RHODACARIDAE AND PARASITIDAE MITES (ACARINA : MESOSTIGMATA) COLLECTED BY THE BRITISH ANTARCTIC SURVEY, 1961–64

By PRESTON E. HUNTER*

ABSTRACT. A collection of mesostigmatic mites from the Antarctic Peninsula, Deception Island, Signy Island, the South Sandwich Islands and South Georgia included the following species and developmental stages: adults and nymphs of *Hydrogamasus antarcticus* Trägårdh; adults, nymphs and larvae of *Cyrtolaelaps* (*Gamasellus*) *racovitzai* (Trouessart); adults and nymphs of *Cyrtolaelaps* (*G.*) *rykei;* and the female of *Parasitus tarsispinosus*. Recognition characters or descriptions are given for each species and developmental stage.

BETWEEN January 1962 and March 1964 micro-arthropods were collected from Antarctic Peninsula localities, Deception Island, Signy Island, the South Sandwich Islands and South Georgia. Through the kindness of the collector, P. J. Tilbrook, a representative series of the mesostigmatic mites was made available to me for study. This paper deals with four of the species present, two of which are new. Data on the known species, and descriptions and illustrations of the new species are given. Type specimens will be deposited in the British Museum (Nat. Hist.).

FAMILY RHODACARIDAE OUDEMANS 1902

Genus *Hydrogamasus* Berlese 1892

Hydrogamasus antarcticus Trägårdh 1908

Hydrogamasus antarcticus Trägårdh 1908, p. 12–15.

The present material contained protonymphs, deutonymphs, males and females all taken from the base of tussock grass (*Poa flabellata*) at South Georgia in February 1964.

The male and female of this species were described by Trägårdh (1908) from specimens taken from wet moss on Paulet Island. Womersley (1937) described the "first nymphal stage" of a species he listed as *H. antarcticus* Träg., collected from Macquarie Island. Womersley's description and illustration appear to be of a deutonymph, rather than a protonymph, and are not *H. antarcticus*. The material in my possession includes a deutonymph which contains a fully developed female, making positive association possible. Illustrations and comments on identifying characters for the adults are given below, and the deutonymphal and protonymphal stages are described and illustrated.

The adults of this species may be recognized by the following characters: a single dorsal plate; large ventri-anal plate covering most of the venter posterior to legs IV; female without teeth on trochanter IV but a distinct apical postero-dorsal tooth on trochanter III (Fig. 1a) (the tooth on trochanter III was apparently overlooked by Trägårdh); male leg II with a large ventral femoral apophysis and a dorsal tarsal process (Fig. 1b); spermadactyl the same length as the chelae (Fig. 1c).

Female (Fig. 1a). General shape and striation patterns of ventral plates as shown. In addition to the spur on trochanter III, the following characters not mentioned in the original description have been noted: dorsal plate extending to venter; dorsal posterior marginal setae minutely pectinate on one side of seta; one pair of setae arising from integument between dorsal plate and ventri-anal plate; ventri-anal plate bearing eight pairs of simple setae (rather than five pairs as given by Trägårdh) plus post-anal seta; genital sclerites visible beneath genital plate. Exopodal plates as shown; peritremal plate fusing to dorsal plate at about the level of coxa II. Some leg setae bear minute spines. Palps with distal trochanter and basal femoral setae pectinate; anterior median seta of genu terminating in five-six spines; apotele three-tined. Internal malae fringed on lateral margins.

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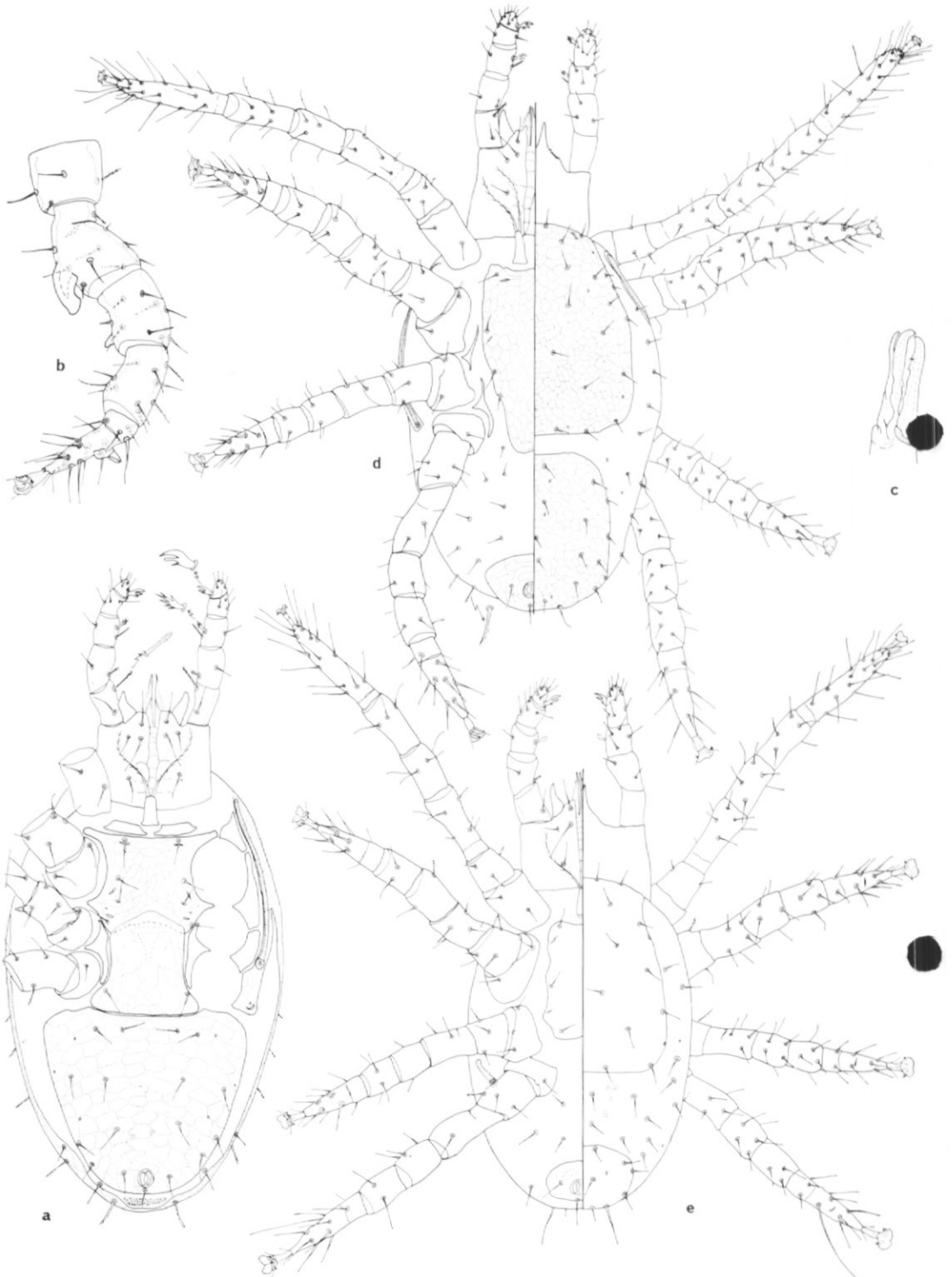
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Male. The general facies of this stage were given by Trägårdh (1908). Not mentioned by Trägårdh were the spined leg setae which occur on all legs—those of legs II as shown (Fig. 1b). Chelicerae as figured (Fig. 1c). Exopodal, peritremal, ventri-anal plates as in female.

Deutonymph (Fig. 1d). Idiosoma 512μ long, 326μ wide (average of eight specimens). *Dorsum*. Bearing an anterior podonotal and a posterior opisthonotal plate. Podonotal plate 269μ long, 267μ wide; bearing 17 pairs of simple setae; reticulation pattern consisting of polygonals which become smaller posteriorly. Opisthonotal plate 212μ long, 200μ wide; bearing 14 pairs of simple setae; reticulations as shown. Peritreme and peritremal plate ending above leg I. Integument bearing five pairs of setae lateral of podonotal plate, and four pairs of setae lateral of opisthonotal plate. *Venter*. Sternal plate 242μ long, 96μ at greatest width; bearing four pairs of setae; reticulation pattern as shown. Endopodal plates at level of coxae II–III and III–IV. Integument bearing ten pairs of setae posterior to coxae IV, the two posterior pairs (*Jv*5 and *Zv*5) minutely spined. Anal plate 79μ long, 110μ wide; shape as shown; setae simple. Peritreme surrounded by narrow plate. *Legs*. Tarsi with claw and caruncle, tarsal setae simple; other leg segments with some setae minutely spined. Chaetotaxy and type of setae as shown. Lengths, including claw and coxa, as follows: I, 570μ; II, 415μ; III, 375μ; IV, 492μ. *Gnathosoma*. General facies as in female. Palpal setae as shown for female. Tectum with a long median point, serrations at base of point. Corniculi heavy, sclerotized. Deutosternal groove with many teeth per row. Relative lengths of gnathosomal setae as shown.

Protonymph (Fig. 1e). Idiosoma 390μ long, 280μ wide (average of four specimens). *Dorsum*. Bearing two plates; podonotal plate 217μ long, 190μ wide, bearing ten pairs of simple setae; opisthonotal plate 73μ long, 125μ wide, bearing six pairs of simple setae, posterior pair longest and spined. Podonotal and opisthonotal plates without distinct reticulations. Integument between plates bearing three-four sclerotized platelets; 12 pairs of setae arising from integument. *Venter*. Sternal plate weakly sclerotized, bearing three pairs of simple setae and two pairs of pores; without reticulations; four pairs of setae arising from integument posterior of legs IV. Anal plate 45μ long, 65μ wide; with three simple setae; reticulation pattern as shown. Peritreme not extending beyond middle of coxae III. Tritosternum with two weakly feathered lacinae. *Legs*. Chaetotaxy as shown. Most setae simple, some spined; tarsi IV bearing a long whip-like dorsal seta. All tarsi with claws and caruncle. Lengths, including claw and coxa, as follows: I, 485μ; II. 325μ; III, 305μ; IV, 380μ. *Gnathosoma*. Palpal genu and femur each with a median spined seta as in adult, other palpal setae as shown. Tectum as in deutonymph except serrated margin not as distinct. Corniculi well sclerotized. Deutosternal groove with weak teeth.

Genus *Cyrtolaelaps* Berlese 1887

Ryke (1962) considered the genus *Cyrtolaelaps* to consist of the following subgenera—*Cyrtolaelaps* Berlese, *Digamasellus* Berlese, *Euryparasitus* Oudemans, *Gamaselliphis* Ryke and *Gamasellus* Berlese. All five have been considered as full genera by other workers. The classification of Ryke is followed here.

Cyrtolaelaps (*Gamasellus*) *racovitzai* (Trouessart) 1903

Gamasus racovitzai Trouessart 1903, p. 8.
Gamasellus racovitzai (Trouessart); Trägårdh, 1908, p. 7.
Gamasellus (*Digamasellus*) *racovitzai* (Trouessart); Berlese, 1917, p. 5.
Cyrtolaelaps (*Gamasellus*) *racovitzai* (Trouessart); Ryke, 1962, p. 50.

This species was collected from many localities during the period 1962–64 by P. J. Tilbrook. The material examined was taken from moss mats on Signy Island, the Argentine Islands and South Georgia, and from amongst rock and moss on Deception Island. Females, males, deutonymphs, protonymphs and larvae were collected.

Fig. 1. *Hydrogamasus antarcticus* Tärgårdh.
a. Female; venter.
b. Male; leg II.
c. Male; chelicera.
d. Deutonymph; dorso-ventral view.
e. Protonymph; dorso-ventral view.

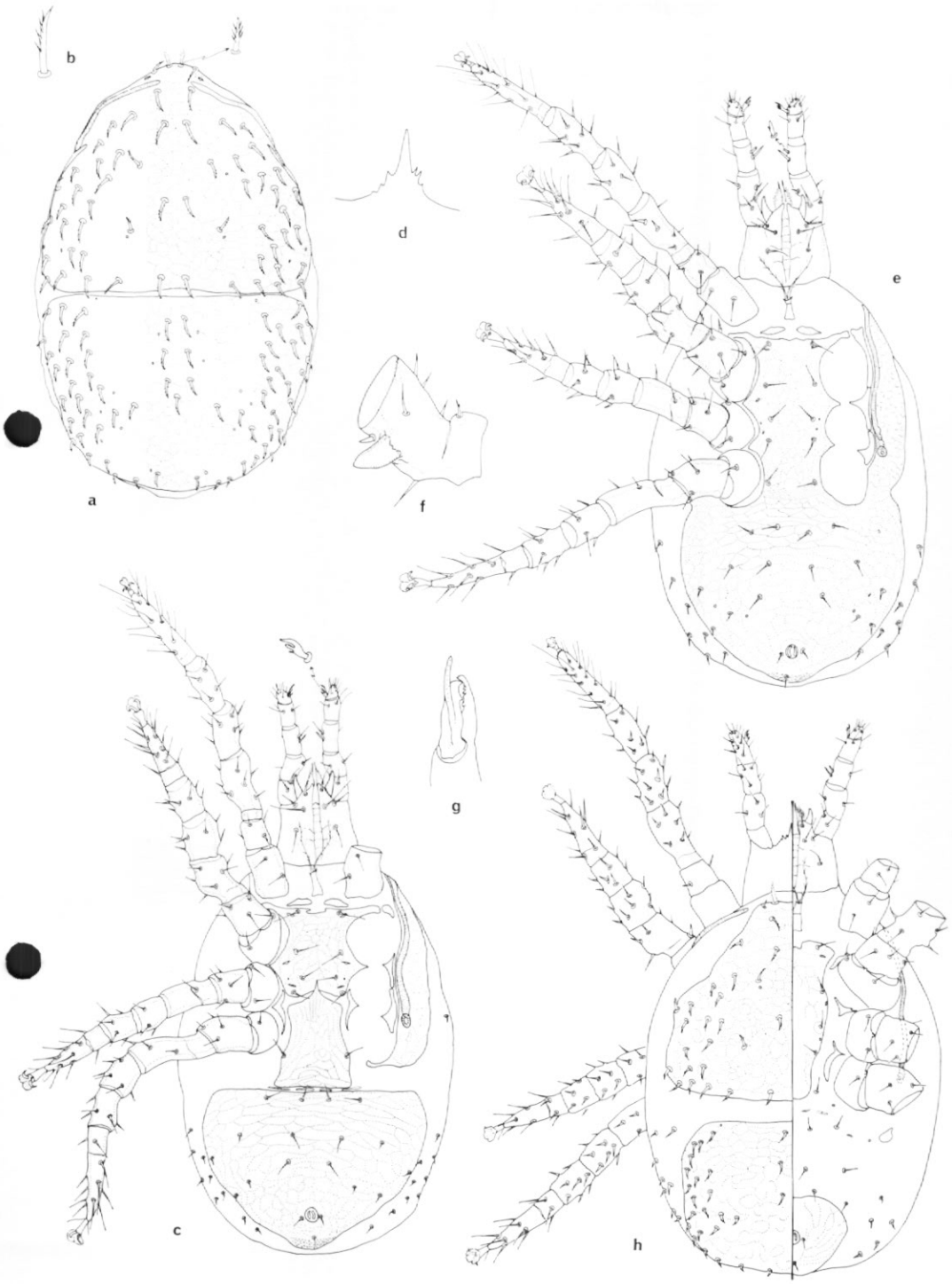
The adult stages of *C.* (*G.*) *racovitzai* were originally described by Trouessart (1903) and re-described by Trägårdh (1908). The larva, protonymph and deutonymph have been described and illustrated by Hunter (in press). In the adults the dorsal plate is divided above coxae IV. In addition, the female is distinct in having two spurs on trochanter IV, the anterior spur being about twice as large as the posterior one, and a single spur on femur IV. In the male, leg II has a large ventral apophysis and a small spur on the femur, a strong ventral spur on both the genu and tibia, and a dorsal process on the tarsus. Leg II resembles *H. antarcticus* in the femoral apophysis and tarsal process. The spermadactyl of *C.* (*G.*) *racovitzai* extends beyond the chelicera and curves medially. In two specimens, both from South Georgia, the spermadactyl process was only slightly larger than the chelicerae; however, in other characters these males did not significantly exceed the variations noted in the males of this species. In both nymphal stages the posterior dorsal plate has a tuberculated posterior margin.

Cyrtolaelaps (*Gamasellus*) *rykei* n. sp.

This species is represented by females, males, deutonymphs and protonymphs. The adults can be recognized by the following: hypertrichy of the anterior (29 pairs of setae) and of the posterior (31 pairs of setae) dorsal plates; the ventri-anal plate bears 19 setae; the peritremal plate is fused to exopodal IV; the peritreme ends dorsally near seta *j*2, partially cutting off a part of the dorsal plate bearing setae *j*1 and *r*1. Sexual dimorphism is evidenced by leg II of the male bearing a ventral femoral spur.

Female. Body oval, well sclerotized. *Dorsum* (Fig. 2a). Covered by two plates; anterior plate 305μ long, 365μ at greatest width; posterior plate 300μ long, 372μ at greatest width; plates separated medially by narrow strip of integument; plates heavily reticulated; anterior plate bearing 29 pairs, posterior plate bearing 31 pairs of setae; setae *j*1 pectinate on all sides, remaining setae curved slightly apically and bearing minute spines along convex side (Fig. 2b); relative lengths of setae as shown. Peritremes terminating dorsally, anterior to seta *j*2, partially cutting off part of dorsal plate bearing setae *j*1 and *r*1. *Venter* (Fig. 2c). Sternal plate 123μ long, 85μ at narrowest width between coxae II; bearing four pairs of simple setae, anterior pair longest; position of pores and setae as shown; anterior median margin of plate with a concave semi-circular area in line with base of tritosternum. Pre-endopodal plates present; endopodal plate between coxae III and IV. Genital plate pointed anteriorly where it overlaps sternal plate; truncate posteriorly; bearing genital setae only; striations distinct, those of posterior half appearing beaded. Four narrow elongate platelets in integument between genital and ventri-anal plate. Ventri-anal plate 230μ long, 316μ at greatest width, covering most of venter behind coxae IV; bearing eight pairs of simple setae plus the three anal setae, the four lateral setae on each side distinctly shorter than median setae; reticulations on anterior of plate appearing beaded, reticulations becoming fainter around anal area. Integument lateral of ventri-anal plate bearing nine pairs of short simple setae. Peritremal plate wide, fused with exopodal plate IV; reticulate lateral of coxa IV only, remainder of plate appearing stippled. Three separate exopodal plates as shown. Tritosternum consisting of base and two pectinate lacinae, base minutely pointed at junction with lacinae. *Legs*. All setae simple, short, those of tarsi longest. Dorsal setae slightly thicker and shorter than ventral setae. All tarsi with claws and caruncles. Lengths, including claw and coxa, as follows: I, 525μ; II, 420μ; III, 365μ; IV, 500μ. *Gnathosoma*. Deutosternal groove bearing seven rows of denticles, many teeth per row; internal malae ciliated along lateral margin; relative lengths of gnathosomal setae as shown. Palpal setae simple, the anterior median seta of genu thickened slightly and blunted. Apotele three-tined, posterior tine reduced. Tectum with an elongate median point with two-three pairs of smaller points at its base (Fig. 2d). Chelicerae chelate, fixed digit with three teeth, movable digit with one tooth.

Fig. 2. *Cyrtolaelaps* (*Gamasellus*) *rykei* n. sp.
a. Female; dorsum.
b. Female; dorsal seta.
c. Female; venter.
d. Female; tectum.
e. Male; venter.
f. Male; femur II.
g. Male; chelicera.
h. Deutonymph; dorso-ventral view.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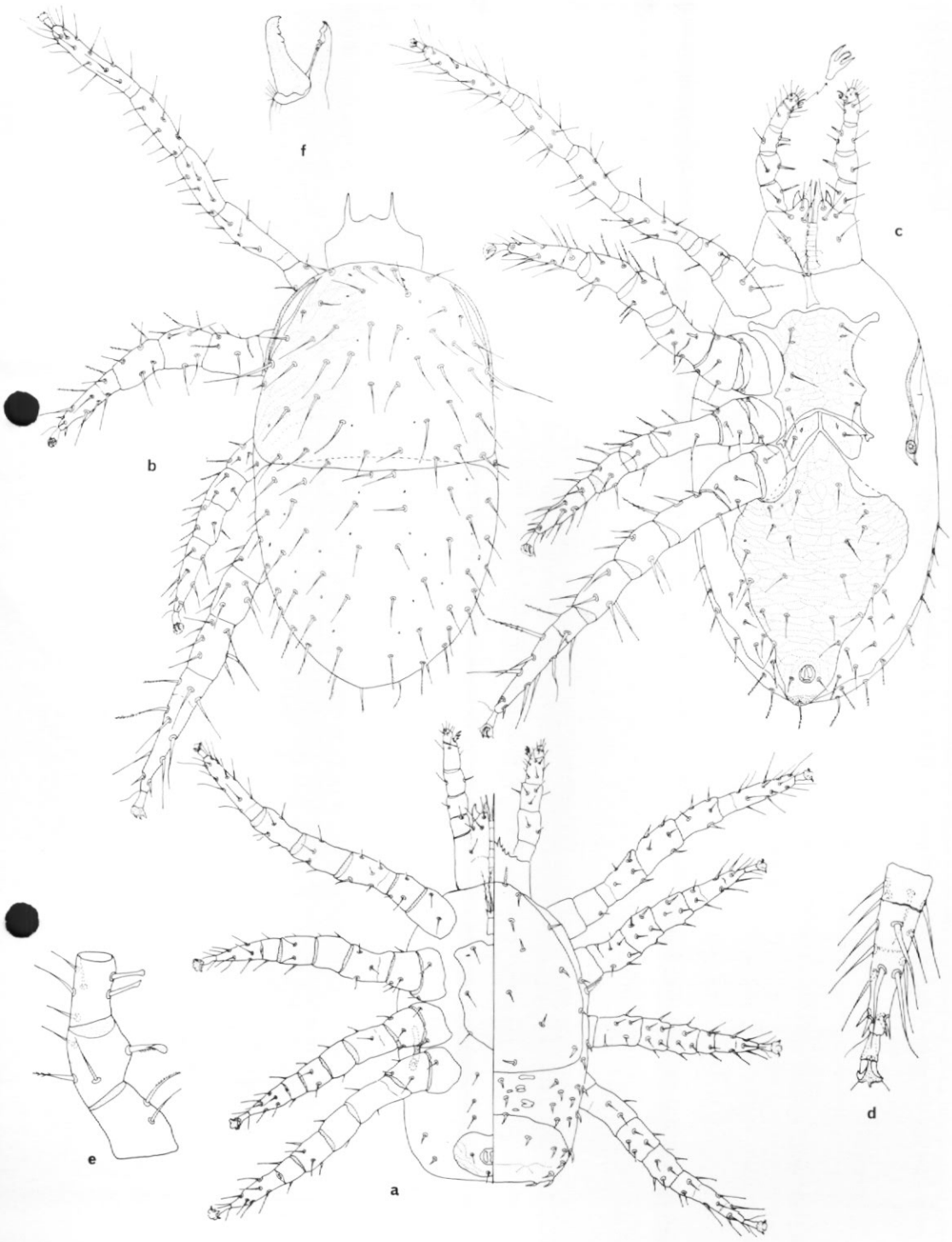
Male. Shape as in female. *Dorsum*. General facies of the two dorsal plates and chaetotaxy as in female. Anterior dorsal plate 280μ long, 321μ wide; posterior plate 243μ long, 326μ wide. *Venter* (Fig. 2e). Holoventral plate 418μ long on mid-line, narrowest width between coxae II 78μ, between coxae IV 65μ; greatest width behind coxae IV 256μ; fused to peritremal plate and exopodal plate IV; line of fusion apparent between sterni-genital and ventri-anal plates; bearing 13 pairs of setae plus the circum-anal setae; relative lengths of setae as shown; reticulate pattern of plate distinct, reticules bead-like in appearance behind coxae IV, becoming faint medially behind bead-like pattern; marking of peritremal plate not forming a pattern. Pre-endopodal plates present, shape as shown; three exopodal plates, position and shape as illustrated. Tritosternum as in female. Integument posterior of coxae IV bearing seven pairs of short simple setae. *Legs*. Leg II thickest, femur bearing a heavy ventral spur (Fig. 2f); a dorso-lateral seta on femur and on trochanter with one-two minute spines, remaining leg setae simple. Terminal setae of tarsi II thickened at base. Dorsal leg setae shorter and thicker than ventral setae. Lengths, including claw and coxa, as follows: I, 479μ; II, 376μ; III, 344μ; IV, 464μ. *Gnathosoma*. General facies as in female. Chelicerae chelate; movable digit bearing a finger-like spermadactyl process which extends beyond end of digit (Fig. 2g); fixed digit with three, movable digit with one tooth.

Deutonymph (Fig. 2h). Idiosoma 469μ long, 342μ wide. *Dorsum*. Two dorsal plates. Podonotal plate 247μ long, 282μ at greatest width; bearing 26 pairs of setae, most anterior pair pectinate, remaining setae slightly curved and bearing one-four minute spines along concave margin; position of setae and reticulate pattern as shown. Opisthonotal plate 200μ long, 255μ wide; bearing 25 pairs of setae similar to but slightly shorter than curved setae of anterior plate; reticulations forming a pattern only on anterior part of plate; overall pattern and setal position as shown. Integument bearing eight pairs of setae, all lateral of posterior plate, similar to those on posterior plate. *Venter*. Sternal plate 187μ long, 77μ at greatels width; anterior margin with a median concave area as in female; bearing four pairs of simpet setae and three pairs of pores; shape of plate and reticulation pattern as illustrated. Three endopodal plates as illustrated; three pairs of weakly sclerotized platelets posterior to sternal plate, lateral of these a distinct metapodal plate. Integument bearing 12 pairs of setae, lateral setae shortest and slightly curved; one or sometimes two setae anterior of anal plate arising from a small weakly sclerotized platelet. Anal plate 96μ long, 137μ wide; linear reticulation pattern; circum-anal setae simple. *Legs*. Chaetotaxy and type of setae as in female. Lengths, including claw and coxa, as follows: I, 409μ; II, 338μ; III, 323μ; IV, 412μ. *Gnathosoma*. General facies as in female.

Protonymph (Fig. 3a). Shape elongate; idiosoma 336μ long, 222μ wide. *Dorsum*. With a large podonotal and a smaller opisthonotal plate and between these four-five pairs of small platelets. Podonotal plate 217μ long, 205μ wide; without distinct reticulations; bearing 11 pairs of setae, anterior pair pectinate on lateral margin only, other setae simple or bearing one-two minute spines. Opisthonotal plate 81μ long, 165μ wide, bearing eight pairs of short curved setae, positioned as shown; reticulation consisting of two-three lines on posterior half of plate. Integument bearing 16 pairs of setae, humeral seta largest and distinctly pectinate on one margin, other setae simple or bearing one-two minute spines. *Venter*. Sternal plate weakly sclerotized, bearing three pairs of simple setae, shape of plate and setal position as illustrated. Endopodal plates absent. Integument bearing three pairs of simple setae between sternal and anal plates, and lateral of anal plate two pairs of short curved setae. Anal plate 53μ long, 86μ wide; linear reticulations only, circum-anal setae simple. Tritosternum as in adults and deutonymph. Peritreme not extending anterior to middle of coxa III. *Legs*. Setae simple, dorsal setae thicker and shorter than most ventral setae. Chaetotaxy as illustrated. Lengths, including claw and coxa: I, 353μ; II, 277μ; III, 263μ, IV, 327μ. *Gnathosoma*. Palpal chaetotaxy as illustrated; tectum of general shape as in female except medial extension much shorter in relation to other tooth-like points.

Fig. 3. a. *Cyrtolaelaps* (*Gamasellus*) *rykei* n. sp. b-f. *Parasitus tarsispinosus* n. sp.
a. Protonymph; dorso-ventral view. b. Female; dorsum.
c. Female; venter. d. Female; ventral view of tarsus III.
e. Female; ventral view of palpal trochanter, femur and genu. f. Female; chelicera.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Described from a series of five females, 15 males, nine deutonymphs and seven protonymphs collected by P. J. Tilbrook. Collection data for all specimens as follows: Candlemas Island, South Sandwich Islands; from *Polytrichum alpinum* mat; 15 March 1964. Details on collection procedures on Candlemas Island have already been given by Tilbrook (Baker and others, 1964).

Remarks. The hypertrichy of the dorsal plates is unusual for this genus; Ryke (1962) considered the normal chaetotaxy to be 22 to 23 pairs of setae on the anterior plate and 20 pairs on the posterior plate.

Family Parasitidae Oudemans 1901
Genus *Parasitus* Latreille 1795

Parasitus tarsispinosus n. sp.

Represented only by the female, which is distinct in having the posterior dorsal setae spined, a long, simple dorsal seta above coxa II and the terminal four setae on tarsi II–IV short and spine-like.

Female. Dorsum (Fig. 3b). Covered by two plates. Anterior plate 324μ long, 366μ wide (measurements are the average of five specimens); bearing 23 pairs of setae, *z*5 spined, other setae simple; marginal row (*r* row) with *r*1 and *r*4 short, humeral seta (*r*3) up to 100μ long. Posterior plate 346μ long, 379μ wide; lateral margins of plate extending ventrally; posterior and posterior marginal setae spined, other setae of posterior plate simple. A single seta on each margin arising from integument between corners of anterior and posterior plates. Peritremal plate fused to anterior plate above coxa I. *Venter* (Fig. 3c). Plates well sclerotized. Sternal plate 117μ wide between coxae II, bearing three pairs of simple setae and two pairs of pores; anterior lateral extension between coxae I and II; reticulation pattern distinct, a series of small semi-circular reticulations along margin of plate medial of coxa II. Metasternal plates large, weakly joined together at median anterior margin; free of sternal plate; each plate bearing a pore and a simple seta. Geniti-ventri-anal plate 424μ long on mid-line, 298μ at greatest width behind coxae IV; plate membranous and without reticulations above coxa IV; reticulations distinct, pattern as shown; bearing 11 pairs of simple setae of unequal length and a spined post-anal seta; seven pairs of setae arising from integument behind coxa IV, most posterior pair spined, other setae simple. Peritremal plate extending posterior of stigmata, widest at level between coxae II and III and bearing a lateral marginal incision in this area. Tritosternum consisting of base and two spined lacinae, base bearing lateral points where lacinae arise. *Legs.* All tarsi with claws and small caruncle; each leg with some spined setae, setal type and pattern as shown. Tarsi II–IV with four terminal setae (al_1, pl_1, av_1 and pv_1) short and spine-like (Fig. 3d), other tarsal setae simple and twice to several times length of terminal setae; tarsi I without this setal arrangement. Lengths, including claw and coxa, as follows: I, 664μ; II, 482μ; III, 456μ; IV, 673μ. *Gnathosoma.* Setae on venter of gnathosoma simple. Deutosternal groove with ten rows of teeth, many teeth per row, the four most posterior rows extending beyond the margins of the groove. Corniculi short, well sclerotized. Palpal chaetotaxy as shown (Fig. 3e); femur with medial seta spined and a membranous spoon-shaped tip, lateral setae weakly spined; trochanter with spined distal seta. Apotele three-tined, middle tine membranous around its margin. Chelicerae strongly chelate (Fig. 3f). Tectum with two long lateral points, median area between points convex.

Described from ten female specimens. *Data:* holotype (female) from Deception Island; under wood on ash plain, Whalers Bay; collected by P. J. Tilbrook; January 1964. Four paratypes with same data; five paratypes with same data except taken from under dead gull.

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