

A NEW *CHEYLETUS* (ACARINA : CHEYLETIDAE) FROM A BAT-ROOST

BY

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INTRODUCTION

Among several slides of Cheyletid mites collected from bats, roosts in Hampshire, England (WOODROFFE, 1956), were two bearing a *Cheyletus* species which did not agree with any descriptions in comprehensive works on the family Cheyletidae by VOLGIN (1969) and SUMMERS and PRICE (1970). WOODROFFE (1956) refers to these mites as follows. "An apparently undescribed species of *Cheyletus* was very abundant in the roost at Upton Grey. Males were nearly as common as females, which is unusual in Cheyletids; males are usually extremely uncommon and sometimes unknown". There is no record of further attempts to have these mites identified or described and they have remained in the collection of Pest Infestation Control Laboratory, Slough, England, until they were passed to me for study.

Cheyletus woodroffei is named for the late Mr. G. E. WOODROFFE in recognition of his work on mites in nidicolous habitats.

Dorsal idiosomal chaetotaxy.

The chaetotaxy used in the following descriptions is that of JEFFREY (1976; 1978). The most anterior of the four pairs of dorsolateral setae on the propodosomal plate (the verticals of some authors) have been designated propodosomal dorsolateral (p.dl.) I, and the remaining three pairs numbered p.dl. II to IV. The single pair of aberrant dorsomedian "cloud setae" on the propodosomal plate of the female are designated propodosomal dorsomedian (p.dm.) as are the single pair of orthodox dorsomedians on the male propodosomal plate. The female *C. woodroffei* has six pairs of hysterosomal dorsolateral (h.dl.) setae, numbered h.dl. I to VI. H.dl. I are inserted on individual platelets, h.dl. II to IV on the main hysterosomal plate and h.dl. V and VI on the integument at the extreme posterior of the idiosoma. Two pairs of aberrant hysterosomal dorsomedian (h.dm.) setae are situated level with h.dl. II and h.dl. III on the hysterosomal plate. As in the female the h.dl. I setae in the male are situated on individual platelets, h.dl. II to IV are inserted on the hysterosomal plate and h.dl. V terminally on the integument. One pair of orthodox dorsomedians are present anterior to h.dl. II.

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DIAGNOSIS

Both sexes of *C. woodroffei* n. sp. can be distinguished from other *Cheyletus* spp. except *C. linsdalei* Baker, by the width of the dorsolateral setae (plate 1) and the length of solenidion θ on tibia I. Study of males and females of *C. malaccensis* Oudemans, *C. eruditus* (Schrank) and *C. trouessarti* Oudemans and of females of *C. aversor* Rhodendorf, *C. hendersoni* Baker and an undescribed species near *hendersoni* indicates that the length and shape of solenidion θ is a reliable identification character (Fig. 4). Specimens of *C. linsdalei* were not examined but from descriptions by BAKER (1949) and SUMMERS and PRICE (1970) the greater number of aberrant dorsomedian setae, teeth on the palp claw and teeth on the inner and outer combs of the palp tarsus separate this species from *C. woodroffei*.

DESCRIPTIONS

FEMALE (Fig. 1).

Gnathosoma : Palp claw very slender (cf. *C. trouessarti* Fig. 3A) some specimens with a faint apophysis on the basal third of the claw, usually with 3 sharply pointed basal teeth (Fig. 3D), less commonly with 2 teeth (Fig. 1 and Fig. 3B), or with an intermediate condition (Fig. 3C). Palp tarsus twice as wide as long with 2 sickles, 2 combs and a small solenidion. Outer comb with 11-12 long blunt teeth, inner comb with ca. 15 teeth. Dorsal setae of palp femur with long fine barbs in closely set rows, in some specimens the angle between the barbs and the main axis is very acute giving the impression that the seta is barely pectinate. Proximal seta (that nearest the tegmen) $65 \mu \pm 10 \mu$, dorsolateral $48 \mu \pm 19 \mu$, posterolateral (that on the margin of the femur) $32 \mu \pm 4 \mu$. Protegmen without distinctive decoration except for some continuation of the striae of the tegmen just anterior to the peritremes. Tegmen with broken striae spread fanwise from base, some thicker striae randomly dispersed, basal third with a group of cells each side of the midline containing numerous distinct pores. Peritremes with 3 transverse and 5 descending links per side.

Idiosoma : Propodosomal plate covers most of idiosoma, hysterosomal plate about two thirds area of propodosomal plate. No prominent decoration on either plate other than small pores and outlines of muscle bundles. Plates separated by a wide band of transversely striated integument. Propodosomal setae : 4 pairs of dorsolaterals, narrow spatulate (Plate 1) width 20-25 % of length, each with 3-5 rows of prominent sharp barbs. Propodosomal dorsolateral (p.dl.) I $37 \mu \pm 2 \mu$, II $33 \mu \pm 3 \mu$, III $35 \mu \pm 3 \mu$, IV $34 \mu \pm 4 \mu$. One pair of aberrant dorsomedian setae variable in shape, ca. 16μ long, inserted just posterior to p.dl. IV. Humeral setae similar to dorsolaterals, $45 \mu \pm 4 \mu$. Hysterosomal setae : 6 pairs of dorsolaterals similar to those of propodosoma, first pair inserted on individual platelets. Hysterosomal dorsolateral (h.dl.) I $38 \mu \pm 4 \mu$, II $33 \mu \pm 3 \mu$, III $33 \mu \pm 3 \mu$, IV $33 \mu \pm 5 \mu$, V $34 \mu \pm 6 \mu$, VI $36 \mu \pm 8 \mu$. Two pairs of aberrant dorsomedians similar to those of propodosoma, first pair inserted on the level of h.dl. II, second pair between h.dl. III and IV.

Genito-anal region : 4 pairs of anal setae inserted on individual platelets, 3 pairs of scapular setae, 1 pair terminal and 2 pairs ventral.

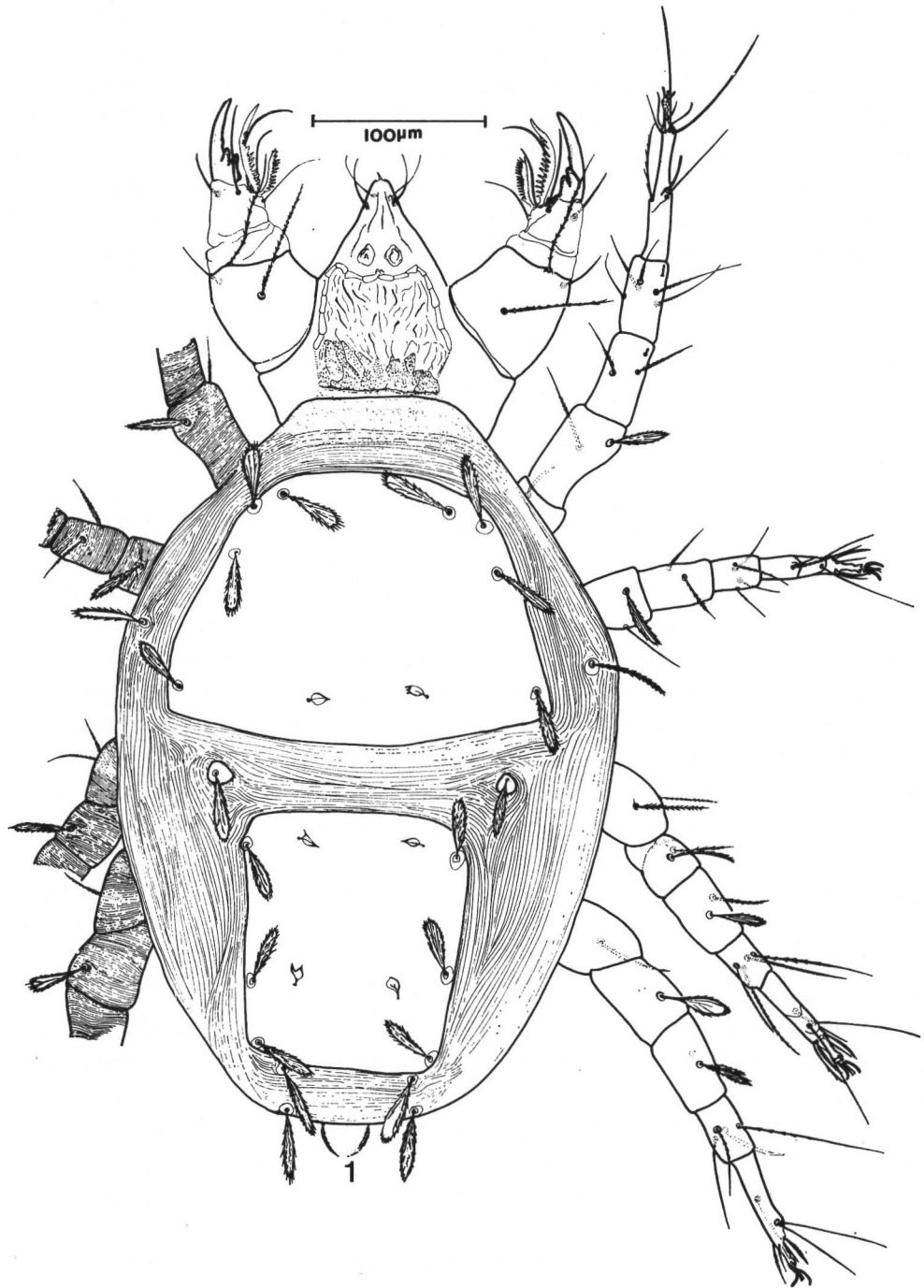


FIG. 1. — *C. woodroffei* dorsum of female.

Legs : All legs with claws and rayed empodium ; claws on tarsus I half to two thirds length of claws on tarsi II to IV. Chaetotaxy (Table 1) : Leg I, tarsus $96\ \mu \pm 10\ \mu$, tibia $47\ \mu \pm 3\ \mu$, genu $48\ \mu \pm 5\ \mu$, femur $54\ \mu \pm 10\ \mu$, trochanter $33\ \mu \pm 8\ \mu$, total (measured from tip of claws to coxotrochanteral articulation) $274\ \mu \pm 23\ \mu$. Tarsal solenidion ω I $22\ \mu \pm 1\ \mu$, with fine acicular guard seta $38\ \mu \pm 7\ \mu$; tibia with solenidion θ reaching tibia-tarsal articulation (Fig. 4A) $7\ \mu \pm 1\ \mu$; genu with solenidion σ ca. $5\ \mu$. Addorsal setae minutely annulate. Leg II, tarsus $67\ \mu \pm 7\ \mu$, tibia $27\ \mu \pm 2\ \mu$, genu $37\ \mu \pm 7\ \mu$, femur $38\ \mu \pm 8\ \mu$, trochanter $31\ \mu \pm 8\ \mu$, total $201\ \mu \pm 26\ \mu$. Tarsal solenidion ω I $15\ \mu \pm 1\ \mu$. Leg III, tarsus $71\ \mu \pm 7\ \mu$, tibia $32\ \mu \pm 9\ \mu$, genu $43\ \mu \pm 10\ \mu$, femur $38\ \mu \pm 13\ \mu$, trochanter $39\ \mu \pm 7\ \mu$, total $222\ \mu \pm 38\ \mu$. Leg IV, tarsus $79\ \mu \pm 10\ \mu$, tibia $36\ \mu \pm 10\ \mu$, genu $51\ \mu \pm 7\ \mu$, femur $50\ \mu \pm 15\ \mu$, trochanter $44\ \mu \pm 14\ \mu$, total $260\ \mu \pm 50\ \mu$.

Body : Length of idiosoma $359\ \mu \pm 37\ \mu$, length of gnathosoma $154\ \mu \pm 51\ \mu$, total body length $511\ \mu \pm 51\ \mu$. Width (at level of humeral setae) $254\ \mu \pm 40\ \mu$. Length ratio : leg I to idiosoma 0.76.

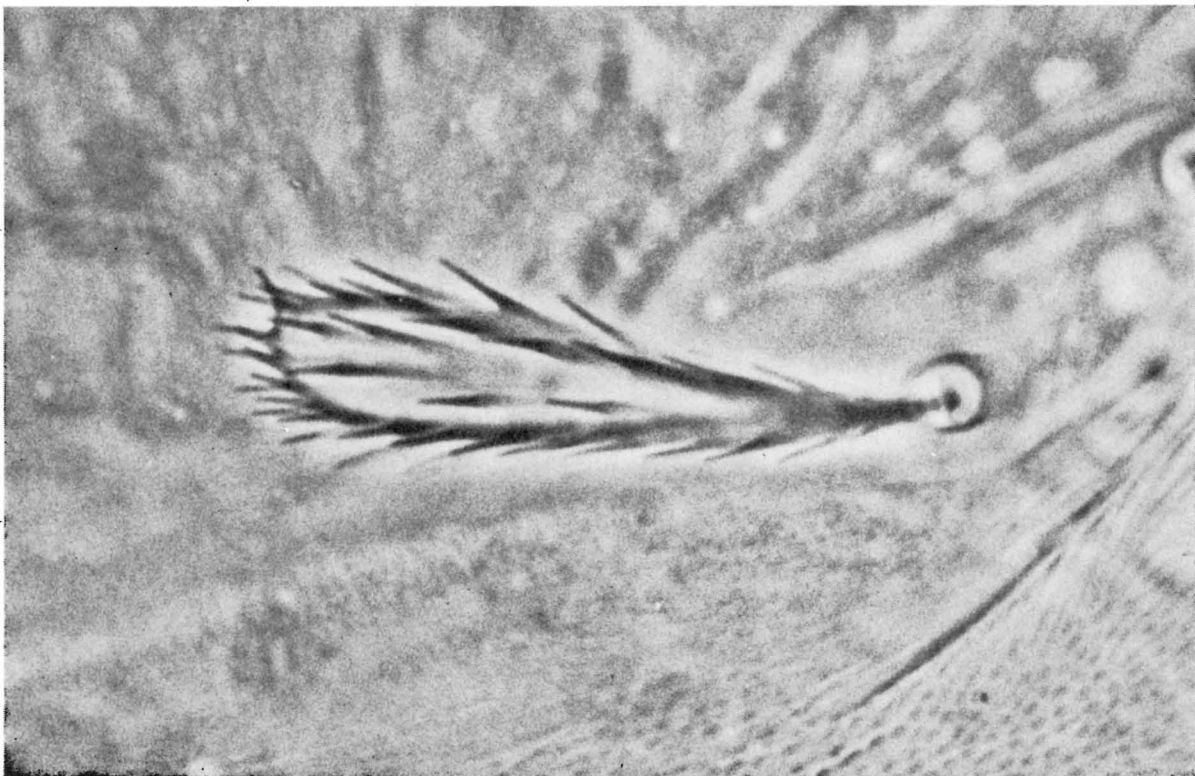


PLATE 1. — *C. woodroffei*, hysterosomal dorsolateral seta I.

MALE (Fig. 2).

Gnathosoma : Palp claw with a single blunt conical basal tooth. Palp tarsus a little wider than long, with 2 sickles, 2 combs and a small solenidion. Outer comb with 11 long blunt teeth, inner comb with 9 teeth. Palp femur about twice as long as wide, dorsal setae as in female, proximal seta $53\ \mu$, dorsolateral $67\ \mu$, posterolateral $32\ \mu$. Protegmen decorated with randomly

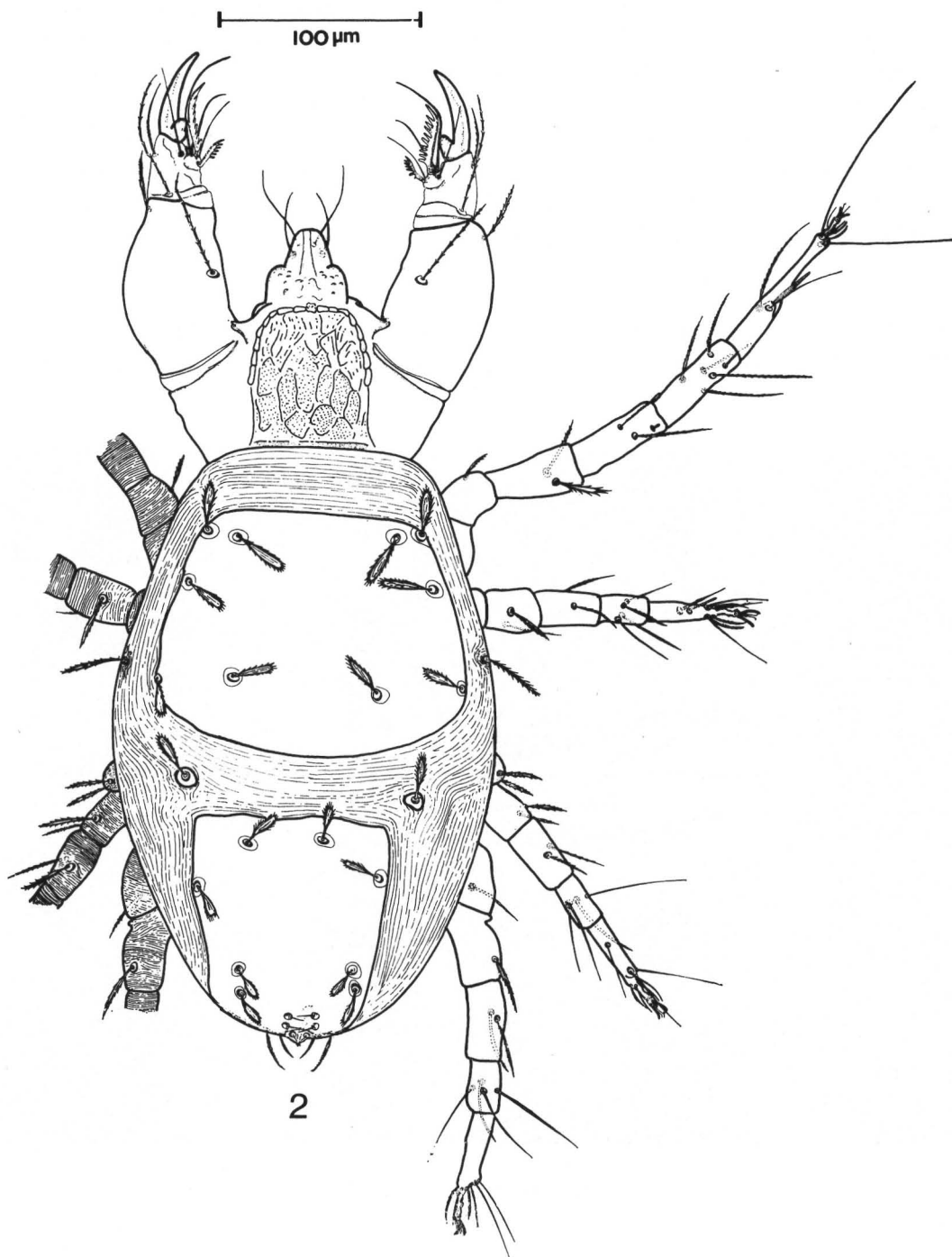


FIG. 2. — *C. woodroffei* dorsum of male.

distributed apophyses and with a pair of small alae. Anterior of tegmen ornamented with well defined cells containing broken striae, microtubercles replacing striae within the cells of the posterior of the tegmen. Peritremes form an inverted horseshoe with 3 transverse and 5 descending links per side.

Idiosoma : Hysterosomal plate two thirds area of propodosomal plate, both plates without prominent decoration and separated by transverse striae. Dorsal setae similar in form to female. Propodosomal setae : 4 pairs of dorsolaterals, p.dl. I 30 μ , II 28 μ , III 28 μ , IV 28 μ , 1 pair of dorsomedians 25 μ similar to dorsolaterals, inserted at the level of p.dl. IV. Humeral setae similar to dorsolaterals and dorsomedians 35 μ . Hysterosomal setae : 5 pairs of dorsolaterals, first pair on individual platelets, fifth pair on the extreme posterior margin of the idiosoma. H.dl. I 28 μ , II 25 μ , III 21 μ , IV 23 μ , V 21 μ , 1 pair of dorsomedians 25 μ , similar to dorsolaterals, inserted anterior to h.dl. II.

Genito-anal region : 2 pairs of dorsal papillae with narrow lancet-like setae, 1 pair of terminal papillae with short sickle setae.

Legs : Claws as in female. Chaetotaxy (Table 1) : Leg I, tarsus 97 μ , tibia 61 μ , genu 61 μ , femur 61 μ , trochanter 25 μ , total 305 μ . Tarsal solenidion ω I 30 μ , guard seta 46 μ , tibia with solenidion θ 7 μ , genu with solenidion σ ca. 3 μ . Addorsal setae minutely annulate. Leg II, tarsus 61 μ , tibia 28 μ , genu 40 μ , femur 35 μ , trochanter 23 μ , total 187 μ . Tarsal solenidion ω I 14 μ . Leg III, tarsus 61 μ , tibia 28 μ , genu 39 μ , femur 30 μ , trochanter 35 μ , total 193 μ . Leg IV, tarsus 67 μ , tibia 32 μ , genu 48 μ , femur 39 μ , trochanter 41 μ , total 227 μ .

Body : Length of idiosoma 285 μ , length of gnathosoma 220 μ , total body length 505 μ . Width 205 μ . Length ratio : leg I to idiosoma 1.1.

Table 1. Chaetotaxy of leg segments of *Cheyletus woodroffei* n. sp. (figures in brackets indicate a solenidion)

	Trochanters	Femora	Genua	Tibiae	Tarsi
Female	1-1-2-1	2-2-2-1	2(1)-2-2-2	5(1)-4-4-4	9(1)-7(1)-7-7
Male	1-1-2-1	2-2-2-1	2(1)-2-2-2	5(1)-4-4-4	9(1)-7(1)-7-7

Key to females of Cheyletus with guard setae on tarsus 1 longer than solenidion ω I
(based on SUMMERS and PRICE 1970)

- Guard seta on tarsus I absent or obviously shorter than solenidion ω I.....
fortis Oudemans, *eruditus* (Schrank), *malaccensis* Oudemans, *malayensis* Cunliffe.
Guard seta of tarsus I present and obviously longer than solenidion ω I..... 2
- With setae h.dl. I arising on principal hysterosomal plate..... *cacahuamilpensis* Baker.
With seta h.dl. I arising on individual platelets..... 3
- With 8 pairs of aberrant dorsomedian setae..... *linsdalei* Baker.
With not more than 3 pairs of aberrant dorsomedian setae..... 4
- Palp claw with 2 basal teeth..... *aversor* Rohdendorf.

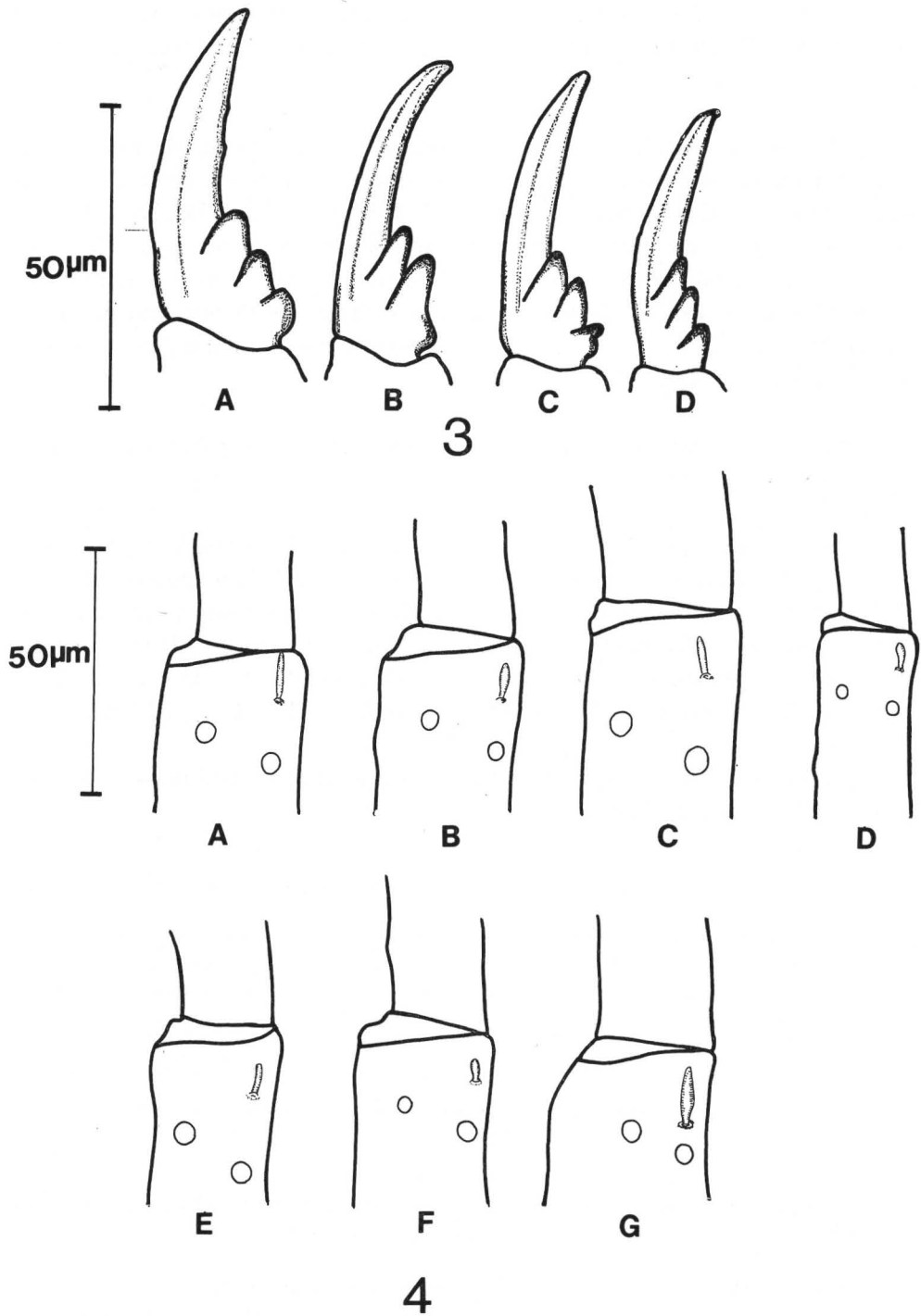


FIG. 3. — Palp claws of (A) *C. trouessarti*, (B, C and D) *C. woodroffei*.
FIG. 4. — Solenidion Θ on tibia I of (A) *C. woodroffei*, (B) *C. trouessarti*, (C) *C. eruditus*, (D) *C. hendersoni*, (E) *C. malaccensis*, (F) *Cheyletus* sp. nr. *hendersoni*, (G) *C. aversor*.

- Palp claw with 3 basal teeth (occasionally 2 teeth), dorsolateral body setae narrow spatulate, solenidion θ on tibia I long and slender, reaching tarsus-tibial articulation..... **woodroffei** n. sp.
 Palp claw with 3 or 4 basal teeth, solenidion θ on tibia I short club shaped, not reaching tarsus-tibial articulation. 5
 5. Dorsolateral body setae flattened to form a thin, narrow fusiform or parallel sided blade ; no dorsolaterals flagelliform..... *trouessarti* Oudemans.
 Dorsolateral body setae not noticeably flattened ; some dorsolaterals flagelliform. *hendersoni* Baker.

MATERIAL EXAMINED

Seven females and one male from a bat roost (probably *Plecotus aurita* L.) Upton Grey, Hampshire, England. Coll. G. E. Woodroffe, 14 October 1954. ♀♀ originally mounted on one slide and labelled 49D by G. E. W. Now remounted one mite to a slide. Holotype ♀ DAFS No. C/1977/1, 6 paratype ♀♀ DAFS Nos. C/1977/2 to C/1977/7 inclusive. Paratype ♂ labelled 48D by G. E. W., DAFS No. C/1977/8.

Deposition of Specimens.

Holotype ♀ DAFS No. C/1977/1 deposited in the British Museum (Natural History), B.M. (N.H.) No. 1977.11.11.1 ; paratype ♂ DAFS No. C/1977/8, B.M. (N.H.) No. 1977.11.11.2. Specimens will be deposited in the Muséum National d'Histoire Naturelle, Paris, France, and the University of California, Davis, U.S.A.

ACKNOWLEDGEMENTS

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SUMMARY

C. woodroffei a new *Cheyletus* from a bat roost is described. The use of solenidion θ on tibia I as an identification character is discussed and a key to related species is included.

RÉSUMÉ

On décrit *C. woodroffei* un nouveau *Cheyletus* d'un perchoir de chauve-souris. On discute l'emploi du solénidion θ ou tibia I comme caractère d'identification et une clé des espèces considérées est donnée.

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