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R. F. LAWRENCE

A contribution to the Solifugid fauna of Southern Africa (Arachnida)

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A CONTRIBUTION TO THE SOLIFUGID FAUNA OF
SOUTHERN AFRICA (ARACHNIDA)

BY R. F. LAWRENCE

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(With nine Text-figures)

The following paper deals with a number of new or little known species of this order of Arachnida from South West Africa, northern and eastern Transvaal and the northwestern Cape; supplementary descriptions of rare species which have not been collected since they were described many years ago, have in a number of cases been given.

The thanks of all students of this group are due to the following collectors: Dr W. G. H. Coaton, who has contributed many new forms from the northern districts of the Transvaal; Mr W. D. Haacke, who has done the same for the north western Cape near the Orange River and South West Africa; Dr U. de V. Pienaar for a new species from the northern section of the Kruger National Park. Finally Mr R. H. Smithers has sent in a new form taken from the stomach contents of the African wild cat, *Felis libyca vernayi* Roberts.

Family SOLPUGIDAE

Genus *SOLPUGOPA* Roewer, 1933

Solpugopa truncata spec. nov., fig. 1 a-c.

♂-Holotype: Sandveld between Shalungwa and Maseya (N. 16), Kruger National Park, September 1963, U. de V. Pienaar leg. The species is unfortunately only represented by two complete chelicerae, having been taken from the stomach of a lizard *Ichnotropis squamulosa* Peters.

Colour: Chelicerae uniformly pale light yellow, fairly thickly covered with long, weak setae, some of them extremely long and slender.

*) Present address: Albany Museum, Grahamstown.

Flagellum seen from outer side short, as in fig. 1a, the apex coming to a smooth point, fig. 1c. Seen from above the flagellum very wide at base tapering regularly in a gentle curve with the concavity directed inwards but with the long axis in general parallel to that of the jaw. The flagellum is peculiar in taking its origin from the inner side below the dorsal level of the jaw.

Dentition: Dorsal jaw seen from above, fig. 1b, with a distinct toothed keel on the inner surface above and in front of the anterior tooth; dentition of dorsal jaw as in fig. 1a the main teeth of both jaws worn and broken, outer series with three teeth following the third main tooth, the middle the largest; inner cheek series with three very small teeth, the middle the largest. Ventral jaw with a sinuous raised keel on its outer surface defined by small granules. Stridulatory organ very weak, consisting of only five short ridges, the two outer ones especially very short. All the bristles of the inner surface of chelicera weak and slender.

Dimensions: Length of chelicera approximately 8 mm.

Genus *SOLPUGEMA* Roewer, 1933

Solpugema fissicornis spec. nov., fig. 2a-c.

♂-Holotype: Farm Little Muck near Pontdrif (Soutpansberg Distr., Tvl.), May 1964, W. G. H. Coaton leg. Holotype NM. 9155 in Natal Museum.

Colour: Chelicerae yellow, an ill-defined, slightly darkened patch dorsally just posterior to the basal enlargement; headplate yellow, a wide anterior band on each side of ocular tubercle and a narrow posterior margination, darker; thoracic tergites dorsally variegated with purplish symmetrical markings on each side, abdominal tergites with a fairly wide blackish-brown band on each side, the area between them light brown, itself divided in the middle by a narrow discontinuous blackish stripe; sternites pale yellow but with a diffused purple band on each side becoming wider and darker posteriorly, the last three sternites (and tergites) entirely blackish; pleurites pale, contrasting sharply with both tergites and sternites; malleoli pale, unicolourous but genital slit blackish. Metatarsus of pedipalp blackish, remaining segments yellow-brown, femur at apex with some irregular blackish markings; tibia and distal segments of legs II and III progressively a little darker purple distally, tibia IV dark brown, the distal segments progressively darker, tibia and metatarsus with a distinct mane of long white silky hairs on dorsal surface.

Flagellum as in fig. 2a seen from outer side, its apex a fourth the distance between basal enlargement and margin of headplate from the latter, one weak downward bend in distal fifth, the remainder almost straight; apex of shaft seen from both sides distinctly forked (fig. 2c seen from outer side, enlarged); shaft seen from above almost perfectly straight, parallel to long axis of chelicera, without teeth, spicules or serrations along its entire length.

Dentition: Dorsal jaw with a short inner keel just in front of anterior bend of flagellum, fig. 2b, with a row of four to five small serrations distally. Main outer tooth series as in fig. 2a, four teeth behind the third main tooth, the third a little larger than the rest which are subequal; inner cheek series with four teeth, the second and fourth extremely small, granuliform, the first a little larger than third.

Setation in general weak everywhere, chelicera with sparse, weak, erect setae, those of headplate even weaker, long and irregular, more numerous at back and sides; thoracic and anterior abdominal tergites with some very long similar setae at their sides. Pedipalp without spiniform setae, but with numerous very long slender setae, especially on tibia and at apex of femur. Metatarsus ventrally with numerous cylinder bristles, metatarsus with scopula except a small portion at the base of segment. Inner smooth area of chelicera with four very short obsolete stridulatory lamellae near its border.

Dimensions: Chelicera 7 mm, width of headplate 5.5 mm, length of headplate 4 mm, pedipalp 21 mm, total length 25 mm.

The species may perhaps be related to *Solpuguna orangica* Lawrence from South West Africa but appears to be distinct from any others of this genus.

Genus *SOLPUGUNA* Roewer, 1933

Solpuguna orangica Lawrence

Solpuguna orangica Lawrence, 1964, *J. ent. Soc. stb. Afr.* 26: 360, fig. 3a-d.

One male, 6 miles W. of Marydale near Prieska (C.P.), 10.X.1962, W. D. Haacke leg.

The specimen agrees in all respects with the description of the above species except that there is only one intermediate tooth instead of two, in the dorsal jaw.

Genus *SOLPUGA* Lichtenstein, 1796

Solpuga praedatrix spec. nov., figs. 1d and e; 3a.

A mutilated specimen sent to me by Mr Reay H. Smithers, National Museums of Rhodesia, appears to be different from any known species of *Solpuga*; it is represented only by a macerated specimen of which the chelicera (with the exception of part of the ventral jaw) and the pedipalps are intact. It was taken with other arthropods from the stomach of *Felis libyca vernayi* Roberts at Kasane (Bechuanaland), in January 1965 in connection with the Bechuanaland Mammal Survey being currently undertaken by the National Museums of Rhodesia; the stomach contents of this felid also contained various scorpions and specimens of the centipede *Scolopendra morsitans* Linnaeus.

The following is a brief description of those parts of the specimen which are complete:

Colour apparently a uniform light reddish-brown, flagellum and dentition deep reddish-black and black respectively.

Pedipalp stout, thickset, the tarsus unusually long; the appendage characterized by the large number of cylinder bristles, whole of metatarsus and most of the tarsus being thickly beset with them ventrally; the whole length of tibia also provided with cylinder bristles but sparsely as compared with metatarsus and tarsus; scopula present on whole of metatarsus except at extreme apices of the segment. Femur near its inner apex with five to six very stout spines or spiniform setae.

Chelicera dorsally with numerous very stout and fairly short spine-like setae; stridulatory area with eight to nine strong ridges.

Flagellum fairly short, reaching to about half way between basal enlargement and anterior margin of headplate; shaft very thick and strong seen both from the side and above, figs. 1d, 3a, in both views decreasing regularly in thickness distally, the apex tubular or cup-shaped; superior margin of the distal half of the shaft thickly covered with short sharp spicules, fig. 1e (enlarged).

Dentition: Dorsal jaw in front of the anterior bend of flagellum very short, without a keel or tooth on its inner surface; two small intermediate teeth, the anterior one minute, the two anterior main teeth equal; inner cheek series with three teeth, the first very large, the second small. Ventral jaw with one large intermediate tooth.

Dimensions: Chelicera 10 mm, pedipalps 36.5 mm.

Family MELANOBLOSSIIDAE

Genus *LAWRENCEGA* Roewer, 1933

Lawrencega tripilosa spec. nov., fig. 3b-d.

♂-Holotype: Annisfontein (Namaqualand Distr., C.P.), 28° 25'S, 16° 54'E, 26.XI.1962, W. D. Haacke leg. Holotype T.M. 9295 in the Transvaal Museum, Pretoria.

Colour: Chelicerae, appendages and headplate pale yellow with an orange tinge, no dark pattern markings, the headplate bisected by a very narrow dark line; abdomen ashy-brown in general, tergites light brown, malleoli with a faint darker margination.

Flagellum consisting of three conspicuous hairs projecting forwards in about the middle of the dorsal jaw from a cluster of feathered hairs; these hairs much thicker and larger than any of the other modified hairs of the dorsal jaw, their superior margins with a fringe of very coarse blunt spicules, fig. 3c.

Dentition as in fig. 3b, dorsal jaw with one obsolete tuberculiform anterior tooth; at extreme proximal end three large, well formed teeth; ventral jaw agreeing with the generotype, *L. bewitti* (Lawrence), in having six well defined teeth, the basal a little larger than the rest. Inner surface of chelicerae with six stridulatory ridges.

Setation: Chelicerae and headplate with a few long slender pointed setae well separated from each other, headplate also with a ground coat of very fine hair-like spicules; arrangement of setae on abdominal and thoracic

tergites as in *Blossiola*, with two transverse rows of a few setae each; sternites thickly covered with short, stiff, fine shiny setae. First stigma-bearing sternite with four curved blade-shaped hairs in a transverse row on each side, the two middle ctenidia on each side a little larger than the others; a fifth smaller ctenidium a little above each row between the second and third ctenidium, fig. 3d. Pedipalp quite unspined, all segments with long very slender setae, those in the apical half of femur and on the tibia stouter and longer than the others. Tarsus of leg IV with 1.2.2.2.2. ventral spines, tarsi II and III with 1.2.2.2.

Dimensions: Pedipalp 6.7 mm, total length 7 mm.

The species agrees with the generotype and only other species, *L. bewitti*, in having six equal-sized teeth on the ventral jaw. It differs extremely, however, in the shape of the dorsal jaw and in having three large teeth near its base; the teeth of the ventral jaw are much nearer the apex of the fang in *tripilosa* than they are in *bewitti*.

Family DAESIIDAE

Genus *BLOSSIOLA* Roewer, 1933

Blossiola macilenta spec. nov., fig. 3e-g.

♂-Holotype: Brand Kaross (Namaqualand Distr., C.P.), November 1962, W. D. Haacke leg. Holotype T.M. 9346 in the Transvaal Museum.

Colour: Entire animal pale yellow without darker markings except the black ocular tubercle; the setae of the dorsal surface brown.

Setation: Chelicera above and at the sides, especially posteriorly, with long, fairly stout apically cleft setae, headplate with similar setae fairly numerous posteriorly and at the sides, a background coating of fine, very short setae; thoracic tergites with a regular row of setae along their posterior margins; abdominal tergites with two transverse rows of similar setae, those of posterior row longer and thicker; ventral surface fairly densely covered with white silky bristles of moderate length; chelicera with seven stridulatory ridges.

Abdomen with four long curved and pointed scimitar-shaped ctenidia on each side of the middle line on first stigma-bearing sternite, fig. 3g, second stigma-bearing sternite without.

Pedipalp femur without, tibia with one inner spine; metatarsus with two well separated inner spines, 0 outer; tibia and to a less extent femur very long and slender, their combined length about equal to the total length of the animal, or a little more.

Flagellum as in fig. 3f, in the form of a stalked capsule with most of the inner surface uncovered; principal seta rising from a point just above and a little behind the rotatory centre of the flagellum, very stout, noticeably thicker than any of the other incrassate setae of the dorsal jaw, curved downwards near its apex and bluntly pointed, fig. 3e; neither this nor any of the other setae on the dorsum of the chelicera spiculated.

Dentition of both jaws very long and slender, the two anterior teeth of dorsal jaw obsolete and represented by two low, hardly perceptible tubercles, fig. 3e.

Dimensions: Femur and tibia of pedipalp 11.5 mm, total length 11 mm.

The species differs from all others of the genus in having four pairs of ctenidia, the unusually attenuated jaws with the two anterior teeth of the dorsal one missing. The number of ctenidia in this family might well constitute a generic character seeing that members of the genus *Biton* [with the exception of *B. schultzei* (Kraepelin), which has four] have either none or a larger number than five, usually a considerably larger number; in *Blossiola* the usual number is three or two pairs (in the present instance four pairs); North African species usually have no ctenidia in this genus, while males of species from Southern Africa on the other hand have them without exception.

Blossiola species.

One female, Sossus Vlei (Walvis Bay Distr.), 20.X.1965, W. D. Haacke leg.

Genus *BITON* Karsch, 1880

Biton haackei spec. nov., fig. 4a and b.

♂-Holotype: Brand Kaross (Namaqualand Distr., C.P.), November 1962, W. D. Haacke leg. Holotype T.M. 9292 in the Transvaal Museum.

Colour: Headplate with the characteristic pattern of purple marking, the central portion pale. Chelicera with three faint longitudinal stripes, abdomen pale without markings. Pedipalp with femur distally and remaining segments reddish-violet, lighter below; legs suffused with pale reddish-violet, especially tibia and femur of leg IV.

Setation: Chelicera with only about five or six long, strong, spiniform setae on dorsal surface, the others much weaker; headplate with weak scattered setae, a row of six to eight strong spiniform setae on the posterior margin; six stridulatory ridges. First stigma-bearing sternite with eight to ten ctenidia on each side of middle line, fig. 4b, much thickened and sharply pointed as in *B. betschuanicus* (Kraepelin).

Flagellum as in fig. 4a seen from the outer side; when rotated forwards falling a little short of the dorsal jaw; seen from inner side the capsule shaped much as in *B. triseriatus* Lawrence, the anterior fold occupying about a third the width of the capsule.

Dentition as in fig. 4a, seen from the outer side, ventral jaw considerably longer than dorsal one which is a little narrower at its apex.

Pedipalpi with four pairs of spines, the two distal pairs short and blunt, the proximal ones longer and pointed; femur with a row of four strong spiniform setae on inner ventral side, tibia with four pairs of long ventral setae.

Dimensions: Pedipalps 14.4 mm, total length 12.5 mm.

The species resembles several others [*B. ovambicus* (Lawrence), *B. striata* (Lawrence) and *B. triseriatus*] in the general dentition and shape of the flagellum, but all these have ctenidia of a very different shape, being elongate and setiform; the general form of the ctenidia resembles that of *B. betschuanicus* from the Kalahari but the number is far fewer, eight to ten as compared with 20-22 and the shape of the teeth in both jaws is different. The length of the pedipalp exceeds that of the total body.

Biton cataractus spec. nov., fig. 4c-g.

♂-Holotype: Aughrabies Falls (Gordonia Distr., C.P.), December 1962, W. D. Haacke leg. Holotype T.M. 9347 in the Transvaal Museum.

Colour with the usual pattern of the headplate and abdomen (cf. Lawrence, 1963, fig. 4), chelicera with two rather ill-defined, dorsal longitudinal purple stripes and one faint lateral one; the three stripes on the dorsum of abdomen consisting of short longitudinal bars on each segment which are considerably longer than wide; ventral surface entirely pale. Pedipalp infuscated purple except proximal half of femur, metatarsus the darkest, blackish; legs III and IV with distal two-thirds of femora and whole of tibia violet, II with violet infuscation at apex of femur and base of tibia, I with apex of femur and distal segments infuscated violet, the tibia darkest.

Flagellum as in fig. 4c seen from outer, fig. 4d from inner side; apex of capsule with spicules as in fig. 4g (enlarged). The folded over membrane much wider on the anterior than the posterior margin leaving an opening about half the width of flagellum at its widest; the folded over membranes seen from the inner side for the most part roughened with numerous minute spicules.

Dentition: Dorsal jaw considerably shorter than ventral, the anterior tooth obsolete, the remaining ones large except the intermediate teeth of both jaws which are small. Inner cheek series with four teeth, the first very long and prominent, the second and fourth small, the third moderate. Inner surface of chelicerae with six rather weak stridulatory lamellae.

Setation: Chelicerae dorsally with a few long, strong erect spiniform setae (not more than 12), headplate with a few similar but weaker ones, the anterior and lateral margins with numerous slender hair-like setae; tergites of abdomen with long weak scattered setae and a thick undercoat of very short, fine spicules. Pedipalp femur ventrally with a row of four strong spiniform setae on inner side, a fifth on inner surface in distal third; tibia with two ventral rows of four long spiniform setae; metatarsus with five pairs of ventral spines, the three distal pairs short, blunt-tipped, the others longer and more pointed.

First stigma-bearing sternite with 20-22 long blade-shaped ctenidia on each side, resembling in general those of *B. adamanteus* (figs. 4e and 5e) but not sharply-pointed, bearing two small conical tubercles at their apices, fig. 4f (enlarged).

Dimensions: Pedipalp 18 mm, length of chelicerae 4.7 mm, width of headplate 3.6 mm, total length 18 mm.

The species comes nearest to *B. schreineri* Purcell in my key to the species (1955: 184), but differs from it in many respects, the most important being the shape of the flagellum, the number, size and shape of the abdominal ctenidia.

Biton adamanteus spec. nov., fig. 5a, b and e.

♂-Holotype and ♀-allotype: Sossus Vlei (Walvis Bay Distr., S.W.A.), October 1965, W. D. Haacke leg. Types T.M. 9348 and 9349 in the Transvaal Museum.

MALE: *Colour:* Chelicera entirely pale yellow, headplate pale with a large purple marking on each side in anterior two-thirds, enclosing a pale piriform area, eyes surrounded by a blackish-purple area; dorsal surface of abdomen pale with three narrow longitudinal stripes composed of a small violet bar on each segment; ventral surface entirely pale. Apex of pedipalp, femur and distal segments mottled light violet, femur of leg III and tibia IV lightly suffused with violet.

Setation: Chelicera above with unusually long and strong spiniform setae, ocular tubercle with at least two pairs of long forwardly projecting setae between the eyes; headplate with only a few setae, longer and weaker than those of the chelicera. Inner surface of chelicera with a row of nine long smooth spiniform setae parallel to the dental series; six rather short stridulatory ridges. Abdomen with a group of eight long ctenidia on each side of the first stigma-bearing sternite, shaped as in fig. 5e and probably flattened.

Pedipalp: Femur on its ventral inner side with a row of four long strong spiniform setae, another just above these in distal third, tibia with about four long spiniform setae on each side ventrally, weaker than those of the femur; metatarsus with five pairs of ventral spines, the three distal pairs short and blunt, the two proximal longer and pointed; tarsus unspined.

Flagellum as in fig. 5a seen from outer side, rather elongate, the apex not falling far short of the anterior margin of carapace backwards, when rotated forwards almost reaching the apex of dorsal jaw, falling just short of it; seen from inner side with the lateral margins folded over as in fig. 5b.

Dentition as in fig. 5a, the intermediate tooth of ventral jaw extremely small, granular; intermediate tooth of dorsal jaw also extremely small, outer series with four teeth posterior to the third main tooth, the second minute, the others moderate in size; inner cheek series with four teeth, the second minute, granuliform, the first and third large (the first more so).

Dimensions: Width of headplate 3.5 mm, length 3.1 mm, chelicera 4.8 mm, pedipalp 18 mm, total length 18 mm.

FEMALE: Colouring as in the male. Dorsal surface of chelicera and headplate with much weaker setae than in the male, the jaws not elongate and narrowed. Dentition normal, the small intermediate tooth of both jaws larger than in the male. Pedipalp metatarsus with five pairs of ventral spines, but only the apical pair blunt and spiniform, the remaining ones setiform; tibia with two inferior rows of very long, strong spiniform setae, stronger than those of the male, also stronger than those of the inner sur-

face of femur in distal third. First stigma-bearing sternite with a group of nine or ten ctenidia similar in general shape to those of the male but even longer, more curved, comparatively more slender and separated further from each other.

Dimensions: Pedipalp 13 mm, total length 16 mm.

The species seems to have relationships with *B. ovambicus* (Lawrence) and *B. striata* (Lawrence), but differs from both in the details of dentition, the longer and relatively more slender flagellum, and in the number and shape of the ctenidia. It agrees with *striata* in the female having ctenidia as well as the male.

Biton subulata (Purcell), fig. 5c and d.

Daesia subulata Purcell, 1899. *Ann. S. Afr. Mus.* 1: 393, fig. 12.

One male, 15 miles W. of Kenhardt (C.P.), November 1963, W. D. Haacke leg.

An uncommon species of which very few specimens are known. The specimen before us agrees well with Purcell's description of the holotype from Van Wyks Vlei (Carnarvon Distr., C.P.), except that the narrow, drawn-out shaft of the flagellum appears to be longer than in his figure 12, being about one and three-fourths as long as the rounded basal portion, fig. 5c. The distal half of this shaft is frayed with spicules along the lower edge, and, as in the typical pear-shaped type of flagellum, the margins are folded over on the inner surface; in this case the folding over of the edges of the shaft takes place along its entire length, forming a long straight narrow tube which is open at the apex, fig. 5d, enlarged.

Roewer's drawing 275f¹ (1934:389) of the species is very unlike the actual appearance of the flagellum and must have been based on a specimen rather different from the type which he states he has not seen. In his figure the axes of the two large teeth of the ventral jaw diverge at right angles to each other, while in Purcell's drawing and in our specimen above they are parallel, pointing in exactly the same direction; the shape of the flagellum itself in Roewer's drawing is also incorrect.

The ctenidia of the first stigma-bearing sternite were not figured or described by Purcell but those of the specimen under consideration are entirely different from the structures portrayed in Roewer's figure 275f² which are short and have blunt apices. In the Kenhardt specimen there are 18-20 long blade-shaped ctenidia, fairly wide in the middle, tapering to a point and very like those of *B. adamanteus* figured in this paper.

Genus *HEMIBLOSSIA* Kraepelin, 1899

Hemiblossia evangelina spec. nov., figs. 5f, 6h.

♂-Holotype: 3 miles from Evangelina towards Alldays (Soutpansberg Distr., Tvl.), 10.IV.1964, W. G. H. Coaton leg. In cattle dung droppings together with *Amitermes hastatus* (Haviland), National Collection of Isoptera No. 13627. Holotype NM. 9158 in Natal Museum.

Colour: General colour pattern as in fig. 6h; tibia and proximal two-fifths of pedipalp metatarsus almost black, tergites violet, ventral surface entirely pale.

Setation: Chelicera with a few short, weak setae with blunt or slightly cleft apices; headplate with a few similar setae, more near the posterior margin, a ground coat of very fine short hairs; thoracic segments with a row of similar setae along their posterior margins; abdominal tergites with sparse weak setae arranged in two irregular transverse rows; pleurites almost entirely smooth, sternites thickly covered with short stiff setae. Stigma-bearing sternites without ctenidia. Pedipalp spined ventrally as follows: tarsus without, metatarsus with seven outer, seven inner blunt spines arranged more or less in pairs; tibia (almost twice as deep in distal third as at base) with four outer, three inner spines.

Dentition normal, the two anterior teeth of dorsal jaw large, subequal, one fairly large intermediate tooth, third main tooth a little larger than the two anterior teeth; four to five coarse granules, similar to those of ventral jaw, above the space between the first and third main tooth. Ventral jaw as in fig. 5f. The intermediate tooth obsolete and granuliform, most of the outer surface with large, coarse, well separated granules. Inner surface with an oblique row of seven smooth spiniform setae parallel to the dental row; seven long stridulatory ridges.

Dimensions: Pedipalp 8 mm, total length 12.5 mm.

Additional material: One smaller female (total length 9 mm), 15 miles from Marken towards Potgietersrus (Tvl.), 21.V.1964, W. G. H. Coaton leg.; under prone log with *Allodontermes rhodesiensis* Sjöstedt.

The species most closely resembles *H. michaelsoni* Roewer (fig. 6g) in dentition and spination of the pedipalp, differing in colouring and details of dentition. It resembles this species and *H. lawrencei* Roewer (fig. 6f) in having both jaws beset with large coarse granules on their outer surfaces.

Hemiblossia nama spec. nov., fig. 6c.

♀-Holotype: Van Rhyndorp (C.P.), B. R. Stuckenberg leg. Holotype NM. 9151 in Natal Museum.

Colour: General pattern of colouring as in fig. 6c; ventral surface including legs pale; pedipalpi ventrally and malleoli dark purple.

Setation: Chelicerae and headplate sparsely covered with long weak setae, a few long fine forwardly projecting ones and a single very long seta in the middle of the dorsal surface only a little shorter than the chelicera.

Dentition: Jaws, especially the dorsal one, massive, without coarse granules on their outer surfaces; teeth of dorsal jaw massive, the two anterior ones equal, intermediate tooth very large, not much shorter than the adjacent third main tooth and subequal to the tooth following this; four teeth posterior to the third main tooth in the outer series, the second largest, the fourth smallest; inner cheek series apparently consisting of only one very large and long tooth; inner surfaces of chelicera with an

oblique row of seven smooth spiniform setae parallel to the dental row; stridulatory area with seven strong lamellae.

Legs: Tarsi II and III with 2.2.2.2, tarsus IV with 2.2.2.2 ventral spines.

Pedipalpi unspined but metatarsus with a brush-like irregular covering of short black cylinder bristles as in the *bouvieri*-group of the genus, tibia with similar but far fewer bristles, both segments with a few very fine long setae.

Dimensions: Pedipalp 5.8 mm, total length 8 mm.

The species comes within the *H. bouvieri*-group which also includes *H. termitophila* Lawrence (fig. 6b).

KEY TO THE SPECIES OF *HEMIBLOSSIA* KRAEPELIN
(Based chiefly on colour pattern, figure 6)

- | | | |
|---|--|--------------------------------------|
| 1 | Pedipalp unspined, metatarsus with a thick irregular brush-like covering of black cylinder bristles | 2 |
| — | Pedipalp with pairs of short spines on ventral surface of tibia and metatarsus; metatarsus without cylinder bristles | 4 |
| 2 | Headplate entirely dark, legs entirely pale, fig. 6a. | <i>bouvieri</i> |
| — | Headplate pale in the middle, legs partly dark | 3 |
| 3 | Malleoli pale, outer and inner cheek series with three teeth, length 17 mm, fig. 6b | <i>termitophila</i> |
| — | Malleoli quite dark, outer cheek series with four teeth, inner with one tooth, length 8 mm, fig. 6c | <i>nama</i> |
| 4 | Whole animal uniformly dark except apices of pedipalps and legs, fig. 6d | <i>rubro-purpurea</i> |
| — | Parts of head or abdomen, or both, pale | 5 |
| 5 | Chelicera, headplate and pedipalps dark, fig. 6e | <i>etosba</i> (= <i>pteroceras</i>) |
| — | These parts wholly or partly pale | 6 |
| 6 | Whole animal pale except parts of pedipalp and leg IV; outer surface of dorsal and ventral jaws with large coarse granules | 7 |
| — | Abdomen with either dark lateral bands or a dark median band; outer surface of jaws smooth, or with coarse granules | 8 |
| 7 | Femur of leg IV dark, intermediate tooth of ventral jaw distinct, fig. 6f | <i>lawrencei</i> |
| — | Whole of leg IV pale, intermediate tooth of ventral jaw obsolete, fig. 6g | <i>michaelseni</i> |
| 8 | Abdomen above with a dark median band, the lateral bands pale; outer surfaces of jaws with large coarse granules, figs. 6h | <i>evangelina</i> |
| — | Abdomen above without longitudinal bands, or with a pale median and dark lateral bands (pleurites); outer surfaces of jaws without coarse granules | 9 |
| 9 | Pedipalp wholly dark, abdomen with a pale median and dark lateral bands, fig. 6i | <i>idioceras</i> |
| — | Pedipalp parti-coloured, abdomen in general pale, the tergites with posterior darker margination, fig. 6j | <i>australis</i> |

Family KARSCHIIDAE

TRICHOTOMA gen. nov., fig. 7a-e.

Tarsus I with a pair of small but stout claws; tarsi II-IV each consisting of one segment. Pedipalp without cylinder bristles on metatarsus, but

all segments ventrally with true spines. Coxae I-III with fairly large numbers of long coloured rods or bacilli. Flagellum of male unknown.

Generotype: *Trichotoma brunnea* spec. nov.

The genus differs from *Lipophaga* Purcell, 1903, the only other South African in the family, in the strongly spined pedipalp. The possession of bacilli on coxae I-III in the female may also constitute a generic character as these occur (in the males only) in only one species, *L. michaelsoni* Kraepelin, according to Roewer. Kraepelin in his original description of *michaelsoni* does not mention them, either in the male or female, nor does Purcell in his description of the generotype *L. trispinosa*. Roewer only refers to them in his generic description of *Lipophaga* (1934:319) but not in the description of the family Karschiidae (loc. cit. p. 288) or in his general description of "bacilli" on page 124 (fig. 104).

The female specimen on which the genus is based also differs from other species of *Lipophaga* in its dark colouring, distinctly larger size and robust habitus.

The name of the genus is based on the Greek for "a cutting of hair, **Τριχοτομή**", a direct translation of one of the popular Afrikaans names for a solifuge, "haarskeerder" or hair shearer, the belief being that these arachnids are able to shear a woman's hair with their enormous jaws.

Trichotoma brunnea spec. nov., fig. 7a-e.

♀-Holotype: Hentiesbaai (Swakopmund Distr., S.W.A.), December 1965, W. Steyn leg. Holotype NM. 9161 in Natal Museum.

Colour: Dorsal surface in general blackish-brown, posterior tergites of abdomen a little lighter in the middle; exactly as described for *Lipophaga trispinosa*.

Setation: Tergites with two irregular rows of comparatively few setae, otherwise smooth; pleurites quite smooth, with numerous minute, longitudinal, crease-like folds; sternites thickly covered with short stiff apically cleft setae.

Ventral surface: Coxae with distinct "bacilli" as follows: I with 25-29 on each side, about half as long as those of II, II similarly with 33, those at the base of the segment shorter than the others, but all much smaller (about two-thirds as long) than those of III which consist of 24 very large, thick, conspicuous rods, much darker (reddish-brown) than the adjacent areas; coxa IV without these structures, spiracles of stigma-bearing sternites protected by tufts of simply pointed or apically cleft setae, no feather bristles.

Genital sternite as in Purcell's description of the female of *L. trispinosa* (1903: 12), the median cleft deep, extending about three-fourths the length of the sternite, the two halves well separated posteriorly and strongly rounded, almost semi-circular.

Appendages: Pedipalp without cylinder bristles but with a few setae of varying thickness and with short blunt-tipped spines distributed irregularly on the ventral surfaces of the segments, more on the inner than outer side; these spines varying considerably in length, many of them very short,

the longest about twice as long as the shortest. Tarsus with eight to nine spines, two long, the rest short; metatarsus with 31-34, tibia with 15-17, femur with four to five spines on its inner distal half.

Tarsus of leg I with a pair of minute but distinct claws, thick, short and strongly curved (fig. 7c), thicker and shorter than those shown in Roewer's figure (1934:fig. 73). Metatarsus II with five long, strong spines on posterior dorsal edge; metatarsus III similarly with three very stout blunt spines; between these but more posteriorly, almost on the ventral surface, three pointed spiniform setae; ventral surface of tarsi II and III irregularly covered with stiff setae, IV similar but also with five to six pairs of enlarged spiniform setae which could be interpreted as spines.

Dimensions: Chelicera 7.7 mm, width of headplate 7 mm, length 5.2 mm, pedipalp 18 mm, total length 29 mm.

Family HEXISOPODIDAE

Genus *HEXISOPUS* Karsch, 1878

Hexisopus aureopilosus spec. nov., fig. 8a-c.

♀-Holotype: Omaruru River, about 8 miles from Hentiesbaai (Swakopmund Distr., S.W.A.), March 1966, F. Brown leg. Holotype N.A. 214 in the State Museum, Windhoek.

Colour: Chelicerae and headplate entirely light orange without dark markings except that the ocular tubercle and a narrow anterior margination of the headplate is somewhat infuscated, also a large, vaguely defined, faintly darkened marking on each side of the headplate; dorsal surface of abdomen clay-yellow to brown, covered with long, silky, pale golden or fawn coloured hairs; whole ventral surface and appendages yellow, the reddish spines and setae of legs II-IV giving them a slightly darker tinge.

Chelicera as in fig. 8a seen from the outer side, the jaws short, the ventral one massive and very deep basally but its apical third fairly slender. Seen from above (fig. 8b) the anterior half of dorsal jaw with a cluster of numerous long, fine, forwardly directed setae; a more strongly chitinized oval area at the base of the fang roughened with granules and creases, two of these tooth-like, larger than the rest; the fang itself when seen from above with an angular inner dorsal edge forming a sharp keel, a similar but much less sharp edge on the outer margin, the area between these flat, not concave.

Dentition as in fig. 8a, dorsal jaw with only three teeth, the anterior smallest, the second largest; ventral jaw with two well separated teeth, its outer surface with a blunt, rather irregular keel ending near the base of the anterior tooth; the fangtip in front of this tooth cuneiform, its dorsal surface flattened or slightly hollowed out. Inner surface of both jaws without enlarged smooth spines, but with numerous fine setae basally; stridulatory area large, with 12 long, strong, regular, parallel ridges.

Headplate almost twice as wide as long, much narrower anteriorly than in the middle, shaped like an almost regular semicircle, the posterior

margin straight, an indistinct median groove bisecting it; ocular tubercle not strongly projecting, the eyes about two and a half times their diameter apart.

Appendages: Pedipalp entirely unspined, clothed with long, fine erect setae, metatarsus and tarsus with numerous much shorter cylinder bristles between these; the cylinder bristles dense on the outer sides of these segments, fairly dense on the inner side of tarsus, sparse in the distal and absent in the proximal half of the inner side of metatarsus; many of these bristles rounded and not truncate apically. Apex of tarsus with a fascia of bristles distinctly longer and thicker than the other cylinder bristles, forming a peculiar claw-like structure, bent strongly inward at right angles to the long axis of the segment (fig. 8c). Leg IV with five malleoli.

Dimensions: Length of chelicera 5.6 mm, length of headplate 3.5 mm, width 6 mm, width of abdomen (somewhat artificially compressed dorso-ventrally) 12 mm, length 16 mm, total length 21 mm.

The species resembles *H. fodiens* Simon from the Kalahari which was, however, based on an immature specimen with only three malleoli. It resembles *fodiens* in the general shape of the jaws and the dentition, as well as in the ocular tubercle projecting but little beyond the anterior margin of the headplate. It differs, however, in lacking "red bacilli" between the setae of the anterior margin of the headplate.

Dr W. Steyn of the State Museum, Windhoek, first supposed that this solifuge burrows just beneath the surface of the sand, leaving a visible, but smaller, track like that of the desert golden mole, *Eremitalpa granti namibensis* Bauer & Niethammer or the limbless skinks, *Typhlosaurus braini* Haacke and *FitzSimonsia brevipes* (FitzSimons) from the Namib as described by Haacke (1964:7). Although there is still a distinct possibility that this arachnid is a sand burrower, Dr Steyn now informs me that such a habit cannot yet be confirmed as it has not actually been observed.

The abbreviated limbs and rotund clumsy body with its covering of shiny gold or fawn coloured hair, give it a striking resemblance to a miniature specimen of the desert golden mole.

Hexisopus swarti spec. nov., fig. 9a-d.

♂-Holotype and two ♂-paratypes: Vegkop, 5 miles due North of the Brandberg (Outjo Dist.), S.W.A., March 1966, P. S. Swart leg. Holotype N.A. 215 in the State Museum, one paratype NM. 9166 in Natal Museum.

Colour: Headplate and chelicerae with colour pattern as in fig. 9a, abdomen entirely darkened, the darkened portions of the dorsal surface a dull slate grey or smoky blackish-grey, the tergites on their posterior borders with a narrow, somewhat darker margination, the hairs on the darkened parts of headplate and abdomen blackish-brown; whole of ventral surface and appendages light yellow except for a faint dark stripe on inferior surface of pedipalp tibia, the hairs clothing these parts light, almost white.

Chelicera as in fig. 9d seen from inner side, fig. 9b from above; inner side of dorsal jaw with a strong granular tubercle about half way between its base and apex; ventral jaw less strongly curved than in *H. infuscatus* Kraepelin, longer and more slender; neither jaws with a tooth or tooth-like tubercle. Outer surface of ventral jaw with a blunt sinuous keel in its proximal half passing from near the inferior margin at its base to near the superior margin at its apex; seen from above the dorsal jaw at the base of the fang with a rounded chitinized area strongly demarcated from the area posterior to it, its surface slightly concave and with numerous equal sized granules.

Flagellum describing an almost complete circle, regularly curved and narrowing gradually to a fine point, the curve of the shaft not reaching the dorsal margin of jaw but a point a little more than half way between it and ventral margin; the basal half of the shaft resembling *H. lanatus* C. L. Koch in being somewhat expanded and lamelliform, fig. 9c.

Setation: Middle third of dorsal margin of chelicera with a few long fine erect setae and far more numerous short cylindrical bristles; inner surfaces of both jaws with dense clusters of long fine setae but no spines or feather bristles; headplate with numerous fine setae, longer than those of chelicerae. Stridulatory area large, the organ rather irregular, with eight to nine complete ridges and a number of shorter ones between them, some of these ridges partly anastomosing at their apices.

Tibia and metatarsus fairly densely covered with long fine white setae, but with very few short cylinder bristles, some present on outer side of tarsus and apex of metatarsus between the longer setae, tarsus with few longer setae.

Dimensions: Total length of largest specimen (Holotype) 24; width of headplate 8, length 5; width of chelicera 4.7, length 9.6; width of abdomen 12, length 13.5; total length of smallest paratype 18.5 mm.

REMARKS: The species agrees in certain characters with both *H. lanatus* from Namaqualand and *H. infuscatus* from Walvis Bay and may perhaps be a linkage form. It resembles *lanatus* in the shape and smaller size of the flagellum (which does not reach the upper margin of the dorsal jaw), body size, and in having few cylinder bristles on the pedipalp; it resembles *infuscatus* in the general shape of the jaws, the colouring of the headplate and chelicerae (though not in the colouring of the abdomen). It differs from both species in having no structures in either jaw which could be described as teeth. Little is known of the habits or ecology of the species except that it has been observed to "dig-dive" in soft sand.

The species is named in honour of its collector, Mr P. S. Swart, a member of the staff of the State Museum, Windhoek.

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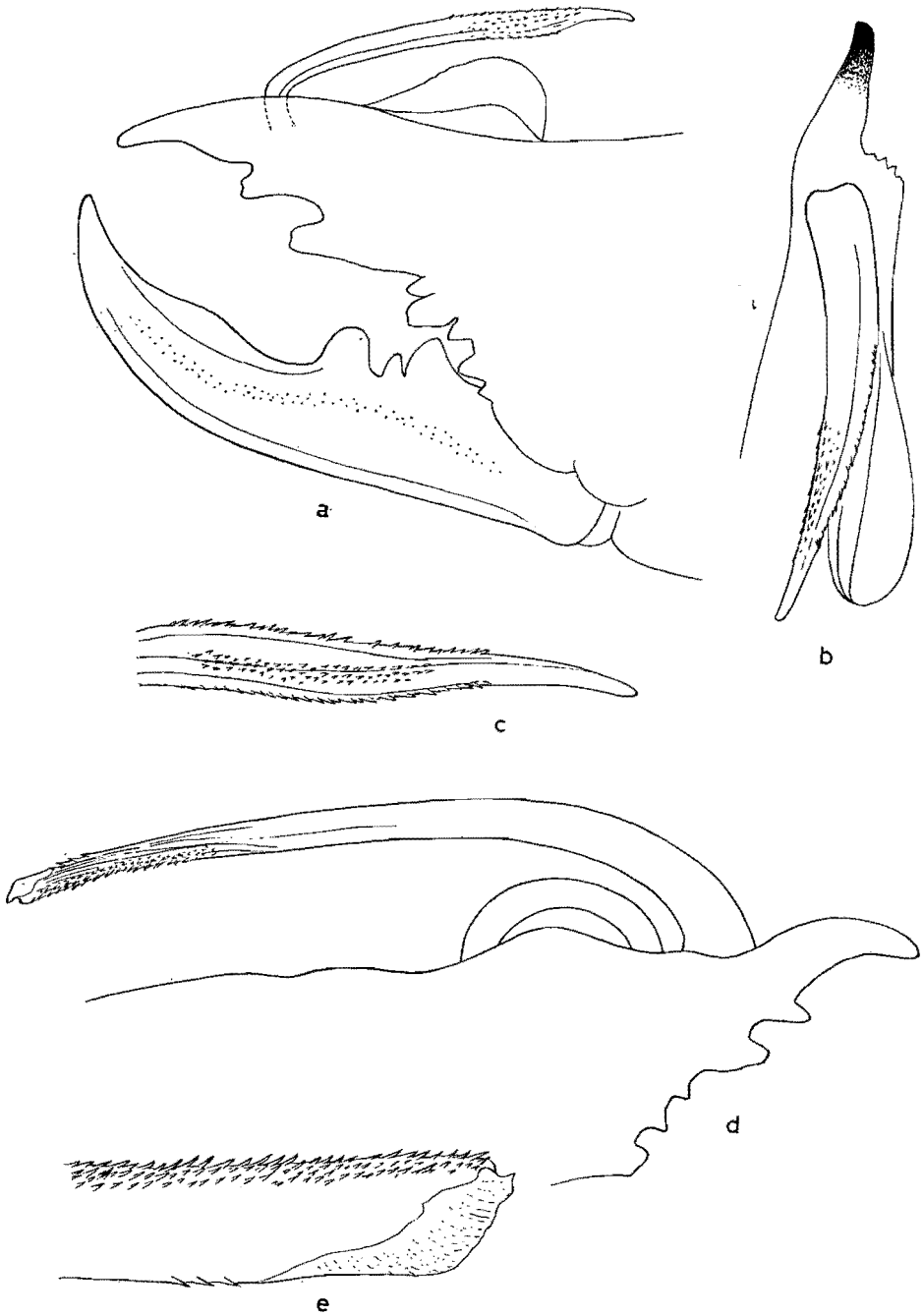


Fig. 1a-c. *Solpuga truncata* spec. nov., ♂; a chelicera from outer side, b apex of dorsal jaw and flagellum from above, c apex of flagellum from outer side. 1d-e. *Solpuga praedatrix* spec. nov., ♂; d dorsal jaw from outer side, e apex of flagellum from outer side (enlarged).

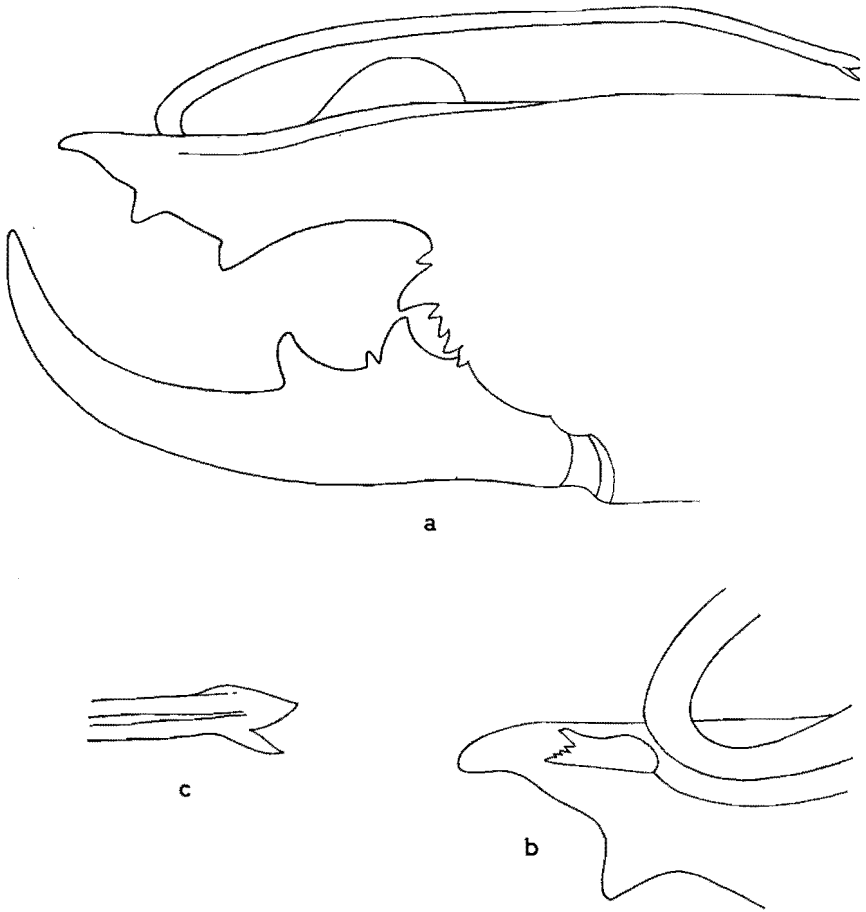


Fig. 2a-c. *Solpugema fissicornis* spec. nov., ♂; *a* chelicera from outer side, *b* apex of dorsal jaw from inner side (enlarged), *c* apex of flagellum from outer side (enlarged).

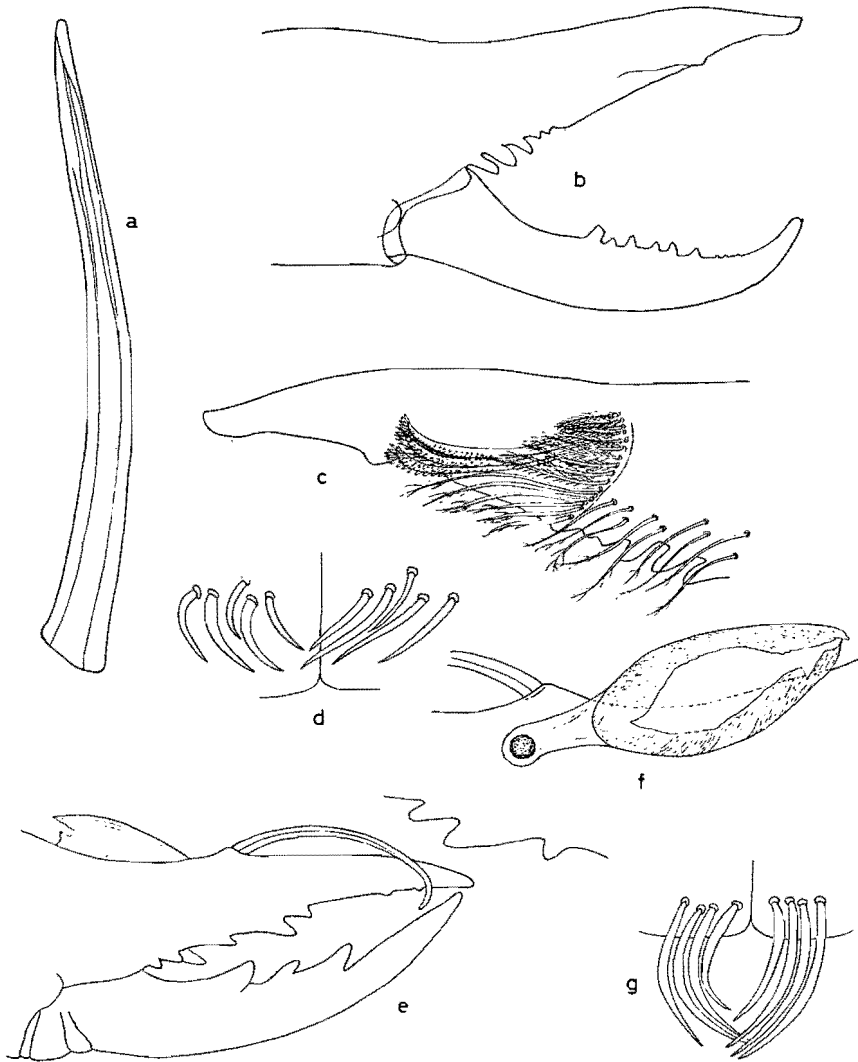


Fig. 3a. *Solpuga praedatrix* spec. nov., ♂; a flagellum from above. 3b-d. *Lawrencegea tripilosa* spec. nov., ♂; b chelicera from outer side, c dorsal jaw from inner side (enlarged), d ctenidia. 3e-g. *Blossiola macilentia* spec. nov., ♂; e chelicera from outer side, f flagellum and part of dorsal jaw from inner side (enlarged), g ctenidia.

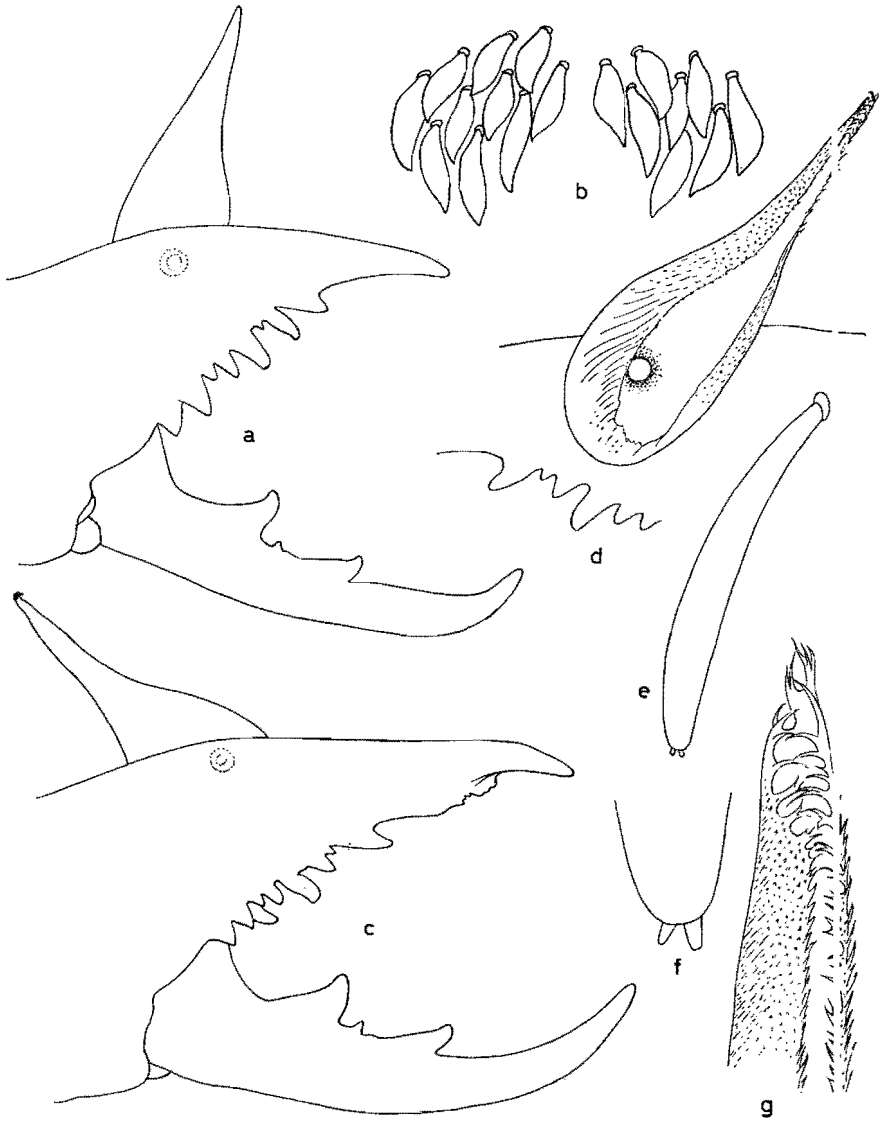


Fig. 4a-b. *Biton baackei* spec. nov., ♂; a chelicera from outer side, b ctenidia. 4c-g. *Biton cataractus* spec. nov., ♂; c chelicera from outer side, d flagellum and part of dorsal jaw from inner side (enlarged), e one of the ctenidia, f apex of same (enlarge 1), g apex of flagellum from inner side (enlarged).

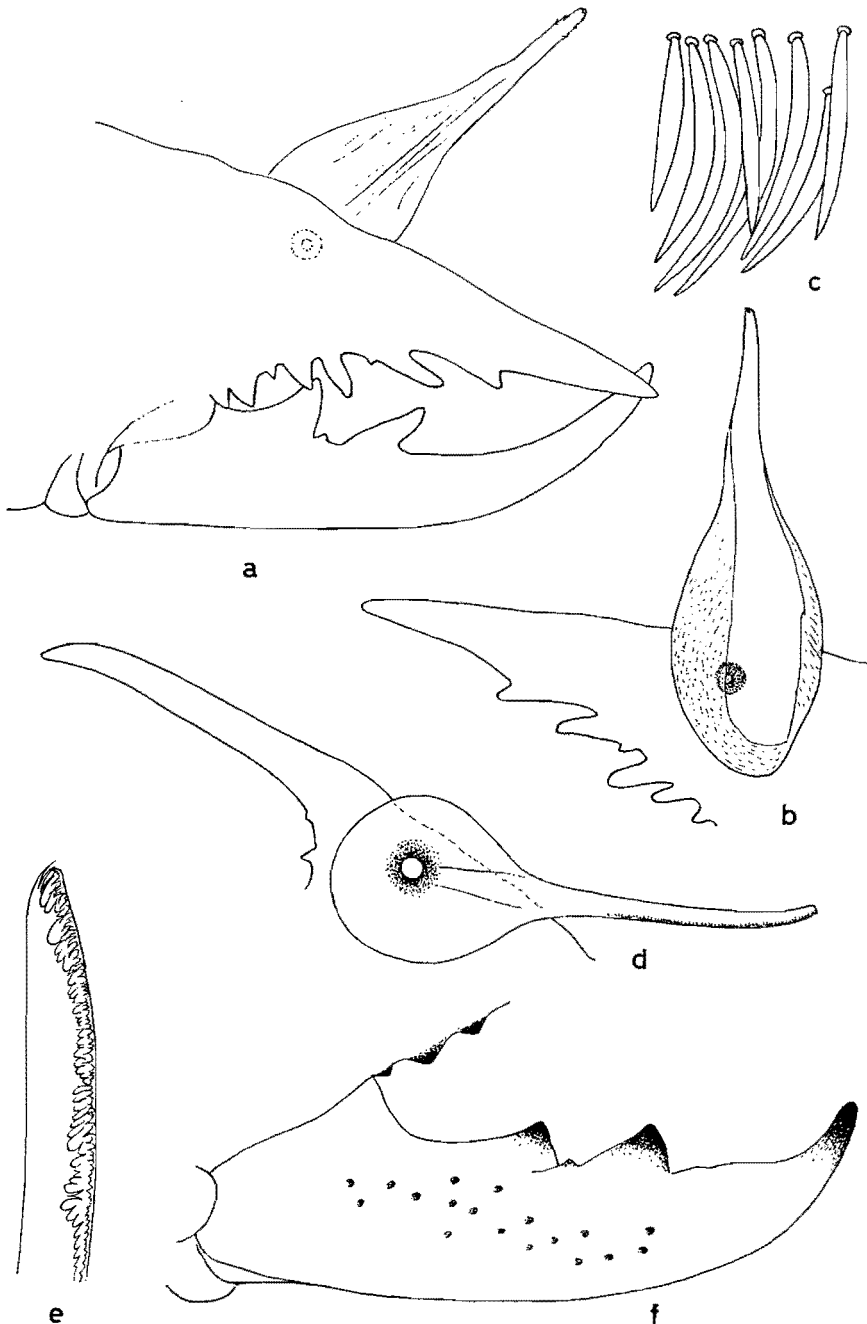


Fig. 5a-c. *Biton adamantus* spec. nov., ♂; a chelicera from outer side, b flagellum and apex of dorsal jaw from inner side, c ctenidia. 5d-e. *Biton subulata* (Purcell), ♂; d flagellum and apex of dorsal jaw from inner side, e apex of flagellum, from inner side (enlarged). 5f. *Hemiblossia evangelina* spec. nov., ♀; f ventral jaw from outer side.

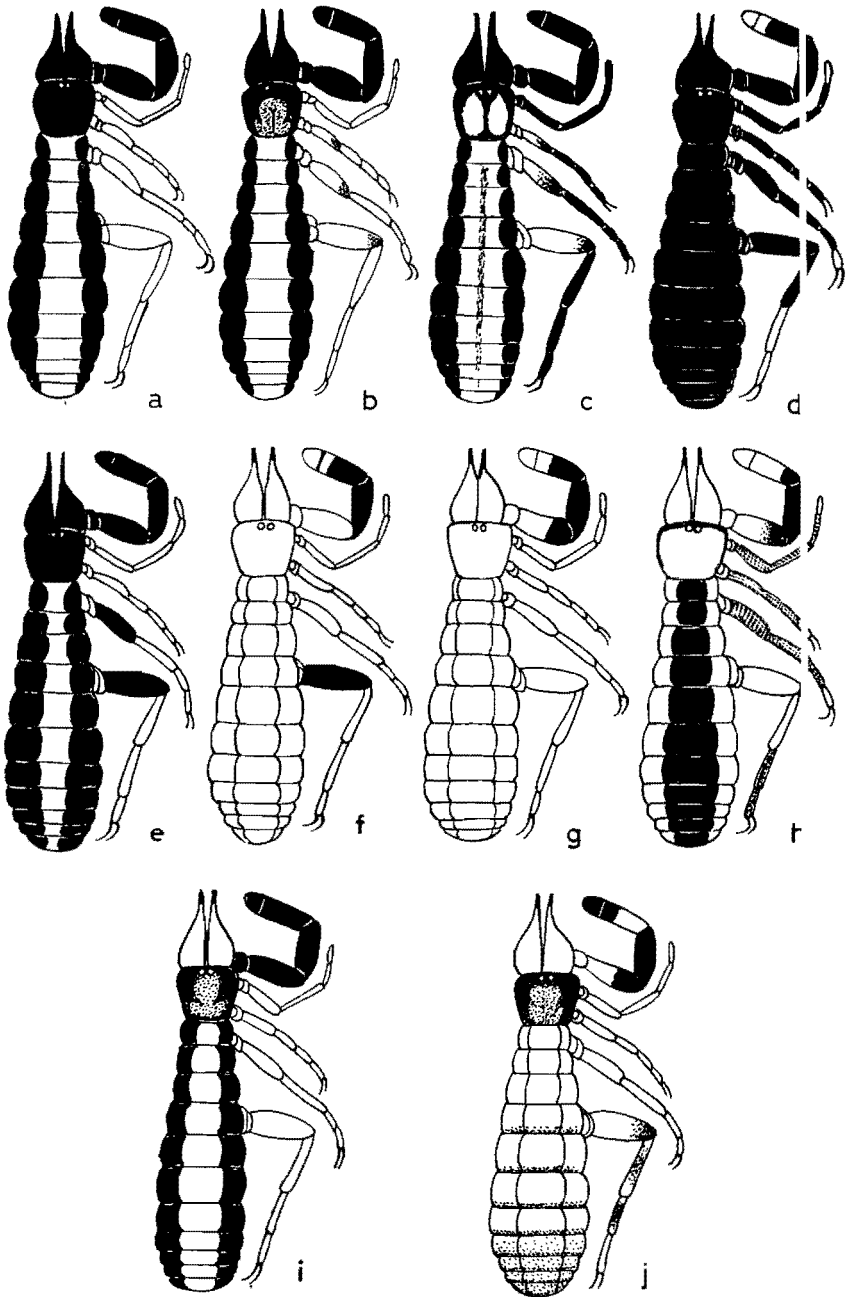


Fig. 6a-j. Colour patterns of the South African species of *Hemiblossia* (partly scherratic). In general the black areas are dark purple to black, the stippled parts violet or brown. *a* *H. bouvieri* Kraepelin, *b* *H. termitophila* Lawrence, *c* *H. nama* spec. nov., *d* *H. rubro-purpurea* Lawrence, *e* *H. etosba* Lawrence, *f* *H. lawrencei* Roewer, *g* *H. michaelseni* Roewer, *h* *H. evangelina* spec. nov., *i* *H. idioceras* Hewitt, *j* *H. australis* (Purcell).

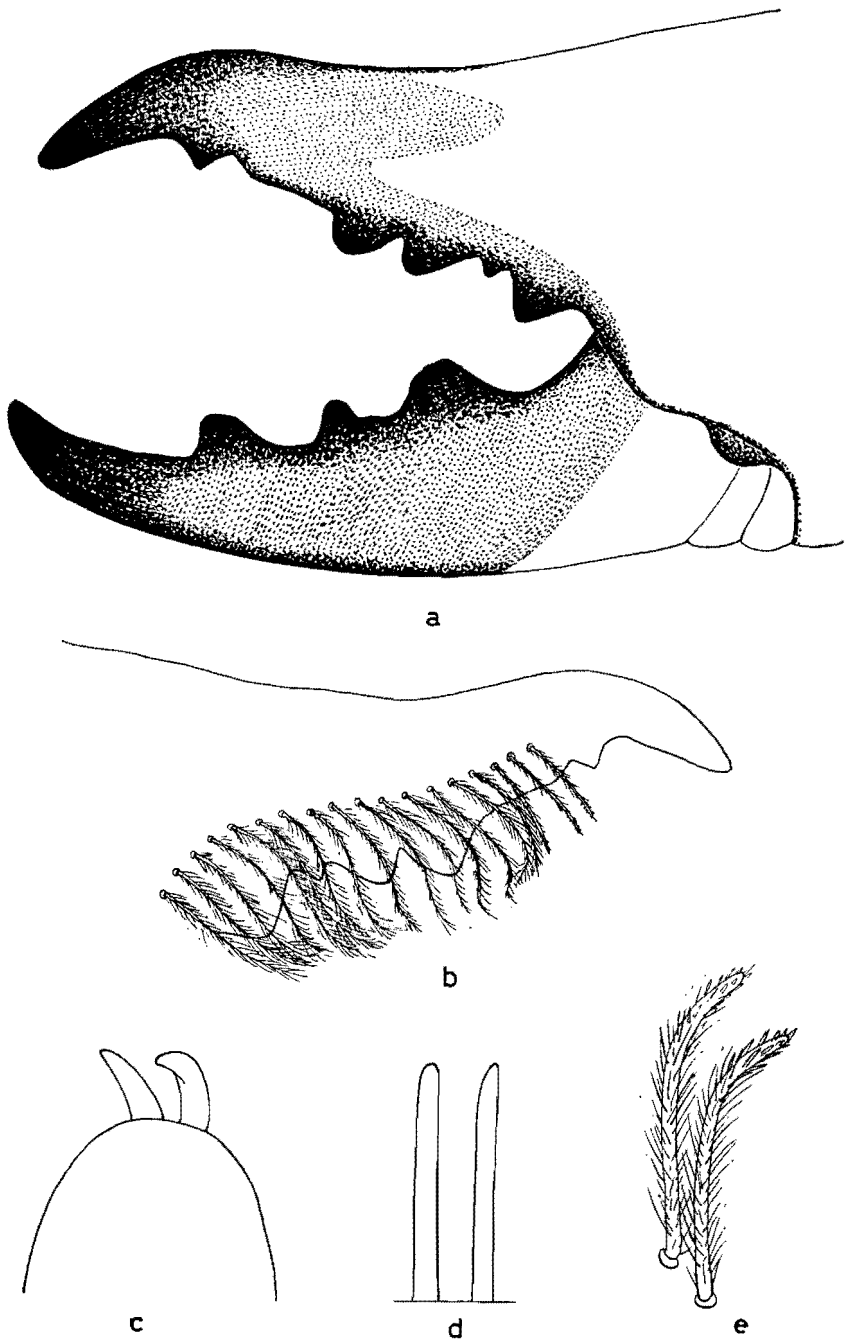


Fig. 7a-e. *Trichotoma brunnea* gen. et spec. nov., ♀; a chelicera from outer side, b dorsal jaw from inner side, c claws of tarsus I, d setae surrounding the claws at apex of tarsus I (enlarged), e anterior feather bristles of dorsal jaw (enlarged).

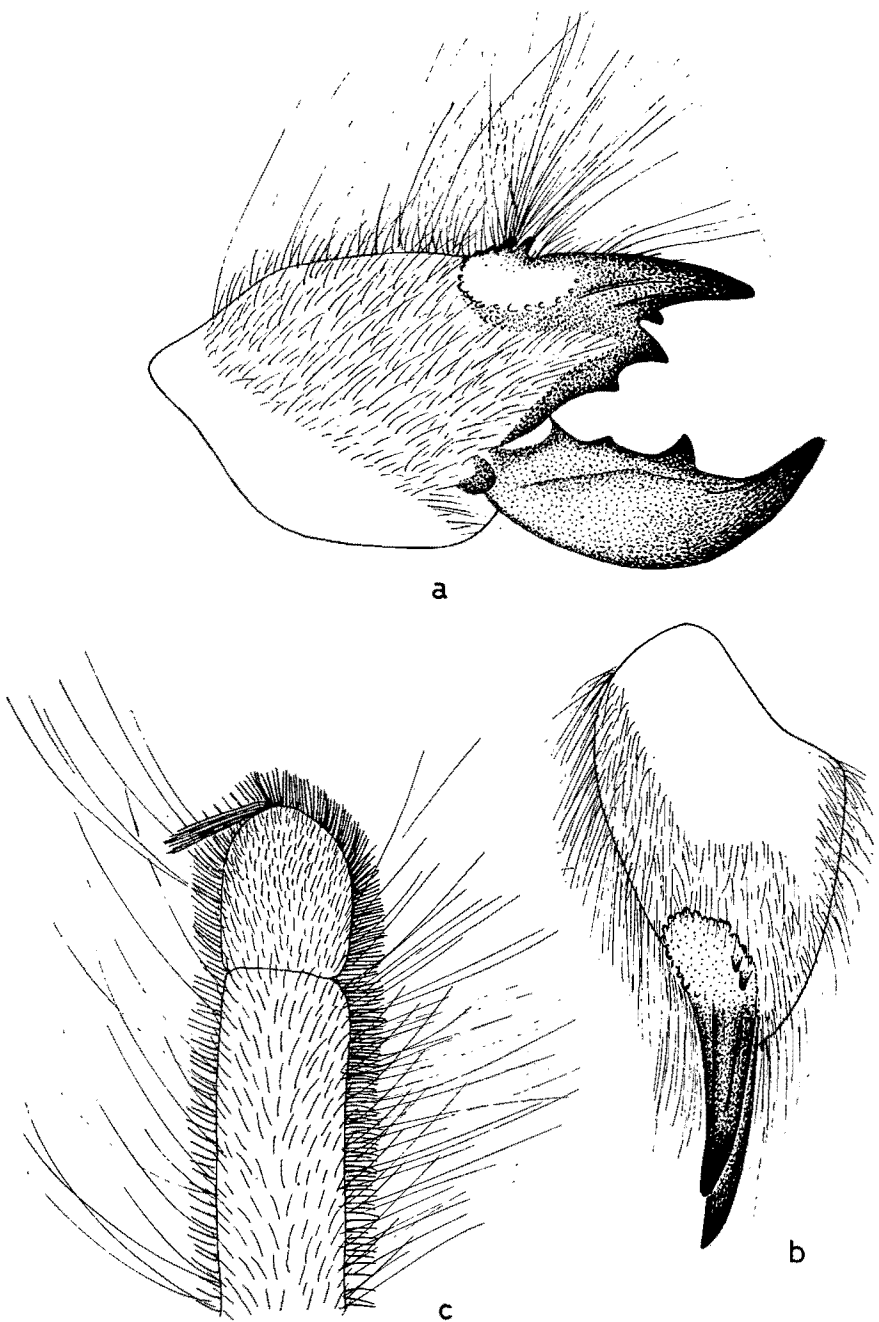


Fig. 8a-c. *Hexisopus aureopilosus* spec. nov., ♀; a chelicera from outer side, b the same from above, c tarsus and part of metatarsus of leg I (enlarged).

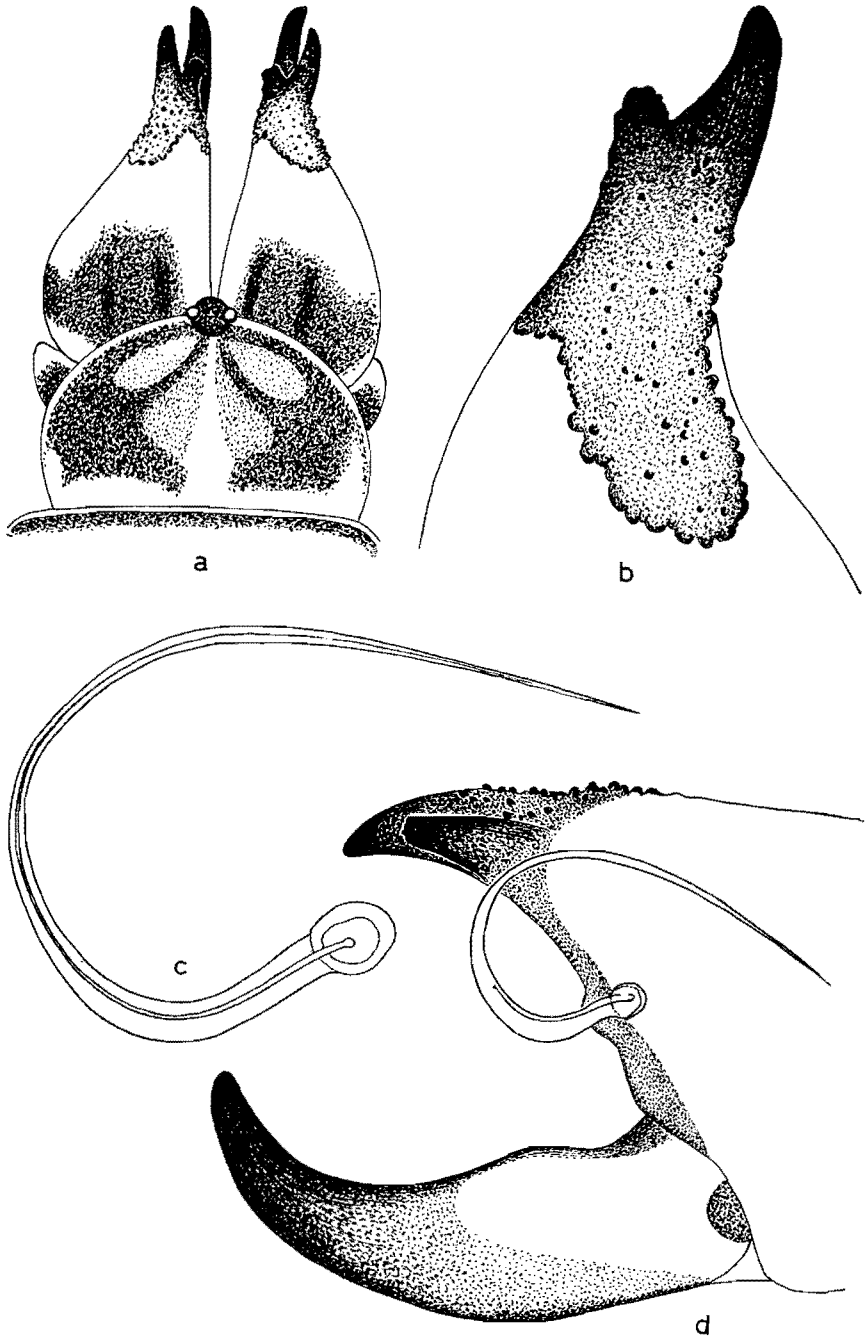


Fig. 9a-d. *Hexisopus swarti* spec. nov., ♂; a pattern markings of headplate and chelicerae, b apex of dorsal jaw of chelicera (enlarged), c flagellum (enlarged), d chelicera from inner side.

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