Apex of the empodium flattened and divided into two beaks; the two lateral claws being foliate at their extremities, as is the preceding species (Fig. 7). The two anterior coxal setae almost subequal (90—100μ), longer than that on the mid coxa (74μ), and twice as long as that on the posterior coxa (46μ); all four densely barbed. The 16 long, feathered setae on tarsus and tibia of posterior leg are obviously autotromized and their aspect is unknown; they can only be estimated by analogy and contemplation of that of *P. auditor*. See leg tabulation (L. S. T.).

b – SUBFAMILY POLYDISCINAE NOV.

The study of two specimens showed that Newell's claim for *Polydiscia* as a genus to be placed among the Johnstonianidae is well-founded, although, in our opinion and from what can be seen in the diagnosis given hereafter, the genus *Polydiscia* should be placed in a subfamily close to, but different from Lassenidae regarding the three following, unusual features:

1. The palpotibial claw is limited in size and resembles the closest dorsal and nude palpotibial seta, leaving the place for the palpotarsus as a real terminal segment, conical and important in size.

2. The mid leg tarsus, like the anterior, possesses a subterminala and a parasubterminala.

3. The tabulation of leg setae is very much like that of certain water mites (see p. 250, *P. squamata*, and compare with *Piersigia limophila*, Thyasinae and other Hydryphantinae).

Those characters seem to imply a high ancestry to this genus, as does the peculiar shape and ornamentation of its scutum, which interestingly links the Lasseninae to the Hydryphantidae.

Subfamily type: *Polydiscia squamata* Methlagl, 1928.
Distribution: Europe.

Diagnosis: Scutum punctate, with two pairs of sensillae and two pairs of lateral branched setae, and shaped like that of certain members of the Lasseninae subfamily and also like several members of the superfamily Hydryphantae (Hydrancllae). Paired eyes on large platelets. Large and conical palpotarsus situated terminally on the palpotibia, the tibial claw being like a thick, nude seta (Plate D, Fig. 1).

Special nude and barbed setae of legs very similar to those of the other Lasseninae described here, but with extra subterminala and parasubterminala on mid leg tarsus. Two genualae on anterior leg, one on each mid and posterior leg. Leg empodia sicklelike and thin, the two lateral claws being divided into two foliate appendages (Fig. 4). Large urstigma between the contiguous anterior and mid leg coxae. Uropore opening in a platelet bearing a pair of barbed setae (Fig. 5). Few body setae, all inserted in large platelets. Palpal pilous number, NPp = 1.1.3 (not 1.2.3 as in water mites).

4 — GENUS *POLYDISCIA* COMB. NOV.

Polydiscia Methlagl, 1928, Thor, 1935, Toldt, 1936a, b, 1951, Womersley, 1937, Vitzthum, 1943, Thor and Willmann, 1947, Baker and Wharton, 1952, Newell, 1957.
Genus type: *Polydiscia squamata* Methlagl, 1928.
Distribution: Europe

Diagnosis: Scutum roughly trapezoidal, densely punctate with no nasus, with lateral margins deeply concave, anterior and posterior margins slightly convex in the middle; four barbed setae and two pairs of sensillae. Paired eyes on an oval sclerite. Legs all seven-segmented, fsp = 7.7.7. The two pairs of sternal setae are incorporated on their respective neighboring coxae, fSt = 0.0 and fCx = 2.1.2. Anterior and mid leg tarsi identical in possessing solenidion, famulus, subterminala, parasubterminala and pretarsala. Posterior tarsus without nude setae. Nude genualae present. *Lassenia* organ absent. Two supracoxal spines on gnathobase. Protorostrals present. Deutorostrals present. No tritorostrals. Palpotibia bearing two thick spiniform dorsal setae, and two nude, thin and short ventrals; the most apical of the two dorsal spines is to be considered as the palpal claw. NPp = 1.1.3. Synthetic Identification Formula, SIF = 5B.2T-N-1-2111.0000. Ordinary leg setae (L. S. T.).

Polydiscia squamata (Plate D, Figs. 1—5)

Polydiscia squamata Methlagl, 1928, Thor, 1935, Toldt, 1936a, b, 1951, Vitzthum, 1943, Thor and Willmann, 1947, Baker and Wharton, 1952, Newell, 1957.

a) **Ecological data:** Collected free-living in vacant lot, near Vienna (Austria). Two specimens were studied, of which one is declared "lectotype", the other paratype (PT).

b) **Taxonomical data:**

SIF = 5B.2T-N-1-2111.0000		fPp = (B)-(B)-(N).N.N	fsp = 7/7/7
fCx = 2.1.2	fSt = 0.0	ST_1 = N (34μ)	ST_2 = 30μ
pST_1 = 15μ	pST_2 = 14μ	PT^1 = 18μ	PT^2 = 18μ
fSe = PL > AL	Gr = 24μ	Ch = 12μ	Ga = 14μ
fD = 4.4.4.4.2 = 18		$fV = 2.2.^2_u.2 = 8$	NDV = 26

Measurements of paratype and lectotype:

	AW	PW	SB	ASB	PSB	SB	AP	AL	PL	S
PT:	39	46	14/15	27	40	67	33	38	50	54/66
Lect.:	48	46	14/18	28	38	66	33	40	44	58/68

	D	P	V	pa	pm	pp	Ip	T_1	T_2	T_3
PT:	44/49	30	30/42	268	258	274	800	66	64	60
Lect.:	44/50	36	30/40	252	232	258	742	64	63	58

L. S. T.	a	m	p
T	21	21	20
t	9	9	9
G	4	4	4
F	6	7	6

c) **Diagnosis:** According to its Ip = 742—800, this is a medium-sized larva. Conical palpotarsus well-developed (18μ long; diameter at the base, 9μ) with six barbed setae, a long, thick and nude tarsala at the apex (25μ) and a smaller subterminala (16μ), the basal solenidion, S_0 = 15μ. The deutorostral is a short and thick seta (10μ). Femur and genu of palpus each with one dorsal branched seta; palpal pilous formula, fPp = (B)-(B)-(N).N.N. Strong, oblong chelobase bearing a small, sharply curved chelostyle (12μ). Anterior leg tarsus with a solenidion, S_1 = 27μ, a famulus, f_1 = 5μ.

D. *Polydiscia squamata*

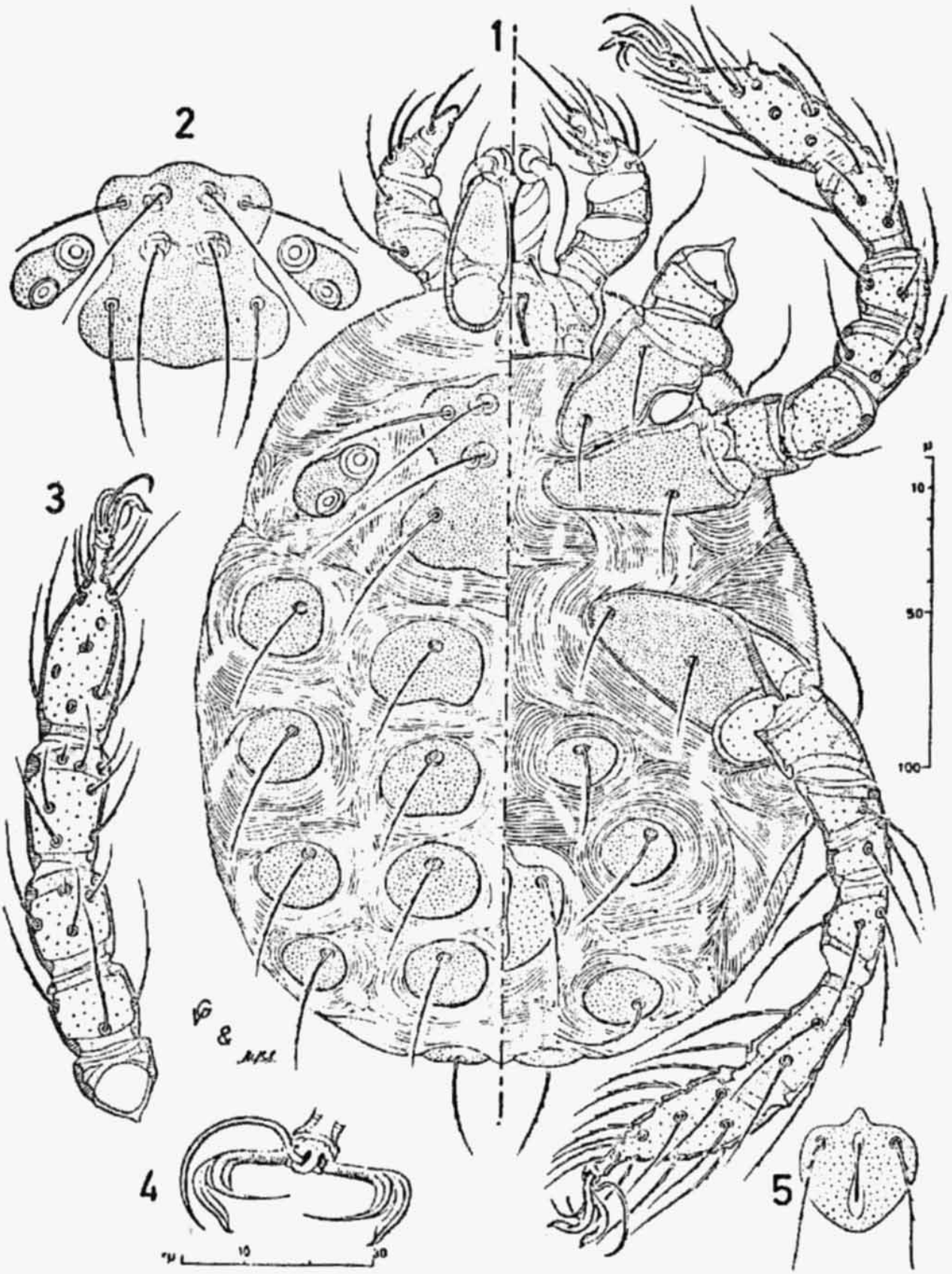

Fig. 4.

a subterminala, $ST_1 = 34\mu$, and a parasubterminala, $pST_1 = 15\mu$. Mid leg tarsus with $S_2 = 20\mu$, $f_2 = 4\mu$, $ST_2 = 30\mu$ and $pST_2 = 14\mu$. Anterior leg tibia with two tibialae (20μ) and a microspur (5μ); mid tibia with two tibialae (20μ). Genualae, 2 ga = 21μ plus a microspur (5μ), 1 gm = 24μ plus a microspur (5μ), and 1 gp = 18μ. On the coxae all the setae are nude and tapering. Body setae few in number (about 26), all arising from large platelets (diam. 22 to 34μ). Uropore in the middle of a sclerotized shield ($40 \times 36\mu$) with two anterolateral, long, tapering and sparsely barbed setae (42μ). All the sclerotized shields and platelets coarsely porose. Gnathobase more or less rectangular in shape, as in *Nothotrombicula* and *Grossia;* bearing a pair of supracoxal spines. Leg tabulation (L. S. T.).

II — FAMILY TROMBIDIIDAE LEACH, 1815

a — SUBFAMILY TROMBELLINAE THOR, 1935

There is a great deal of resemblance between the larvae of certain Trombellinae and those of Neotrombidinae (see p. 244). Larvae pertaining to the genera *Durenia* Vercammen-Grandjean, 1955 and *Womersleyia* Radford, 1946 (Trombellinae) possess in common several characters that are also shared by larvae of the genera *Monunguis* and *Neotrombidium* (Neotrombidinae); for instance: 1 — Scutal shape, ornamentation, and eyes. 2 — Rostrum with squared gnathobase, bifid palpotibial claws and recurved chelostyles. 3 — More or less tapering leg tarsi, without subterminalae and parasubterminalae, but with solenidia, S_1 and S_2, and their respective famulus. 4 — Tibialae: anterior leg, two nude + microspur; mid leg, two nude; posterior leg, one nude or a so-, lenidion. 5 — Genualae: two or more nude setae on anterior leg, one or more on mid and one or more on posterior leg. 6 — Femoralae: two or more on each leg. 7 — Leg segmentation: 7.6.6, or 6.6.6. 8 — Palpotarsal formulae, fT = 7B, 6B.2T, or 5B.3T.

The main differences are:

Neotrombidinae	Trombellinae
1. a single claw on each leg.	1. a single but trifurcate claw on each anterior and mid leg, two claws on posterior leg tarsus.
2. one dorso-apical microspur on each anterior and mid genu.	2. no microspurs on anterior and mid genu.
3. almond-shaped urstigma between contiguous anterior and mid coxae.	3. round urstigma between contiguous anterior and mic coxae.
4. mosaic-screening on coxae corner.	4. uniform porosity on coxae.

5 — GENUS *WOMERSLEYIA* COMB. NOV.

Womersleyia Radford, 1946, Baker and Wharton, 1952, Audy, 1954, 1957, Womersley, 1954 Robaux, 1969.
Genus type: *Womersleyia minuta* Radford, 1946.
Distribution: Maldive Islands (India).

Womersleyia minuta definitely belongs to the subfamily Trombellinae, near *Durenia* Vercammen-Grandjean, 1955, from which it differs only by its distinctive scutal shape and the presence of an extraordinary elongate solenidion on the posterior leg tibia, in the place of the usual nude tibiala (tp).

Diagnosis: Scutum with anterior shoulders — noticeably different from the hastate scutum of *Durenia* — with a protruded anteromedian nasus, more or less globose,

bearing two setae; plus two anterolateral and two posterolateral barbed setae and a pair of sensillae. Paired eyes. Strong palpi with terminal bifid palpotibial claw. Palpotarsus conical, fT = 7B. Protorostral setae (galealae) and tritorostral setae present; no deutorostrals. Curved chelostyle stronger than in *Durenia*. Gnathobase squared. All legs six-segmented, fsp = 6.6.6; the anterior and median subequal, the posterior the longest. Medium-sized, round urstigma between noncontiguous anterior and mid coxae. Leg tarsi characteristically pyriform (as in *Durenia*); with a short, nude and ventro-apical pretarsus on each anterior and mid tarsi, and single, terminal claw with trifurcate apex on the same two tarsi; the posterior tarsus possessing a pair of subequal, sickle-shaped claws. Anterior tarsus without subterminala and parasub, terminala; one solenidion, S_1, and its famulus; mid tarsus also with one solenidion-S_2, and a famulus. No nude setae on posterior leg tarsus. Anterior and mid tibiae with a pair of nude tibialae and one dorso-apical microspur on the anterior one. In the place usually taken by the nude tibiala on the posterior leg (in *Durenia*), there is a long solenidion. No dorso-apical microspurs on the genuala but at least one nude genuala on each. Also, at least one pair of nude femorala on the dorsum of each femur. Anterosternal seta on the base of the anterior coxa; posterosternal seta free; fCx = 2.2.1 and fSt = 0.2. Synthetic Identification Formula,

$$SIF = 7B\text{-}B\text{-}2\text{-}6111.0002\ \begin{matrix}4\\2\end{matrix}$$

Parasitic on acridids.

Womersleyia minuta (Plate E, Figs. 1—6)

Womersleyia minuta Radford, 1946, Baker and Wharton, 1952, Audy, 1954, 1957, Womersley, 1954.

a) **Ecological data:** Under the wings of Acrididae, Tetrigidae and Tettigoniidae (grasshoppers), but originally collected on 20 December 1944 from mud in a pandanus swamp on Gan Island, Addu Attol, in the Maldive Islands.

b) **Taxonomical data:**

$SIF = 7B\text{-}B\text{-}2\text{-}6111.0002\ \begin{matrix}4\\2\end{matrix}$ fPp = (B)-(B)-(B).B.B fsp = 6/6/6

fCx = 2.1.1 fSt = 0.2 ST = 0 pST = 0

PT^1 = N (7μ) PT^2 = N (7μ) fSc = PL = AM > AL

Ip = 560 Gr = 10μ Ch = 16μ Ga = 12μ

fD = 6.6.6.4.2 = 24 $fV = 6.6.\underset{u}{\overset{4}{}}.2 = 18$ NDV = 42

Measurements of one paratype:

AA	AW	PW	SB	ASB	PSB	SD	AM	AL	PL	S	H
7	34	54	28	24	25	49	17	16	17	38	—

D	P	V	pa	pm	pp	Ip	T_1	T_2	T_3	Nasus
										l/w
32/36	30	18/28	178	174	208	560	59	54	63	14/12

L. S. T.	a	m	p
T	28	24	22
t	7	6	6
G	4	4	4
F	6	6	6

c) **Diagnosis:** According to its Ip = 560, this is a small species. Scutum punctate with shoulders and a small, globose nasus (l = 14μ, w = 12μ); bearing six barbed setae, stout but pointed, the AL thicker than the AM, which is thicker than the PL. Sensillae with basal 18μ nude and apical 20μ bearing about 16 branches (Fig. 2). Paired eyes (diam. 8μ) on eight-shaped sclerite. Body setae thick and pointed, strongly barbed (Fig. 6). Rostrum with curved chelostyle (16μ) on a bulbous chelobase (32×20μ);

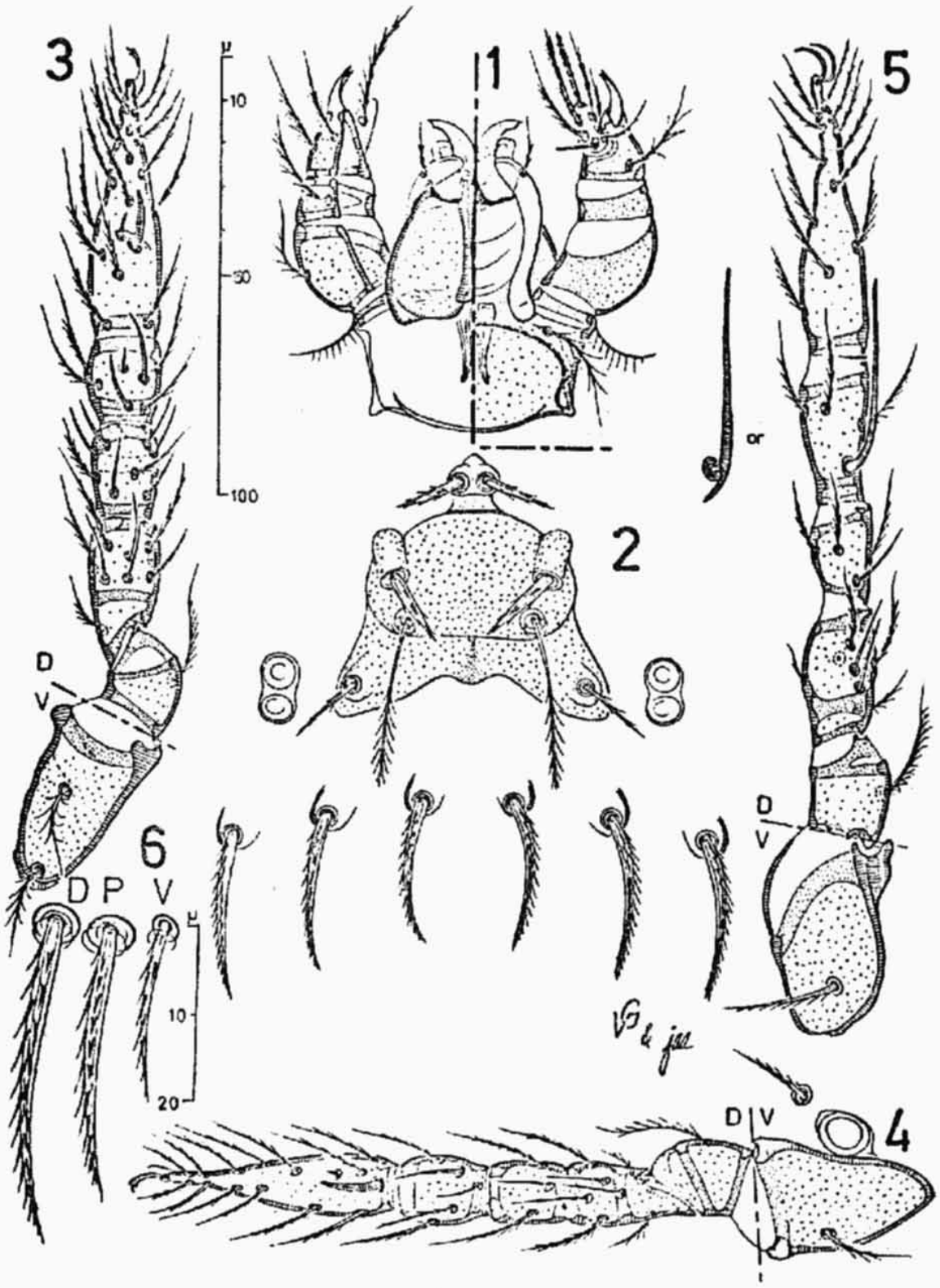

Fig. 5.

galeala (protorostral) with few barbs. All palpal setae branched. Palpotarsus formula, fT = 7B, basal solendion, 9μ. Bifid palpotibial claw, prongs subequal. Solenidia, $S_1 - S_2 = 13\mu$. Anterior and mid nude leg tibialae, 15μ, posterior tibiala on both anterior and mid leg (12μ). Microspur (6μ) on tibia of anterior leg. Posterior leg tibiala, long, slender solenidion with a posterior process, like the counterbalance of a clock wire, solendion 42 to 50μ long, process 9 to 19μ, sometimes missing (Fig. 5). Anterior genu with six nude genualae (12μ); mid and posterior genu each with one genuala. There is no dorso-apical microspur on any genu. Anterior femur with four nude femoralae (14μ); mid and posterior, each with two femoralae (18—14μ). The leg setation as tabulated (L. S. T.).

6 — GENUS *AUDYANA*

Audyana Womersley, 1954, Audy, 1954, 1957, Robaux, 1969.
Genus type: *Audyana thompsoni* Womersley, 1954.
Distribution: Malaysia.

The morphology of the generotype species of this genus is much different from that of *Durenia* and *Womersleyia*, so much so that it appears doubtful that they pertain to the same subfamily. The scutum is tremendously different and differently adorned; the rostrum is unusual, and the legs are armed with claws which do not correspond to those of the other members of the family. The femur on the anterior leg is divided into telo- and basifemur, neither of which bears any dorsal, nude femoralae; but, instead, there are two tibialae on the posterior leg. The anterior and mid genu are provided dorsally with microspurs and, on tarsus I, there is a parasubterminala (absent in *Durenia* and *Womersleyia*).

Nevertheless, until more is known about the larval stages of the Trombellinae this genus will be left under its present status.

Diagnosis: Scutum shaped like that of certain Leeuwenhoekidae and Trombiculidae, with six pairs of setae and two sensillae. Palpi small by comparison with the large chelobase bearing a rather long chelostyle (Pl. F, Fig. 1). Palpotarsus with seven branched setae, fT = 7B. Palpal claw with four short prongs. Leg segmentation, fsp = = 7.6.6. Anterior sternal setae both on the base of the anterior coxae, fCx = 2.1.1 and fSt = 0.2. Small urstigma attached to the anterior coxa, noncontiguous with the mid. The small pretarsala of each leg bears a strong falciform empodium and the outer claw — the inner being missing — with a foliate apex resembling very much that of the four Lasseninae studied above (Figs. 3—5). On anterior leg tarsus is a strong subterminala (24μ), no parasubterminala. Solenidia S_1 and S_2 present, with their respective famulus. Two tibialae on each leg; anterior tibia with a dorso-apical microspur. Anterior and mid genu each with a dorso-apical microspur. Genualae, respectively, 2.1.1 in number. Few body setae. Index pedibus (Ip) corresponding to a medium-sized animal. SIF = 7B-B-4-2112.0000. Parasitic on arthropods.

Audyana thompsoni (Plate F, Figs. 1—6)

Audyana thompsoni Womersley, 1954, Audy, 1954, 1957, Robaux, 1969.

a) **Ecological data**: Found on the venter of the common giant black scorpion, *Heterometrus longimanus*, collected by J. R. Audy, near Pahang Road, Ulu Bomback Forest Reserve, Selangor Malaysia, on 14 April 1948.

F. *Audyana thompsoni*

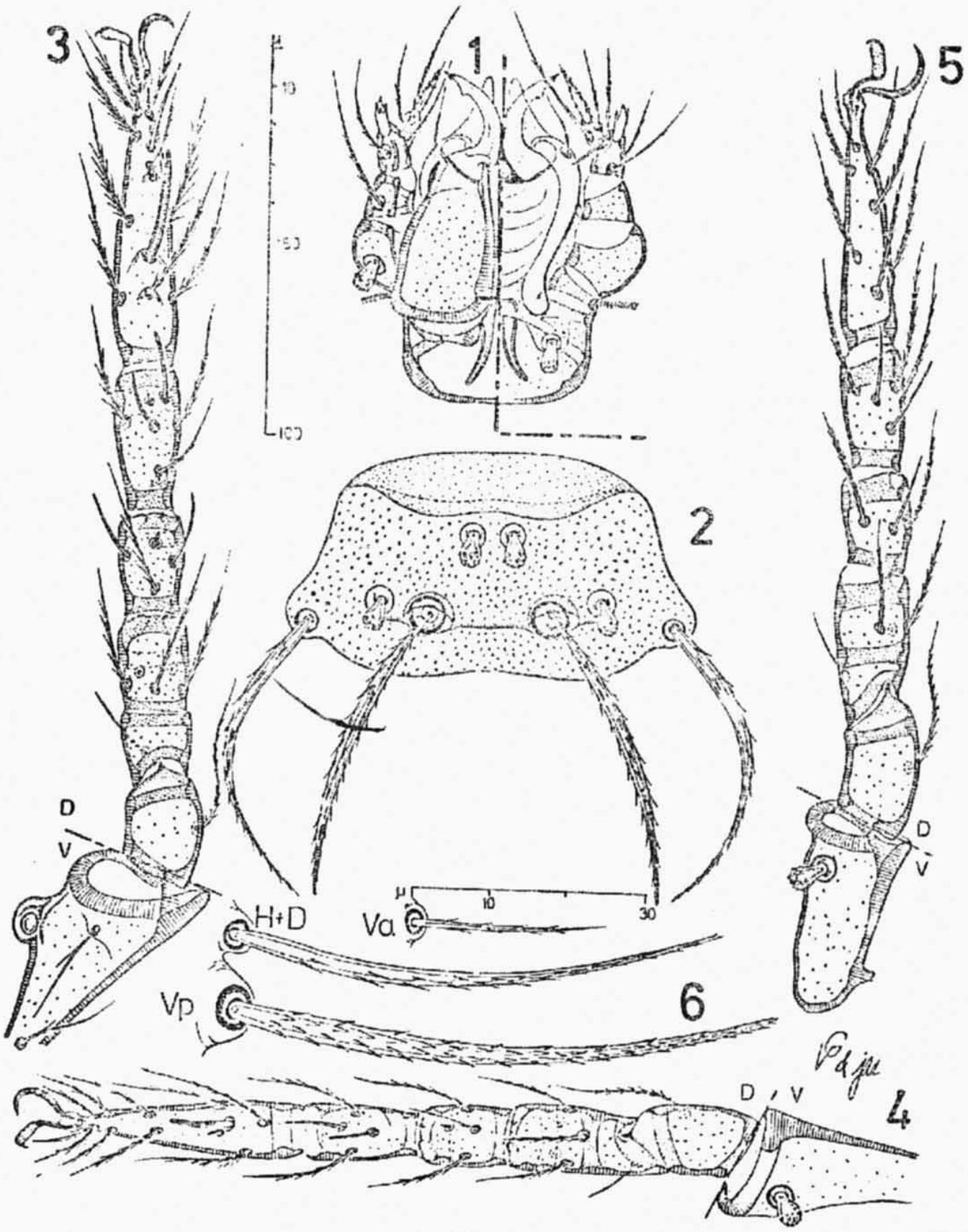

Fig. 6.

b) **Taxonomical data:**

SIF = 7B-B-4-2112.0000	fPp = (C)-(B)-(B).B.B*		fsp = 7/6/6	L. S. T.
fCx = 2.1.1	fSt = 0.2	ST = N (24μ)	pST = 0	a m p
PT^1 = N (13μ)	PT^2 = N (13μ)	fSc = PL >>> AM = AL		T 22 16 15
Ip = 743	Gr = 10μ	Ch = 28μ	Ga = 19μ	t 8 6 6
fD = 2H + 6.6.4.4.2 = 24		fV = 4.4u4.2 = 14	NDV = 38	G 4 4 4
				F 6 6 4

N.B.: In the formula fPp, the (C) on femorala stands for "cauliform". There are in fact six pairs of such buds — shaped like "Brussels sprouts" — dispersed on the body of *A. thompsoni:* the AM and AL on scutum, the palpofemoral seta, the gnathobasal setae (or tritorostral) and the coxalae, mid and posterior (see Figs. 1, 2, 4, and 5).

Measurements of one paratype, 4245:

AA	AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	S	H
11	56	95	32	32	17	49	22	9	9	85	80	66

D	P	V	pa	pm	pp	Ip	T_1	T_2	T_3
68/65	66	24/70	271	228	224	743	78	63	67

c) **Diagnosis:** According to its Ip = 743, this species is of medium size. The uniformly porous scutum shaped like that of some *Whartonia* and *Leptotrombidium*. The paired AM are cauliform and so are the two AL, which are located near the two pseudostigmae; the PL is almost ten times as long as AM and AL, and so are the two swollen and barbed sensillae. There are no corneae or eye pigmentation around the scutum. The palpi are short and their setae all barbed, fPp = (C)-(B)-(B).B.B and fT = 7B; its basal solenidion measuring 10μ, and the terminal seta being thick, rootlike and densely spiculated. Short palpotibial claw provided with four small prongs. Chelobases proportionally voluminous (50μ long × 28μ diam.) bearing elongated chelostyle (28μ) with a dorso-subapical hook. Galeala (or protorostral seta) with few, thick ciliae. Cauliform tritorostral. Legs as described under the genus diagnosis; in addition, the subterminala is 24μ long and the solenidion, S_1 = 28μ, almost twice as long as S_2 = 16μ. The famuli, f_1 and f_2, both 4μ; f_1, far distal to S_1, f_2 distal but near S_2. Dorso-apical microspurs on anterior tibia and genu and on mid genu. Two nude tibialae on each leg (12—21μ). Two genualae (19μ) in anterior leg and one on each mid (19μ) and posterior (21μ) leg. The ventro-proximal seta of each femur is nude. Barbed setae as shown in the table (L. S. T.). Body setae rather long and thick (Fig. 6).

b — SUBFAMILY NEOTROMBIDINAE FEIDER, 1955

7 — GENUS *NEOTROMBIDIUM*

Trombidium Berlese, 1888.
Neotrombidium Leonardi, 1901, Berlese, 1912, Hirst, 1928, 1929, Womersley, 1934, 1936, 1937, 1937, 1954, Thor, 1935, 1936, Vitzthum, 1943, Thor and Willmann, 1947, Baker and Wharton, 1952, Southcott, 1954, 1957, Feider, 1955, Borland, 1956.
Cockingsia Womersley, 1954, Audy, 1954, Southcott, 1957, Daniel, 1963, Robaux, 1969,
not *Neotrombidium*, Oudemans, 1929 (= *Valgothrombium* Willmann, 1940), not *Neothrombium* Oudemans, 1909.

Genus type: *Neotrombidium furcigerum* Leonardi, 1901.
Distribution: Worldwide.

In a preceding study, Vercammen-Grandjean and Lindquist (1971) restored a second genus, *Monunguis* Wharton, 1938, which was taken out of synonymy with

Neotrombidium. In addition, the subfamily Neotrombidinae Feider, 1955 was revised. Concerning the genus *Neotrombidium* itself, the number of known larvae in that same study was increased from five to eight species. *Neotrombidium tenuipes* was considered, although, to make the present paper complete we find it opportune to redescribe it.

Diagnosis: Scutum punctate with very prominent rounded nasus bearing two antero-median setae, AM, in addition to paired AL and PL, and two long nude or ciliate sensillae. Paired eyes each side of the scutum. Palpotarsal formulae, fT = 7B or 6B.2T. Few body setae (22 to 32). Two femoralae on each leg.*) Almond-shaped urstigma between the contiguous anterior and mid coxae. Leg segmentation, fsp = 7.6.6. Single apical claw at each leg tarsus. Mosaic-screening in corner of leg coxae. Strong palpi with bifid palpotibial claw. Pointed chelostyles sometimes with subapical hooks on the dorsal edge. Galeala (= protorostral seta) present; more or less long and branched deutorostral; no tritorostral. Anterosternal seta sometimes attached to the extreme basal point of the anterior coxa, posterosternal free, fSt = 0.2 or 2.2; coxal formula, fCx = 2.1.1 or 1.1.1. Only one nude pretarsala, on anterior tarsus, $PT^{\frac{2}{}} = 0$.

Synthetic Identification Formula, $SIF = 7B \text{ or } 6B.2T\text{-}N\text{-}\frac{2}{}\text{-}3111.\frac{2}{}0002$.

Neotrombidium tenuipes (Plate G, Figs. 1—7)

Cockingsia tenuipes Womersley, 1954, Audy, 1954, 1957, Daniel, 1963.
Neotrombidium tenuipes Southcott, 1957.

a) **Ecological data:** Collected by Dr. J. R. Audy from the wing of a giant longicorn beetle in Sungei Buloh, Selangor (Malaysia), 17 August 1948.

b) **Taxonomical data:**

$SIF = 6B.2T\text{-}N\text{-}\frac{2}{}\text{-}3111.\frac{2}{}0002$	$fPp = (B)\text{-}(B)\text{-}(N).N.N$		$fsp = 7/6/6$		L.	S.	T.
					a	m	p
$fCx = 1.1.1$	$fSt = 2.2$	$ST = 0$	$pST = 0$	T	21	15	15
$PT^1 = N\ (14\mu)$	$PT^2 = 0$	$fSe = AL > AM > PL$		t	8	6	6
$lp = 823$	$Gr = 21\mu$	$Ch = 23\mu$	$Ga = N\ (14\mu)$	G	4	4	3
$fD = 2H + 4.4.4.4 = 18$		$fV = 2.\frac{2}{u}.2.2.4.2 = 14$	$NDV = 32$	F	7	6	6

Measurements of one paratype:

AA	AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	S
13	14	66	40	42	22	64	36	30	32	22	86

H	D	P	V	pa	pm	pp	lp	T_1	T_2	T_3
30	25/31	31	20/41	266	267	290	823	70	66	76

c) **Diagnosis:** According to its lp = 823, this species is considered of medium size. Rounded nasus rather narrow by comparison with that of the other species (l = 18 μ, w = 16 μ). Front view of palpotibial claw looks like a "deer hoof" ("pied de biche" in French). Solenidia, S_1 and S_2, subequal (16 μ). Dorso-apical tibiala on anterior and mid leg and dorso-basal tibiala on the three legs almost equal in length (13—15 μ).

*) It is to be noted that the genera *Durenia* and *Womersleyia* also possess the not-so-common feature of nude femoralae on their three pairs of legs.

G. *Neotrombidium tenuipes*

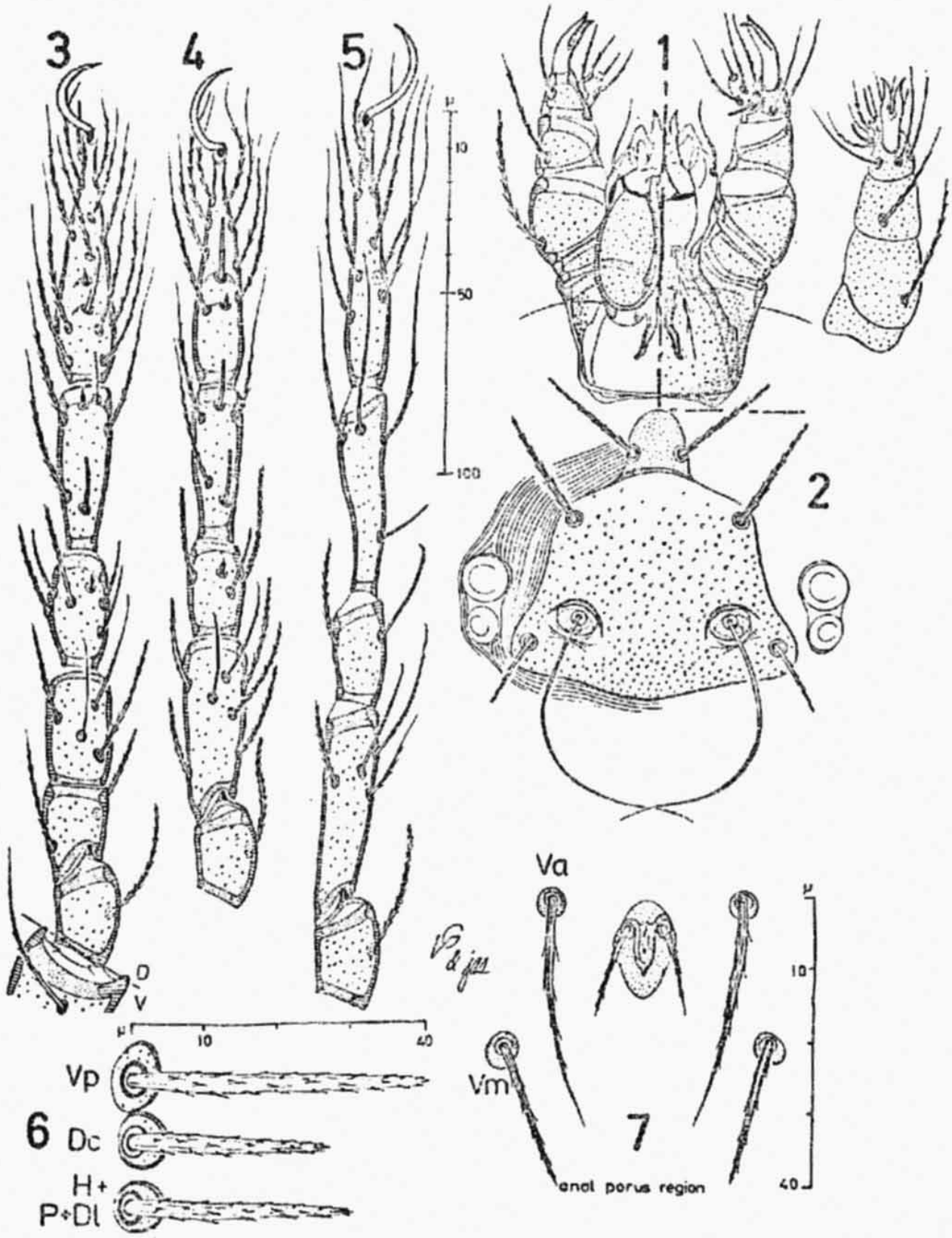

Fig. 7.

Dorso-apical microspur on tibia and genu of anterior leg and on genu of mid leg. Three genualae on anterior leg (20 μ); one each on mid (18 μ) and posterior (28 μ) legs. Paired femoralae on each leg (30 to 40 μ). Uropore in the middle of a little shield (26×17 μ), bearing two short barbed setae (25 μ). Body setae rather thick and spiculated, arising from small platelets (Fig. 6). Barbed setae as seen in table (L.S.T.).

B — SUPERFAMILY HYDRYPHANTAE VIETS, 1931
FAMILY HYDRYPHANTIDAE THOR, 1900
SUBFAMILY HYDRYPHANTINAE PIERSIG, 1896

8 — GENUS *HYDRYPHANTES*

Hydryphantes Koch, 1841, [in part.] 1842, Erichson, 1843, Grube, 1859, Koenike, 1892, 1893, 1909, 1910, Piersig, 1896, 1896/99,-1901, Thor, 1897, 1899, 1900a, b, 1901, 1902, 1926, Thon, 1899a, b, Soar, 1900, 1906, 1921, Daday, 1905, Viets, 1909, 1916, 1926a, b, 1928, 1931, 1935, 1936, 1953, Rominjn, 1916, Wesenberg, 1918, Soar and Williamson, 1925, Lundblad, 1927, 1936, 1941a, b, Motas, 1928, Sokolow, 1930, 1940, Oudemans, 1937, Besseling, 1941, 1947, Vitzthum, 1941, 1942, Marshall, 1946, Radford, 1950, Imamura, 1950, Angelier, 1953.
Hydrachna, Salensky, 1869.
Hydrodroma, Neuman, 1880, Haller, 1882, Barrois and Moniez, 1887, Schaub, 1888, Kramer, 1891, Piersig, 1892, Oudemans, 1898, Wolcott, 1905.
Diplodontus [in part.], Krendowskij, 1885.
Metahydryphantes Thor, 1929.
Genus type: *Hydryphantes hilaris* Koch, 1941.
Distribution: Europe, Africa, Asia and Australia.*)

In the illustration of the palpus of his *Mackerrasiella globus*, Womersley indicated only one seta on the palpogenu (Fig. E, p. 113). In reality, there are two, and this is one of the diagnostic features of the larval Hydrachnellae, the palposetal number being 1.2.3, instead of the 1.1.3 in a great deal of larval Trombidiformes.

Diagnosis: Scutum trapezoidal, incompletely sclerotized and presenting five sclerites or patches: a pair of anterior bearing the anterolateral (AL) and the first pseudostigma, a pair of posterior involving the posterolateral (PL), and the posterior pseudostigma — this one being reduced as is its sensilla —, finally, a central platelet bearing the scutal eye, or "scutocellus". In addition, two pairs of lateral eyes are on individual sclerites. Chelobase considerably developed with longitudinally corrugated surface and a basal apodeme characteristically sacculiform (Plate E, Fig. 1). Chelostyle of moderate size, sharply curved. Deeply fringed hypostomal membrane. Protorostral (galeala) and deutorostral (velum seta) present; no tritorostral. Odontus (palpotibial claw) bifid. Palpotarsal formula, fT = 7B.T. Solenidion S_0 situated distally to two basal barbed setae (Plate E, Fig. 1), and a nude tarsala. Legs all seven-segmented, fsp = 7.7.7. Coxal setae, fCx = 2.1.1, intercoxal setae or sternals, fSt = 0.0. Urstigma between the contiguous anterior and mid coxae.

Special nude and barbed setae of legs like those of leeuwenhoekids, except for the subterminala (ST) and parasubterminala (pST) of anterior leg tarsus, which are generally absent from the hydryphantids. Dorso-apical microspurs on anterior tibia

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*) Only one species is known from Australia: *Hydryphantes* (*Polyhydryphantes*) *microphallus* Lundblad, 1941. The following, *Hydryphantes globus*, could be the larval form of that species known only from its adult and nymphal stages. Until further correlation, the specific name of *globus* Womersley will be maintained.

and genu and on mid genu, sometimes considerably developed; almost as long as the tibialae and genuala (Plate H, Fig. 3). Pretarsala present on famuli. On the three legs the dorsal nude tibialae are situated backwards near the base of the tibiae. One nude genuala on each leg. On each leg, the small pretarsus bears a strong, sickle-shaped empodial claw, and — as in numerous Hydrachnellae — the two lateral claws are modified into flexible and nude setae.

Body setae few in number. Uropore opening in a pyriform sclerite bearing two setae. Palpal pilous number, 1.2.3 (a classical figure for water mite larvae; 1.1.3 being customary in most Trombidiformes). Index pedibus, Ip = 640 to 720, indicates medium-sized larvae. Synthetic Identification Formula, SIF = 7B.T-N-2-1111.0000. Parasitic on water-borne arthropods.

***Hydryphantes globus* comb. nov.** (Plate H, Figs. 1—7)

Mackerrasiella globus Womersley, 1954.

Hydryphantes globus (Womersley, 1954) comb. nov.

a) **Ecological data**: On a Dolichopodidae*) found in a light trap in Merbein, Victoria (Australia), 2 December 1951 by Mrs. G. M. Mackerras.

b) **Taxonomical data:**

SIF = 7B.T-N-2-1111.0000	fPp = (B)-(N).B-(N).N. N	fsp = 7/7/7
fCx = 2.1.1	fSt = 0.0	ST = 0
pST = 0	PT^1 = N (15μ)	PT^2 = N (15μ)
fSe = AL > PL Ip = 1648	Gr = 22μ Ch = 21μ	Ga = 26μ
D = 2H + 4.2.4.2.2 = 16	fV = $2.^2_0$.2.4.2 = 12	NDV = 28

Measurements:

AW	PW	SBA	SBP	ASB	SS	PSB	SD	AP	AL	PL	S
70	42	61	20	21	50	11	82	46	52	40	70/20

H	D	P	V	pa	pm	pp	Ip	T_1	T_2	T_3
48	52/56	40	28/36	238	206	204	648	70	59	52

L. S. T.	a	m	p
T	20	19	19
t	10	10	10
G	4	4	4
F	7	6	6

N.B.: SBA = distance from the anterior scutal edge to the anterior sensilla bases.
SBP = distance from the posterior scutal edge to the posterior sensilla bases.
SS = distance between the anterior and the posterior sensilla bases.

c) **Diagnosis:** According to its Ip = 648, this is a medium-sized water mite (Thyasidae customarily display an Ip over 1000, or large size). Coxal setae tapering and nude (24—30 μ). The five eye corneae are inserted on sclerotized platelets; the two anteriors are the largest (diam. 14 μ), the two posteriors are a little smaller in diameter (12 μ), and the scutocellus is the smallest (9 μ). The body setae are few and tapering, as shown (Fig. 6). On the palpotarsus (fT = 7B.T) the three outer setae are feathered and rather

*) Some dolichopodid flies skate on the surface of swamps, and their attack by hydryphantid larvae would not be surprising or uncommon.

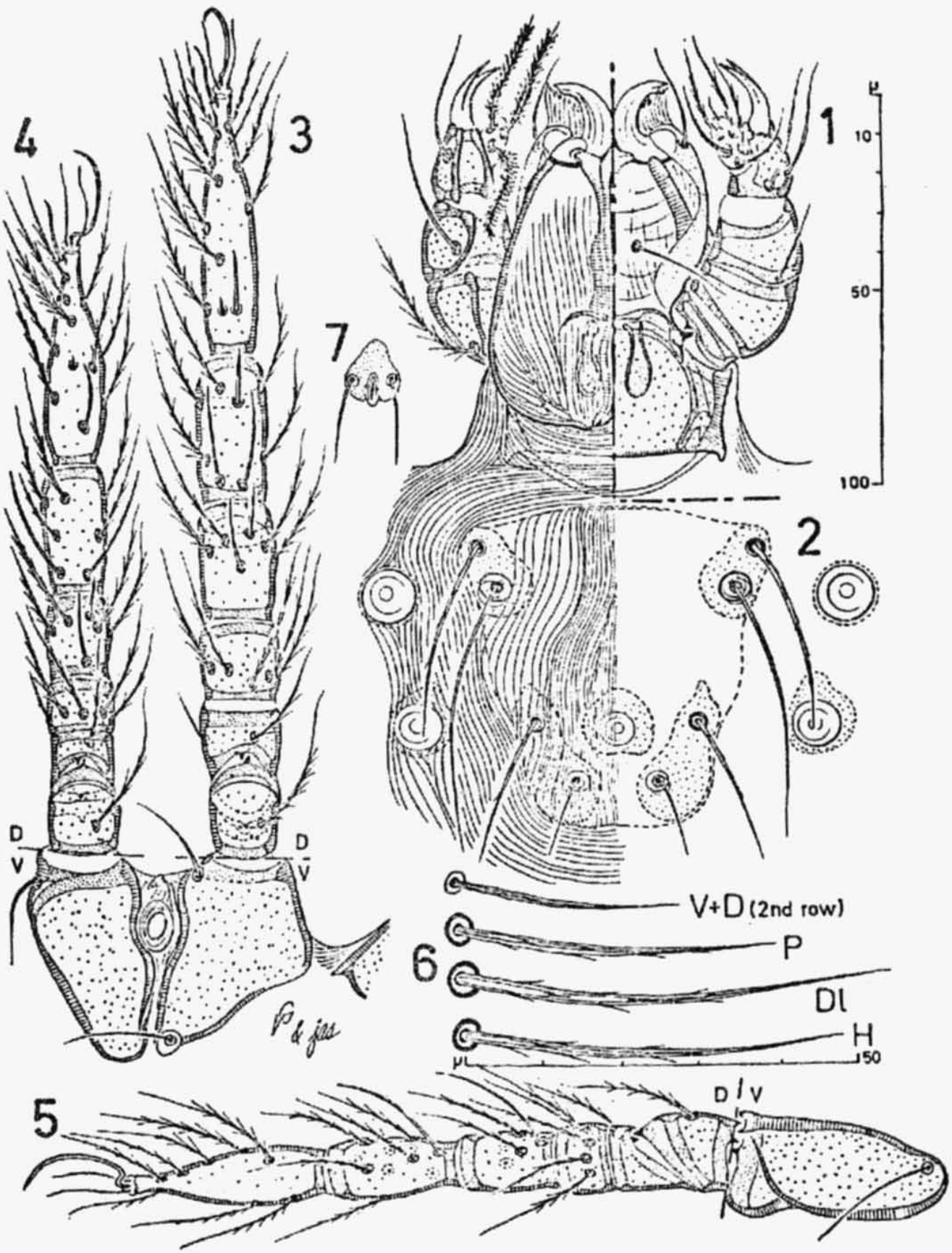
H. Hydryphantes globus
1
2
3
4
5
6
7
10
50
100
D
V
V+D (2nd row)
P
Dl
H
50
D / V

Fig. 8.

	a	m	p	a	m	p	a	m	p	a	m	p	a	m	p	a	m	p	a	m	p
	Pterygos. "p"			*P.* "t"			*Geckob.* "g"			*Hoplothr. quinquesc.*			*Atomus rhopal.*			*Microtr.* "d"			*Parathr.* sp. (4)			*Podothromb. sanremense*		
T	10	10	10	10	10	10	10	10	10	15	14	9	15	14	9	18	14	12	17	14	13	32	22	20
t	5	5	5	5	5	5	5	5	5	6	5	5	6	5	5	6	5	5	5	5	5	5	5	5
G	1	1	0	1	0	0	2	2	1	3	2	2	4	4	3	4	2	2	4	3	3	4	3	3
F	3	2	2	4	4	2	4	4	3	7	5	4	5	5	4	5	5	4	5	4	4	5	4	4
	Podothr. "m"			*P.* "o"			*P.* "s"			*P.* "d"			*P. svalbard.*			*Durenia* sp. (2)			*Womersl. minuta*			*Audyana thompsoni*		
T	32	22	20	21	15	13	36	24	21	46	28	22	31	18	16	28	21	19	28	24	22	22	16	15
t	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	6	6	7	6	6	8	6	6
G	4	3	3	4	3	3	4	3	3	4	3	3	4	3	3	4	4	4	4	4	4	4	4	4
F	5	4	4	5	4	4	5	4	4	5	4	4	5	4	4	6	6	6	6	6	6	6	6	4
	Centrotr. distans			*Johnston. latiscut.*			*Diplothr. monoense*			*D. cascad.*			*Nothotr. deiniacr.*			*Grossia onychia*			*Pteridop. pseudhan.*			*Lassenia scutell.*		
T	26	22	15	37	28	23	34	27	16	32	23	16	36	32	24	34	31	25	57	51	63	36	29	24
t	4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	8
G	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4
F	6	6	6	6	6	6	6	6	6	6	6	6	7	6	5	6	6	5	7	6	6	7	6	6
	Lassenia lasseni			*Monunguis streblida*			*Neotromb.* "a"			*N. bengalen.*			*N.* "t" + *samsinaki*			*N. tenuipes*			*N. tricusp.*			*N. barring.*		
T	50	43	40	20	15	15	20	10	10	21	12	12	21	15	15	21	15	15	20	10	10	24	19	19
t	16	17	15	8	7	7	8	6	6	8	7	7	8	7	7	8	6	6	7	6	6	8	6	6
G	8	8	8	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4
F	10	10	10	7	6	6	7	6	6	7	6	6	7	6	6	7	6	6	7	6	6	7	6	6
	Hydrovol. "j"			*Limnoch.* sp. (3)			*Piersigia limophila*			*Euthyas truncata*			*Panisops.* sp. (4)			*Thyas* sp. (2)			*Lundblad. musicola*			*Panisus* "218"		
T	18	18	17	17	16	16	18	17	17	20	20	20	20	20	20	20	19	19	20	19	19	19	18	18
t	9	9	7	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
G	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
F	7	7	6	7	7	6	7	7	6	7	7	6	7	7	6	7	7	6	7	7	6	7	7	6

	Hydryph. sp. (2)			*Hydrodrom.* sp. (2)			*Thermac. nevadens.*			*Polydiscia squamata*			*Erythraeidae no. 8. Ewing, 37*		
T	20	19	19	20	20	20	20	20	20	21	21	20	34	30	30
t	10	10	10	10	10	10	10	10	10	9	9	9	10	8	8
G	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4
F	7	6	6	7	7	6	7	7	7	6	7	6	7	6	5

	Charletonia sp. (25)			*C. domrowi*			*Bochartia adrassus*			*Caeculis. darwinien.*			*Sphaerolarsus leptopilus*		
T	28	28	28	28	28	28	28	28	28	28	28	30	21	21	21
t	18	18	18	12	13	14	16	16	14	17	18	18	14	14	14
G	12	12	12	10	14	12	8	8	8	12	12	12	12	8	8
F	9	9	7	9	9	7	7	9	7	9	9	7	7	7	7

N.B.: (Between parentheses, the No. of species seen).

long (32 μ), the shorter four inners bear only a few barbs. Separated from the base by two branched setae, the solenidion (S_0) is long and tapering (22 μ); while, short and spinelike, the nude tarsala (T) is terminal (6 μ). Gnathobase quadrilateral (Fig. 1). Solenidia, S_1 — 16 μ, with its famulus next to its base (4 μ), S_2 — 17 μ, its famulus (3 μ) being at the level of its apex. Anterior leg with its two tibiala (26 μ) inserted near its base, its apical microspur, thicker and pointed (9 μ). On mid leg the two tibiala (29 μ) are also inserted basally. Anterior and mid genualae (19 μ), each situated behind a thick microspur of, respectively, 14 and 10 μ. On posterior leg, one slender and tapering genuala of 34 μ and a tibiala of 32 μ, both dorsobasal (for other interesting comparisons, see the addendum). Uropore opening in a small shield (17 × 14 μ), between two short and nude setae (22 μ). Leg barbed setae as tabulated (L.S.T.).

ADDENDUM

For a certain time now, a systematic study has been undertaken on the leg pilosity, restricted to the barbed setae, also called "simple", "ordinary", or "normal" (n) by several authors. Those setae are reported principally on the four distal segments, i.e., tarsus (T), tibia (t), genu (G), and femur (F), disregarding, in the case of the latter, the splitting of femur into basi- and telofemur, and neglecting that on the trochanters which is omnipresent and usually single, except for certain *Gahrliepia*. The twelve figures obtained for anterior (a), mid (m), and posterior (p) legs are set in a table which permits the formation of an opinion in a glance.

These figures are very constant for certain groups. The (Trombiculidae) for instance, show mainly:

	a	m	p
T	22/21	16/15	15/14
t	8	6	6
G	4	3	3
F	6	6	5

As with any biometrical data, the figures may vary according to the probabilities induced by the law of the great numbers, and, obviously, it is mandatory to rely upon averages. Variations, of course, occur, mostly in the tarsal numbers and principally, the anterior tarsus, although one may observe occasional variations in the three other lines.

If one compares, for instance, Trombiculidae and Leeuwenhoekinae, one observes the same number for tibia and femur: t = 8 6 6 and F = 6 6 5, but the genu shows 4 3 3 for the former and 4 4 4 for the latter.

Hereafter is a display of the species involved in the preceding work, and also some other interesting groups or species. A more substantial revision of these tabulations is in progress and will be published in the near future.

РЕВИЗИЯ КЛЕЩЕЙ *APOLONIINAE* (*ACARINA, LEEUWENHOEKIDAE*) ПО УОМЕРСЛИ *(WOMERSLEY)* В АЗИАТСКО-ТИХООКЕАНСКОЙ ОБЛАСТИ

П. Х. Веркаммен-Гранжан

Резюме. Уомерсли (Womersley 1954) предварительно включил несколько трудно поместительных видов в подсемейство Apoloniinae. Эту группу рассматривали Оди (Audy 1957) и Саускот (Southcott 1957), не сделав однако других существенных предложений или соответствующей ревизии.

По причине близости в настоящую ревизию включены три других вида, которые Уомерсли не принял во внимание; один из них вводит новое подсемейство *Polydiscinae*. Все просмотренные виды вновь описаны и таксономически распределены следующим образом: S.-Fam. Prostigmata, Fam. Johnstonianidae, s/Fam. Lasseninae: *Nothotrombicula deinacridae*, *Grossia onychia* и *Pteridopus pseudhannemania;*

. . . . . s/Fam. Polydiscinae: *Polydiscia squamata;*
. . . . . Fam. Trombididae, s/Fam. Trombellinae: *Womersleyia minuta, Audyana thompsoni:*
. . . . . s/Fam. Neotrombidinae: *Neotrombidium tenuipes* (= *Cockingsia tenuipes*);
S.-Fam. Hydryphantae, Fam. Hydryphantidae, s/Fam. Hydryphantinae: *Hydryphantes globus* (= *Mackerrasiella globus*).

В дополнении кратко приведены результаты наблюдений относительно количества перистых щетин на лапках, голенях, коленах и бедрах ног. В таблице приведены данные о просмотренных видах и других интересных группах.

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