GERANOLICHUS GAUD AND RELATED GENERA (ACARINA, ANALGOIDEA, PTEROLICHIDAE) [1]

BY

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ABSTRACT

The genus *Geranolichus* Gaud, 1968, from cranes (Gruidae) is divided into three genera : *Geranolichus* (*s.s.*), from *Grus* species ; the monobasic *Apatelacarus* (type species : *Geranolichus brachychaetus* Gaud, 1968) from *Balearica* species ; and the monobasic *Doleracarus* (type species : *Geranolichus tetrachaetus* Gaud, 1968) from *Balearica* species.

RÉSUMÉ

Le genre *Geranolichus* Gaud, 1968, vivant sur les Grues (Gruidae) est divisé en trois genres : *Geranolichus* (*s.s.*) vivant sur les espèces du genre *Grus* et les genres monospécifiques *Apatelacarus* (espèce type : *Geranolichus brachychaetus* Gaud, 1968) et *Doleracarus* (espèce type : *Geranolichus tetrachaetus* Gaud, 1968) sur les espèces du genre *Balearica*.

The Gruidae, or crane family, is divided into two subfamilies, the Gruinae and the Balearicinae (MORONY et al., 1975). In the Gruinae, the ten species of *Grus* Pallas are distributed through Eurasia and North America and the one species of *Bugeranus* Gloger and two species of *Anthropoides* Vieillot are African. The second subfamily contains only two African species, *Balearica pavonina* (L.) and *B. regulorum* (Bennett). The Gruidae support a distinct acarofauna (GAUD, 1968 ; ATYEO and WINDINGSTAD, 1979) which includes the pterolichid genus *Geranolichus* erected by GAUD in 1968 for three mite species : two from *Balearica* and one from the European crane, *Grus grus*. Generic characters used by GAUD indicate the close relationship between the 3 mite species, but now, using additional features, these species, originally included in *Geranolichus*, are not considered to be congeners.

The broader generic definition that placed *Geranolichius gruis* (Trouessart), *G. brachychaetus* Gaud and *G. tetrachaetus* Gaud in the same supraspecific category included for both sexes that epimerites I V- or Y-shaped, 2 internal vertical setae, seta *kT* IV present, legs subequal in lengths, legs III well separated from legs IV, seta *ba* distal from solenidion ω 1 on anterior legs

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and seta *sci* closer to homolog than to opposite member of pair. The males of these species have the genital organ between setae *c 2* and *c 3*, legs IV thicker, but not longer than legs III and the adanal discs circular and weakly sclerotized. For females, the pregenital apodeme short, terminus rounded, genital discs posterior to setae *c 1* and the hysterosomal shield continuous to posterior margin of idiosoma.

Geranolichus Gaud

Geranolichus Gaud, 1968 : 90-1.

TYPE SPECIES : *Pterolichus (Pseudalloptes) gruis* Trouessart, 1884, by original designation.

Two taxa from the Gruidae are similar, *Geranolichus* Gaud and *Apatelacarus*, n. g. In addition to the shared character states mentioned above, each has the anterior epimerites V-shaped, setae *sh* short and spiculiform and setae *l 1* and *sh* approximately equal in length and development. The males of both taxa are more similar than are the females ; for each, the males have gently tapered hysterosomata, genital organs midway between legs III and IV, and each has one paraxial spine and a single apicodorsal seta on tarsus IV. In the females, setae *d 3* and *l 3* are arranged in a rectangle dorsomesal on the opisthosomata, but the general idiosomal configurations are different — tapering in *Geranolichus* and parallel-sided in *Apatelacarus*.

To date only two species of *Geranolichus* (*s.s.*) have been described, *G. gruis* (Trouessart) from *Grus grus*, Europe and *G. canadensis* Atyeo and Windingstad from *Gruis canadensis tabida*, North America. In our collections we have two undescribed species of *Geranolichus*, each from a different species of *Grus*. Thus, from our admittedly limited collections, it would appear that there is a one parasite-one host relationship between the species of *Geranolichus* and the species of *Grus*.

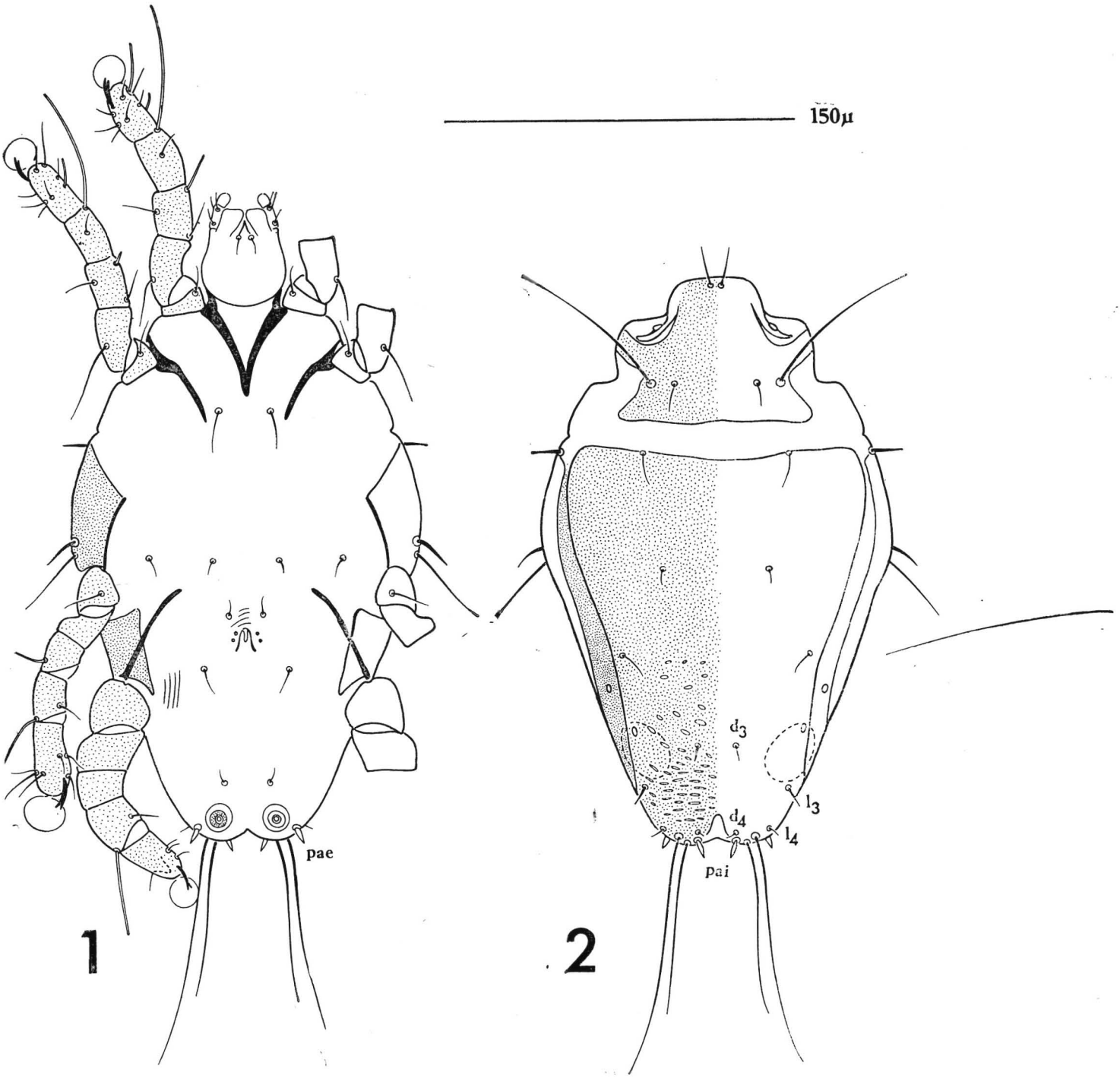
The recently described *G. canadensis* (Figs. 1-4) from the sandhill crane is illustrative for the genus. In males, setae *d 4* and *pai* are mesal and approximate, setae *pae* and *pai* are broadly spiculiform, setae *cG* on genua I and II are simple and the idiosomal terminus is without a membrane. Females have setae *d 3* and *d 4* spiculiform in a rectangular or trapezoidal arrangement with setae *l 3* posterolateral and approximate to *d 4*.

Apatelacarus, new genus

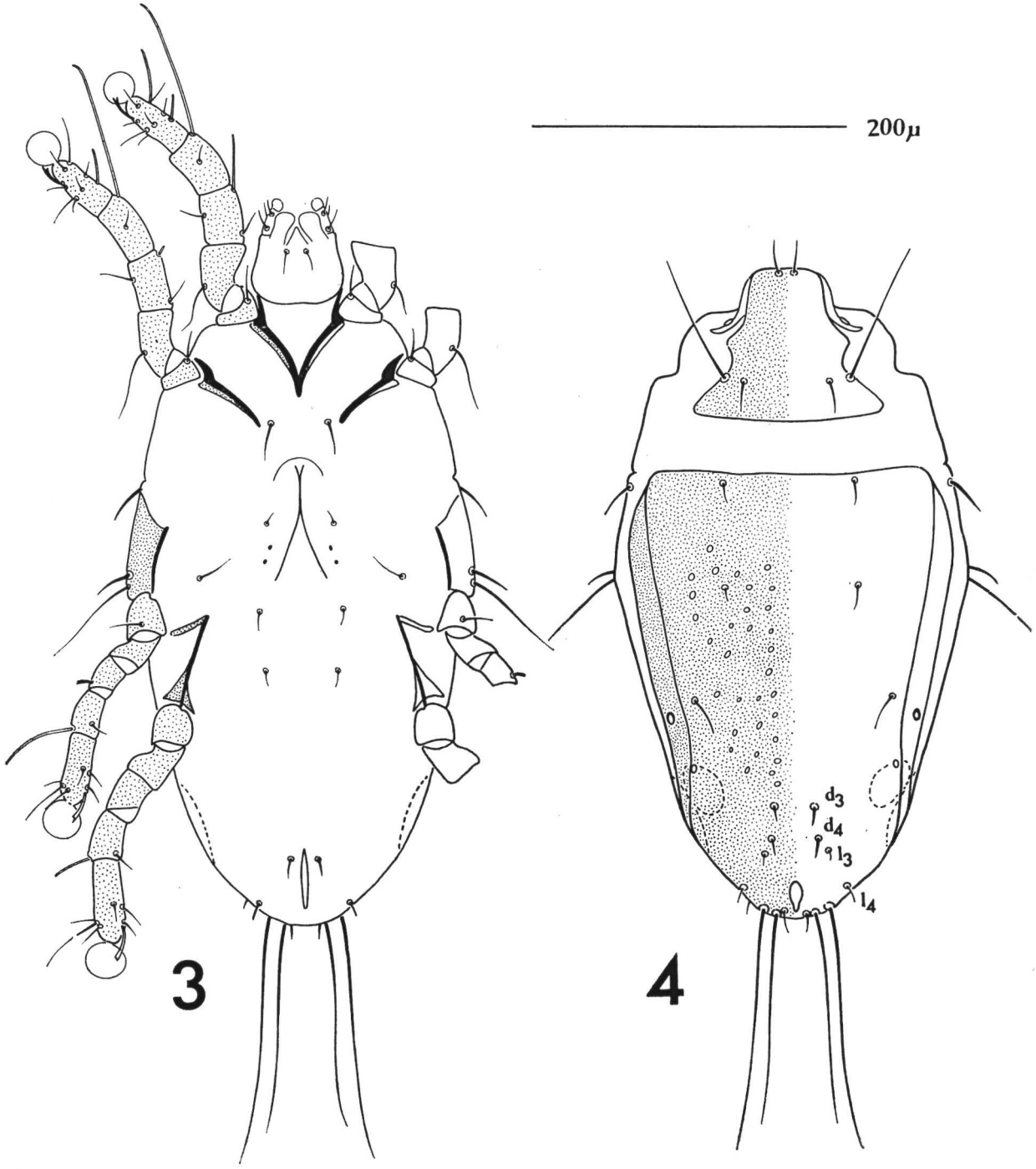
TYPE SPECIES : *Geranolichus brachychaetus* Gaud, 1968.

DERIVATION : From *apatelos* (Gr., deceitful, deceptive) + *acarus* ; masculine. The name is chosen because of the similarity of the taxon to *Geranolichus*, so close that the type species was recently included in that genus.

DIAGNOSIS : Pterolichid mites with characters of *Geranolichus* (*sensu* GAUD, 1968) ; both sexes with epimerites I V-shaped ; setae *l 1, sh* spiculiform to setiform ; hysterosomata with lateral flanges on parahysterosomal shields, each flange minutely serrated ; setae *cG* I, II, bifid. Male with tapering hysterosoma lacking terminal membranes ; genital organ midway between legs III, IV ; setae *pai* fanlike, *pae* spiculiform ; setae *l 3, d 4, l 4* spiculiform, laterally inserted ; tarsus IV with paraxial claw (or hook) and 1 dorsoterminal seta. Female with four setiform



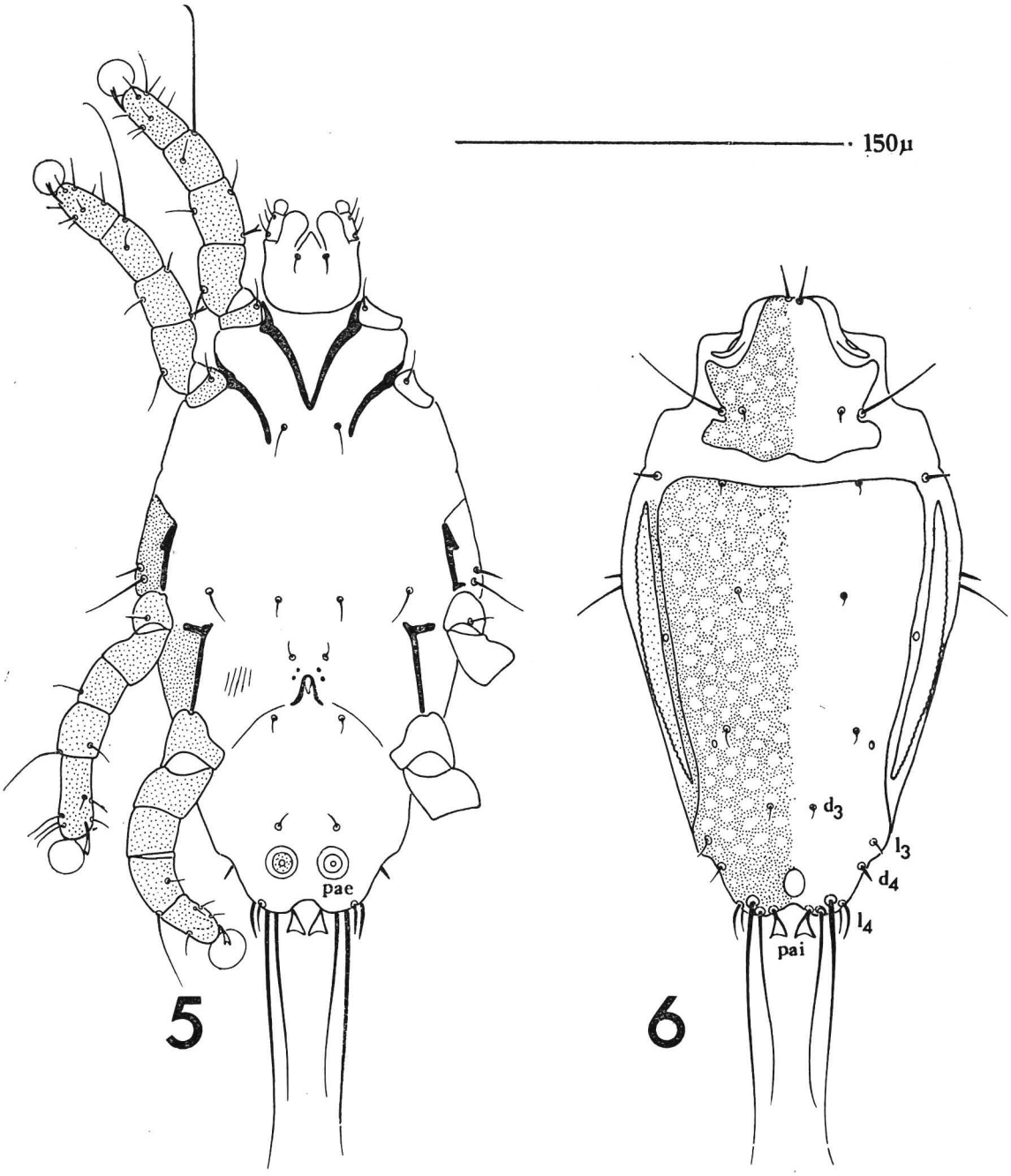
s. 1, 2. — *Geranolichus canadensis* Atyeo and Windingstad : ventral (1) and dorsal (2) aspects of male. Setae : *d 3-4, l 3-4*, dorsal and lateral hysterosomals ; *pae, pai*, external and internal postanals.



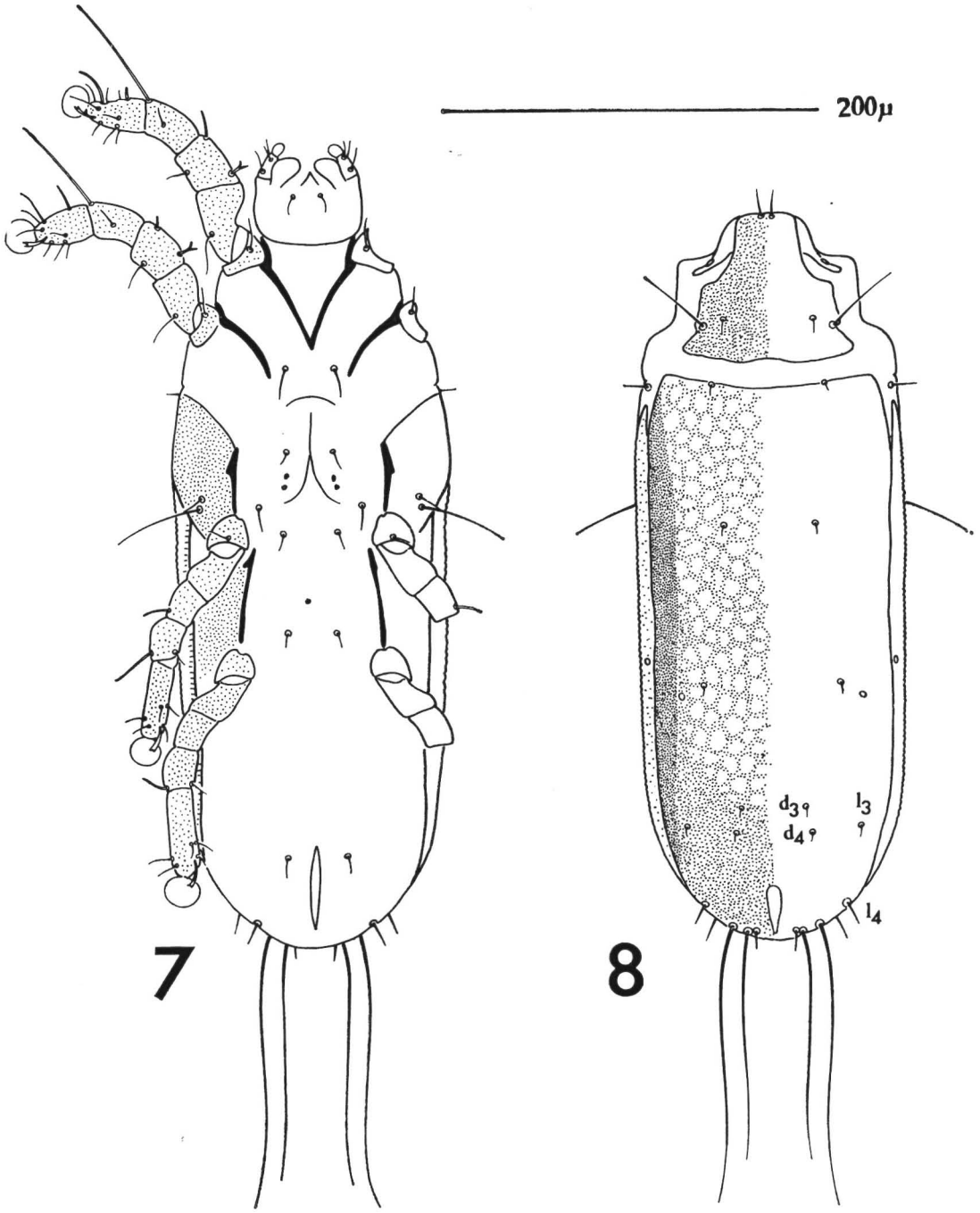
FIGS. 3, 4. — *Geranolichus canadensis* Atyeo and Windingstad : ventral (3) and dorsal (4) aspects of female. Setae : *d 3-4*, *l 3-4*, dorsal and lateral hysterosomals.

setae (*d 3, d 4*) in rectangular arrangement, distant from *l 3, l 4* ; spermduct opening subterminal ; hysterosoma 3/4 of idiosomal length, parallel-sided.

Although related to *Geranolichus*, the only included species in *Apatelacarus* has certain distinctive characteristics. In both sexes, each parahysterosomal shield has a laterally directed ridge that is minutely serrated, the dorsal surfaces of the genua and tibiae of legs I and II are likewise with minute serrations and the dorsal setae on genua I and II (*cG*) are thornlike and bifid.



FIGS. 5, 6. — *Apatelacarus* species : ventral (5) and dorsal (6) aspects of male. Setae : *d 3-4, l 3-4*, dorsal and lateral hysterosomals ; *pae, pai*, external and internal postanals.



FIGS. 7, 8. — *Apatelacarus brachychaetus* (Gaud) : ventral (7) and dorsal (8) aspects of female. Setae : *d 3-4*, *l 3-4*, dorsal and lateral hysterosomals.

The males of *Apatelacarus brachychaetus* are similar in general idiosomal configuration to the males of *Geranolichus*, but the dorsoterminal chaetotaxy is different. The males of *Apatelacarus* have the postanal setae differently formed, i.e., the internals are fanlike, the externals setiform to spiculiform, and setae *l 3*, *d 4* and *l 4* are inserted on the margins of the idiosoma (compare with Fig. 2). The females are quite different in *Geranolichus*, the propodosoma is about one-third of the idiosomal length and the hysterosoma tapers toward the terminus ; in *Apatelacarus*, the propodosoma of the females is only one-fourth of the idiosomal length and the idiosoma is parallel-sided.

GAUD (1968) described *A. brachychaetus* from four females taken from *Balearica pavonina* in the Cameroon ; the study material includes two females from the same host, Kenya and five females from two skins of *B. regulorum*, Kenya. In addition to the females, there are two males taken from museum study skins, but the host data is probably incorrect as one male is supposedly from *Grus japonensis* and the other from *G. americana*. *Apatelacarus brachychaetus* is probably restricted to the African continent and probably to the *Balearica* species — this is still supposition as materials from the non-*Grus* taxa of the Gruinae have not been collected.

Doleracarus, new genus

TYPE SPECIES : *Geranolichus tetrachaetus* Gaud, 1968.

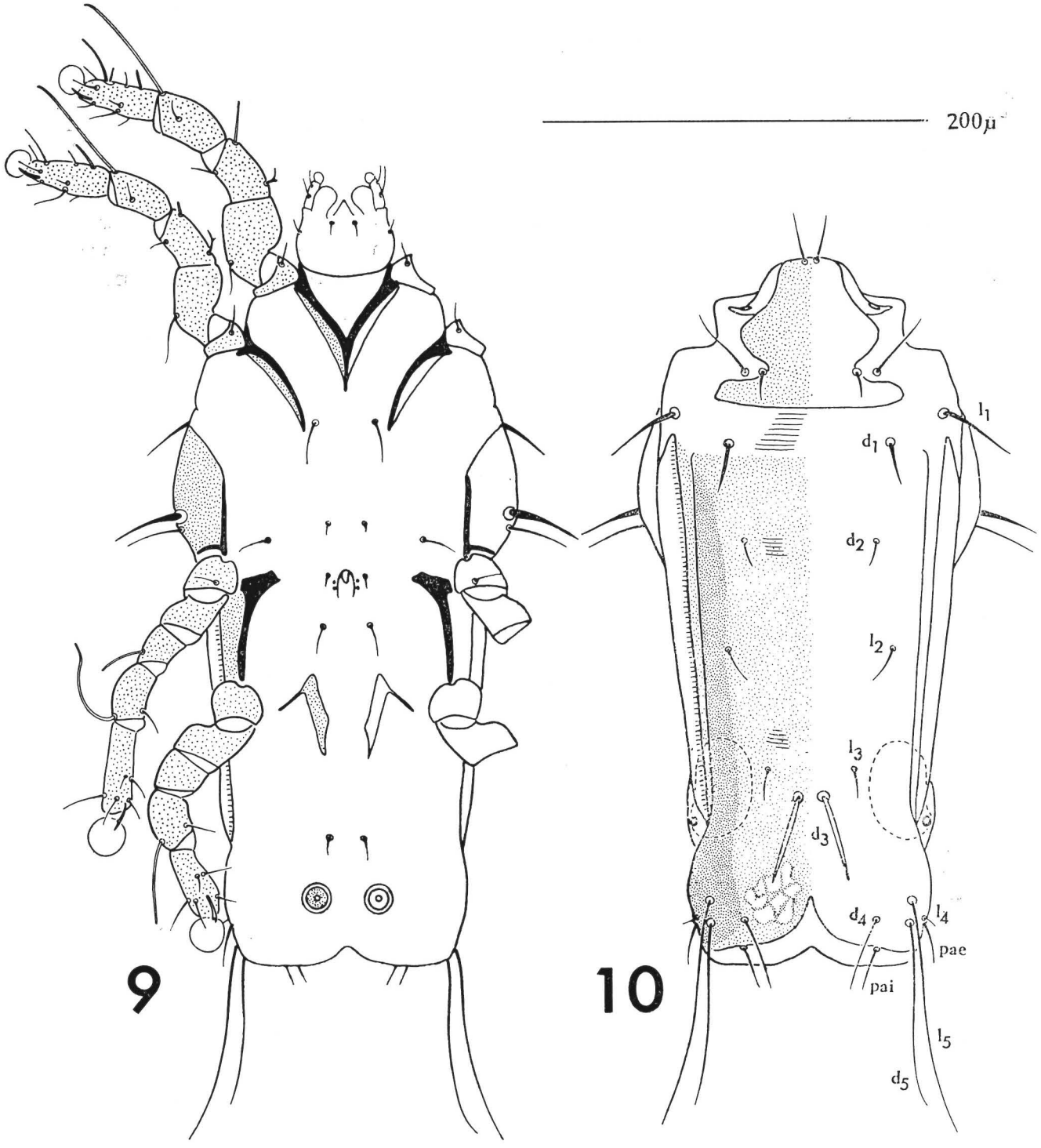
DERIVATION : From *doleros* (Gr., deceitful, treacherous) + *acarus*, masculine.

DIAGNOSIS : Pterolichid mites with characters of *Geranolichus* (*sensu* GAUD, 1968) ; both sexes with epimerites I Y-shaped ; setae *d 1*, *l 1*, *sh* long, spiculiform ; hysterosomata with lateral flanges ; setae *cG* I, II, bifid. Male with truncated idiosoma bearing broad membrane ; genital organ between legs III ; setae *pae*, *pai* unequally developed ; setae *d 3* long, parallel-sided, posterior to *l 3* ; setae *d 5*, *l 5* subterminal, with *l 5* inserted anteriorly to *d 5* ; tarsus IV without claw, with 3 dorsoterminal setae. Female with four long dorsohysterosomal setae ; opening to primary spermduct terminal.

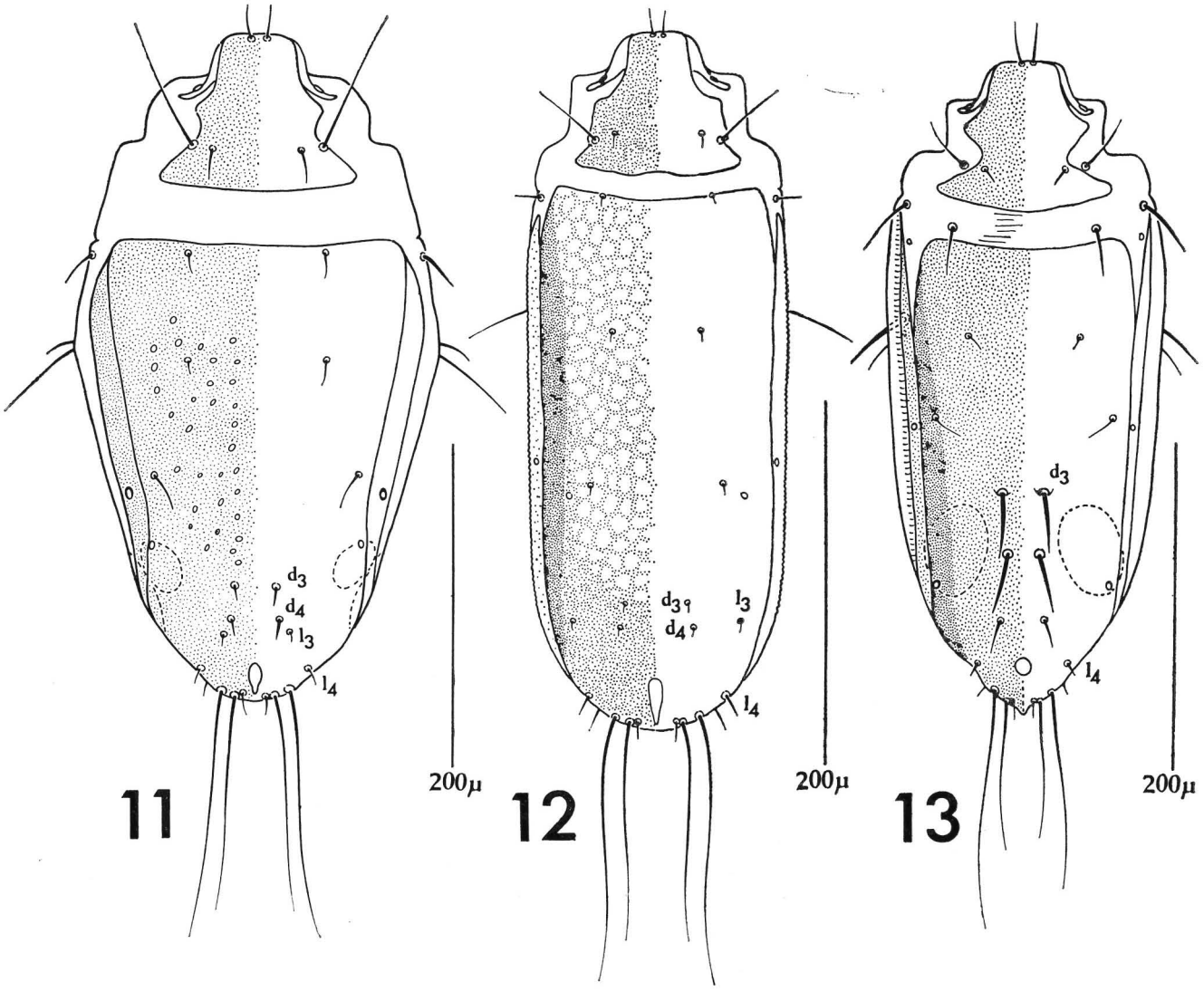
The single species of *Doleracarus* resembles *Apatelacarus brachychaetus* in a few characters — both have dorsolateral flanges on the hysterosomal margins and both have the dorsal setae of genua I-II bifurcated. Other than these features, *D. tetrachaetus* differs considerably from species originally included in *Geranolichus*. Both sexes have epimerites I Y-shaped, have the dorsal hysterosomal setae long, especially *d 1*, *l 1*, and *sh*, have setae *l 1* anterior to *d 1* and have setae *sce* relatively short.

The more obvious differentiating features of the male include the broad hysterosoma with a wide terminal membrane, setae *d 5* and *l 5* not terminally positioned and the genital organ between legs III. In the female, the posterior portion of the hysterosoma bears four pairs of setae in two rows, the anterior two pairs being longer and thicker than the posterior pairs.

The single species was originally described from *Balearica regulorum*, Kenya. We have additional material from the same host from a second locality in Kenya and from one bird taken in Nyasaland. We also have a few specimens taken from *B. pavonina*, Kenya. Both *D. tetrachaetus* and *A. brachychaetus* were taken from the same study skins in three of the four mentioned collections.



FIGS. 9, 10. — *Doleracarus tetrachaetus* (Gaud) : ventral (9) and dorsal (10) aspects of male. Setae : *d 1-5*, *l 1-5*, dorsal and lateral hysterosomals ; *pae*, *pai*, external and internal postanals.



FIGS. 11-13. — Dorsal aspects of females : *Geranolichus canadensis* Atyeo and Windingstad (11), *Apatelacarus brachychaetus* (Gaud) (12), and *Doleracarus tetrachaetus* (Gaud) (13). Setae : *d 3-4, l 3-4*, dorsal and lateral hysterosomals.

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