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hesitation, knowing them merely from the published figures and description. *D. crosslandi* apparently differs from both in the dentition of the mandible, the two outer teeth of the fang-groove being apparently equal and widely spaced in *D. vorax*, and close together and unequal in *D. maxillosa*, whereas in *D. crosslandi* they are unequal as in *D. maxillosa* and widely spaced as in *D. vorax*. No doubt other differences will be discovered when examples of the three species are compared side by side.

6. On some new Harvest-Spiders of the Order Opiliones from the Southern Continents. By R. I. Pocock, F.Z.S.

(Text-figures 79-84.)

[Received November 18, 1902.]

The species described in the following pages are based upon specimens in the British Museum. Perhaps the most interesting part of the paper is the section devoted to the Insidiatores, where considerable additions to our knowledge of this group are to be found. The genera known up to the present time are confined to the southern continents—*Diasia* occurring in Chili, *Tricenonyx* in Chili and the Fiji Islands, *Nuncia* being from Stephen's Island, New Zealand, *Tricenobunus* from Eastern Australia, *Acumontia* from Madagascar, *Larifuga* from Cape Colony, and *Adæum* from Cape Colony and Stephen's Isl., New Zealand. To these I have added *Lomanella* from Tasmania and *Sörensenella* from New Zealand. It is also my good fortune to be able to point out the extension of the genus *Tricenobunus* to Tasmania, and of *Tricenonyx* to New Zealand and Australia, and to be able to add eight new species to the twelve already described.

It seems superfluous to point out the evidence, supplied by the geographical data quoted above, for the former existence of a land-connection between South Africa and Austro-Zelandia on the one hand, and South America and Austro-Zelandia on the other. The former is attested by the existence of the genus *Adæum* both in South Africa and New Zealand; the latter by that of *Tricenonyx* in Chili and Austro-Zelandia. Up to the present time, however, this group of Opiliones supplies no proof of a direct connection between South America and South Africa by means of an antarctic transatlantic extension of land.

Suborder PLAGIOSTETHI.

Fam. PHALANGIIDÆ.

Genus PHALANGIUM Linn.

PHALANGIUM LEPPANÆ, sp. n.

Colour variable: greyish brown, often marbled with darker

patches forming a series of spots suggesting the median dorsal band of *P. opilio*; palpi pale, with darker brown stripes on the femur and patella; legs indistinctly annulated, with femora dark brown, the spines white; patella dark below, tibia with an indistinct broad dark band.

♂. *Dorsal integument* closely granular: carapace with a cluster composed of nearly twenty long and strong or shorter and weaker spines in front of the ocular tubercle; some marginal spines as well; one spine on each side near the tubercle, a transverse row of longer and shorter spines behind the tubercle, and a corresponding row on the posterior segment of the carapace and on the five following fused tergal plates; some additional scattered spines on the terga, especially towards the middle line.

Ocular tubercle armed with four pairs of long and strong spines, unequally or subequally spaced, the first rising slightly above the level of the last.

Basal segment of *mandible* shorter than the oculiferous segment of the carapace, reaching as far forwards as the base of the femur of the palp; armed above with some seta-tipped tubercles and externally with about half a dozen strong curved spines; second segment unspined, subparallel when viewed from the front. *Palp* with femur rather strongly tubercular below; tarsus long and arcuate, as long as patella + tibia and perhaps a little longer than the femur. *Legs* with coxæ distally tubercular; trochanters spined externally and internally; femora studded with serially arranged sharp spiniform tubercles; patellæ apically spined above; tibiæ unspined, with flattened dorsal, ventral, and lateral surfaces, the angles being mostly rounded and hairy, not so sharply angular as in *P. opilio* for example.

♀. Larger than ♂; the spines on the carapace (but not on the tubercle¹), abdomen, and appendages noticeably weaker. *Mandibles* smaller, the basal segment without external spikes or spines.

Measurements in mm.:—♂. Total length 5; length of chelicera 3, of palp 6; femur of 1st leg 5, of 4th leg 6.

♀. Total length 9; chelicera 3, palp 5; femur of 1st leg 4, of 4th leg 6.

Loc. S. Africa: Teafontein near Grahamstown (*Miss L. Leppan*). Also the young of the same or an allied species from Port Elizabeth (*Dr. R. Broom*).

This species apparently differs from *P. capense* Loman (*Zool. Jahrb.*, Syst. xi. p. 518, 1898), from Matjesfontein, in possessing normally not less than four pairs of ocular spines, instead of three; in having the tarsus of the palp as long as its patella and tibia taken together, instead of only about as long as the tibia; and apparently in the greater length of the legs—*i. e.* the type of *P. capense*, measuring 8 mm. long, has a second leg of nearly

¹ The number of ocular spines is variable; 4+4 seems to be the normal, but sometimes an extra small spine is added below in front or behind, so that there are not uncommonly five spines at least on one side. In one example there are six spines on one side and three on the other.

24 mm., whereas a female of *P. leppance* measuring 9 mm. has a second leg of 33 mm. in length.

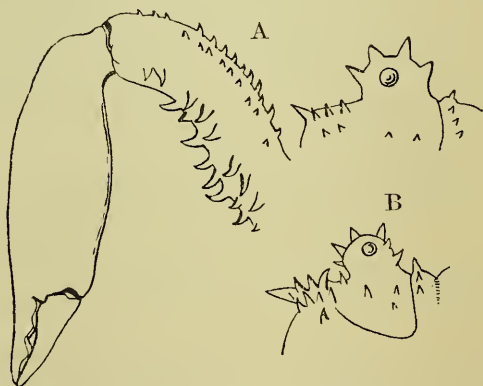
The female of this new species is a genuine *Phalangium*, whereas the male approaches *Rhampsinitus*.

The genus *Rhampsinitus* Simon (CR. Soc. Ent. Belg. 1879, p. lxxii) appears to me to rest upon an insecure foundation. The species I have described below as *Phalangium (Rhampsinitus) telifrons* and *spenceri* differ from *P. leppance* only in the greater length of the mandibles and the greater size of the inferior spines of their basal segment in the male. It is permitted to doubt whether such a character should be granted generic rank.

PHALANGIUM (RHAMPSINITUS) SPENCERI, sp. n. (Text-fig. 79, A.)

Colour of trunk light olive-grey above, with a paler yellowish median longitudinal line, 1 mm. wide, extending from the ocular tubercle with a sinuous darker line external to it; chelicerae yellowish brown, indistinctly banded longitudinally, the spines on the basal segment black-tipped above, second segment mottled with darker spots without and within; legs yellowish red, darker apically; coxæ clouded with chalky white; abdominal sterna whitish.

Text-fig. 79.



Phalangium (Rhampsinitus) spenceri, ♂, and *P. (Rh.) telifrons*.

A. Carapace and mandible of male *P. (Rh.) spenceri*, and

B. Carapace of *P. (Rh.) telifrons*.

Upperside of body finely and closely granular; carapace (text-fig. 79, A) with two pairs of spiniform teeth on each side of the tubercle, a few marginal by Krohn's stigmata, and many on the ante-ocular portion, that on the middle of the front border being conspicuous; the tubercle with *four* pairs of sharp spiniform teeth; a deepish transverse groove, followed by a row of spicules, running to the base of the 3rd leg behind the ocular tubercle; this is followed by six transverse segmental rows of sharp spicules,

the first of which runs to the base of the 4th leg; the remaining four terga without spicules.

Mandibles (text-fig. 79, A) with basal segment arcuate, thickly and strongly spicular above and internally, armed below, both externally and internally, with many long, strong, close-set spines; second segment stout, smooth except for some smallish spicules on the inner side at the base; the digits each with two larger spaced teeth and some smaller ones.

Palpi with a sharp spine at the base of the maxillary process, studded with short, stiff bristles; tarsus long, much longer than tibia + patella, at least as long as femur. *Legs* with femora, and to a lesser degree the trochanters, studded with numerous conical tubercles or spicules; a few also on the patella of the 3rd and 4th legs.

Measurements in mm.:—Total length 6.5; mandible about 9; palp 13; 1st leg 19, 2nd 29, 3rd 18, 4th 29 (approx.).

Loc. Natal (*H. A. Spencer*).

This species is evidently nearly related to *R. crassus* Loman (Zool. Jahrb. xi. Syst. p. 520, pl. 31. figs. 7–9) from the Cape Colony (*loc. ?*), but apparently differs in the much smaller number of spicules in front of the ocular tubercle, the disposition of the spines on the ocular tubercle, the anterior and posterior rising at the same level and both on a level with the eye, and the absence of an angular projection on the base of the second segment of the mandibles.

PHALANGIUM (RHAMPSINITUS) TELIFRONS, sp. n. (Text-fig. 79, B.)

♂. *Colour* yellowish brown, finely mottled with darker median dorsal band.

Dorsal integument closely granular; abdomen with transverse segmental series of sharp tubercles. *Ocular tubercle* longer than high, more than its own diameter from the anterior border of the carapace (text-fig. 79, B), armed with two rows of 5–6 conical tubercles, the largest on the summit subequal to the diameter of the eye; three denticles on the sides of the carapace between the ocular tubercle and the lateral impression, an oblique row external to them, frontal area furnished on each side with a cluster of about a dozen larger and smaller teeth; the middle of the anterior border with a longish, subcylindrical, horizontally directed spine.

Mandibles a little longer than the body; basal segment studded above with numerous sharp tubercles, smooth at the proximal and distal extremities; armed below, externally and internally, with a partially double series of about seventeen or more longer and shorter, mostly curved short spines, decreasing in length towards the distal end of the segment and more or less clustered together at its proximal end; second segment quite smooth except for a few small low tubercles on the upper inner angle, subcylindrical, a little wider at its widest than the second segment. *Palpi* simple, hairy; tarsus longer than femur, which is itself longer than

patella and tibia; a few low tubercles on the trochanter. Coxæ of 1st and 2nd legs with a few low tubercles; trochanters of 1st, 2nd, and 3rd legs with a few spines.

Measurements in mm.:—Total length 8; length of carapace (from anterior border to second groove behind tubercle) 2; basal segment of mandible 3·5, second segment 5, width of latter 1·6; length of palp 9.

Loc. Cape Colony: Jansenville (*Miss Leppan*).

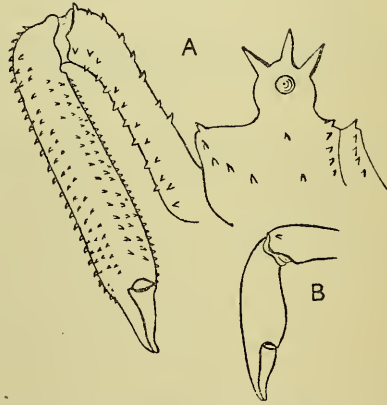
Differs from *R. spenceri* and *crassus*, to which it is nearly related, by the presence of a long porrect frontal spine, &c.

PHALANGIUM (RHAMPSINITUS) LEIGHI, sp. n. (Text-fig. 80.)

♂. *Colour* uniformly blackish brown throughout.

Dorsal integument finely and closely granular; carapace (text-fig. 80, A) with an oblique row of small tubercles on its lateral slope, a few marginal and a small one in the middle of the anterior border. *Ocular tubercle* about $1\frac{1}{2}$ times its diameter from the anterior border, very high, surmounted by three long subequal, subequally spaced spines, the anterior and the posterior rising at nearly the same level and above the centre of the eye. Dorsal scute of *abdomen* with segmental rows of sharp tubercles. *Mandibles* (text-fig. 80, A) long, but variable in length, and

Text-fig. 80.



Phalangium (Rhampsinitus) leighi, ♂ ♀.

A. Carapace and mandible of male. B. Mandible of female.

slender, like those of *Macropsalis*, studded with spicules, which are larger, more numerous, and closer-set on the 2nd than on the 1st segment. *Palpi* unarmed, shortly hairy, femur subequal to the patella + tibia; tarsus rather longer. *Legs* with spicular femora.

♀. A little larger than ♂, yellowish white below. Mandibles quite small and smooth, except for a few apical tubercles on the basal segment (text-fig. 80, B).

Measurements in mm.:—(♂ type). Total length 6; length of carapace 2·3; basal segment of mandible 4, second segment 6; palp about 8; femur of 1st leg 10, of 2nd 16, of 4th 12·5.

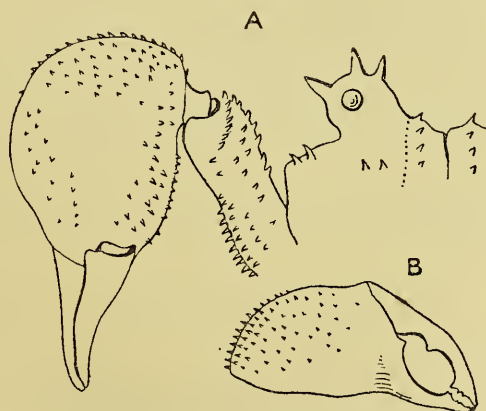
Loc. Durban (*G. F. Leigh*).

Resembling *R. minor* Loman, from Lower Illovo, Natal, in the presence of three pairs of spines on the ocular tubercle, but differing entirely in its much longer and strongly spicular mandibles.

PHALANGIUM (*GURUIA*) PALMATIMANUS, sp. n. (Text-fig. 81.)

♂. *Colour* of trunk blackish brown in the middle, pale at the sides; mandibles infusate; palpi and legs yellowish, partially infusate; trunk finely granular and segmentally spicular as in *P. (R.) spenceri*. *Ocular tubercle* higher, armed with three long spines on each side; only two or three small spicules on the ante-ocular area, no prominent one in the middle, one spicule external to the tubercle, three beyond it and some at the margin.

Text-fig. 81.



Phalangium (Guruia) palmatimanus, ♂.

A. Carapace and mandible of male. B. Anterior view of mandible of the same.

Mandibles (text-fig. 81, A & B) with basal segment sub-cylindrical, tubercularly spinous above, externally and below, the tubercles thicker and smaller below; second segment very large, subglobose, spicular, except internally; fingers long, widely separated, each with two large teeth and some smaller near the apex. *Palpi* with trochanter directed transversely, spicular; femur arcuate, with convexity external, spicular at apex above; patella tubercular above, with one external distal spicule, and an internal distal rounded projection, covered with short hairs; tibia a little longer than patella, tarsus longer than the sum of the two, with a small claw. *Legs* with coxæ, femora, and patellæ spicular;

tibia and protarsus of 1st also spicular, of 2nd, 3rd, and 4th scarcely so; tarsi of 3rd and 4th scopulate below, of 1st and 2nd less so.

Measurements in mm.:—Total length 6; mandible 9; palp 10; 1st leg 23, 2nd 43, 3rd 25, 4th 36.

Loc. East Africa: Mombasa (*D. J. Wilson*).

This species appears to fall into the genus *Guruvia* of Loman (*Zool. Jahrb.* xvi. pt. 2, p. 172, 1902), judging by the form of the mandible, and the presence of three ocular spines. But the ocular tubercle is only separated from the anterior border of the carapace (text fig. 81, A) by a space equalling its own long diameter. It further differs from *G. frigesceus* from Gurui in the larger size of the ocular spines, its longer legs, and in having the tarsus of the palp longer than the femur. It is also longer-legged than *G. levis* from Zanzibar, and further differs in the form of the mandible.

To distinguish *Guruvia* from *Rhampsinitus*, Loman gives:—Legs shorter; palpi very slender, much weaker than the legs, partly concealed by the large mandibles; mandibles of male much longer than the body, with the second segment thickened and oval; ocular tubercle in the posterior part of the carapace, a little longer than high, armed above with three dissimilar denticles.

In *P. (G.) palmatimanus* the legs are much longer than in *P. (R.) spenceri*, and the palpi relatively shorter and slightly more robust. In neither are they partly concealed by the mandibles. In both the posterior slope of the tubercle rises on a level with the groove lying just in front of the first transverse row of tubercles on the carapace; and the frontal area of the carapace is relatively a little longer in *P. (R.) spenceri* than in *P. (G.) palmatimanus*, and the ocular tubercle is lower. The relative length of the mandibles in the two is about the same.

Genus MACROPSALIS Sjörens.

MACROPSALIS HOGGI, sp. n.

♀. *Colour* yellowish brown, marbled with darker richer brown and spotted with white; palpi and mandibles pale, clouded with brown; legs pale, distinctly banded with brown.

Carapace with numerous scattered denticles before, behind, and beside the tubercle, a few more externally; tubercle with at least two rows of spicules.

Mandibles densely covered with spicules; fingers not crossing when closed. *Palpi* with patella shorter than tibia and without process. Trochanters of *legs* spinous in front; femora spinous, especially the anterior above and beneath; patellæ of 1st, 3rd, and 4th spinous above and below, especially that of 1st leg, of 2nd with two apical spicules above; tibia of 1st thickly spinous, of the rest smooth, that of the 2nd with spurious articulations.

♂. Differs from ♀ in having the second segment of the mandible much more sparsely and strongly denticulated in front, and the distal extremity of the patella of the palpus produced

into a process which is about one-fourth the length of the segment; 4th leg smooth.

Measurements in mm.:—♀. Length of carapace 2; of basal segment of mandible 6, second segment 7.

Loc. Macedon, in Victoria (*H. R. Hogg*).

The male specimen, which is unfortunately somewhat damaged, differs from that of the type of *M. serritarsus* (Sörensen) in the smaller size of the patellar apophysis of the palp.

Genus PANTOPSALIS Sim.

PANTOPSALIS ALBIPALPIS, sp. n.

♂. *Colour* a tolerably uniform brown; palpi pale yellowish white.

Carapace with a few small spicules in front of the tubercle, and a few on the posterior slope of the latter.

Mandibles twice as long as the carapace, slender except for the club-like expansion of the distal end of the 2nd segment; spicular and tubercular all over. *Palpi* unarmed, patella and tibia subequal. *Legs* with trochanters unarmed; femora sparsely and weakly spicular, remaining segments unarmed except for some terminal spicules above on the patellæ.

Measurements in mm.:—Length of carapace 2·5; length of basal segment of mandible 11·5, distal segment 13.

Loc. New Zealand: Maungatua, S. of Dunedin (*J. V. Jennings*).

Whether or not this species is based on the male of *P. listeri* White (*P. Z. S.* 1849, p. 6, and Simon, *CR. Soc. Ent. Belg.* xxii. p. lxxiii, 1879) from the Middle Island, New Zealand, I am unable to say. The British Museum has two examples that I refer to *P. listeri* White, ticketed New Zealand ('Samarang'), and Grey-mouth, N. Zealand. In both, as in *P. albipalpis*, the palpi are pale as described by Simon, and the mandibles are much shorter and thicker than in the type of *P. albipalpis*. I infer that these examples are females on account of the resemblance in the structure of the mandible that they present to the female specimen referred to below as the female of *P. nigripalpis*.

PANTOPSALIS NIGRIPALPIS, sp. n. (Typical form.)

♂. *Colour* deep blackish brown; palpi as dark as the legs. Further differing from the preceding species in having the terminal portion of the second segment of the mandibles much less clavate, and the tubercles on the mandibles fewer and sharper.

Measurements in mm.:—Length of carapace 2; 1st segment of mandible 9, 2nd 10.

Loc. New Zealand: Dunedin (*G. M. Thomson*).

Subspecies SPICULOSA, nov.

♂. Coloured like the typical *P. nigripalpis*, from which it

differs, as also it does from *P. albipalpis*, in having the ocular tubercle and the area of the carapace in front of and at the sides of it much more thickly and strongly denticulated.

Measurements in mm. :—Length of carapace 2; of 1st segment of mandible 10, of 2nd 11.

Loc. New Zealand: West Taieri Bush, Otago (*J. V. Jennings*).

One male example without its legs.

There is also in the British Museum a female example with the mandibles much shorter and thicker than in the above described males, which may represent the female sex of either of the forms of *P. nigripalpis*. It was collected in Maungatua by Mr. J. V. Jennings.

Suborder MECOSTETHI.

Group INSIDIATORES.

Family TRLENOBUNIDÆ.

Genus TRLENOBUNUS Sörens.

TRLENOBUNUS PECTINATUS, sp. n. (Text-fig. 84, C, p. 410.)

Colour blackish; legs variegated with yellow.

Dorsal scute depressed, ornamented with a network of granular ridges separated by smooth interspaces and showing a segmental arrangement behind the cephalic constriction, forming four transverse rows which pass between the five rows of tubercles; of these tubercles the median are the largest and recurved (text-fig. 84, C). *Ocular tubercle* directed upwards and forwards, long, spiniform, armed above with smaller procurved spiniform tubercles, below with one, and on each side with three long spines, the first close to its base, the third with its fellow giving a tridentate appearance to the tubercle; on each side of the tubercle there are five long strong spines. The first and second free *tergites* granular and armed, like the posterior border of the scute, with seven strong spines, one being median; the third tergite less regularly, but not less strongly spined; the fourth (anal) tubercular. *Sterna* with a transverse series of tubercles.

Mandibles weakly tubercular. *Palpi* shortish, not very strong, shorter than the dorsal scute; the femur with some hair-tipped tubercles above and three long spines below; tibia with two, tarsus with three pairs of interior spines.

Legs with coarsely granular coxæ, that of 1st shortly spined in front, of 2nd and 4th strongly spined above externally; trochanters and femora also spined, especially the femur of the 1st, which is armed with long, stout, close-set spines, those on the dorsal side forming a series, ten in number; patellæ and tibiæ tubercular, tubercles on the 1st leg more spiniform than those on the others; constricted portion of protarsus subconical; tarsal segments of 1st 3, of 2nd 6, of 3rd and 4th 4; ultimate segment of 3rd and 4th tarsus longer than the antepenultimate (second).

Measurements in mm.:—Total length 5; palpi 2.5; 1st leg 5, 2nd 9, 3rd 6, 4th 9.

Loc. Tasmania. A single specimen received from Mr. G. W. Peckham.

Certainly differing from *T. bicarinatus* Sörens. (Arachn. Austral., Opiliones, 1886, p. 60), from Sydney, in the strong spine-
armature of the legs of the 1st pair. Sörens, moreover, gives the tarsal segments as 3, 5, 3, 3.

Family ADÆIDÆ.

Genus ADÆUM Karsch.

Karsch, Zeits. ges. Naturw. liii. p. 403 (1880); Loman, Zool. Jahrb. xi. Syst. p. 525 (1898).

ADÆUM AREOLATUM, sp. n.

♂. *Colour* yellowish brown, generally obscured by the mud or mould adhering to the granules. *Dorsal scute* with anterior border convexly rounded and thickly beset with cylindrical papillæ; ocular tubercle thickly granular, convexly rounded on the summit; behind the tubercle are two parallel rows of tubercles extending to the posterior border of the scute and forming segmental excrescences; midway between these and the lateral border is another irregular band of granules extending from the antero-lateral angle; there are also narrow transverse rows of granules extending across the scute from side to side and passing between the submedian granular excrescences; the interspaces between and defined by the bands of granules form subquadrate smooth depressed areas. The posterior border of the scute and of the three following tergites with a row of papilliform tubercles; the rest of the tergal plates thickly granular. *Sterna* granular anteriorly. *Coxæ* thickly granularly papillate. *Genital sternum* with seven long hair-tipped papillæ. *Sternum of cephalothorax*, the adjacent area of the 3rd coxa and the maxillary process of the 2nd coxa forming a smooth and shining depression flanked on each side by the papillæ arising from the coxæ.

Mandibles with basal segment granularly tubercular above, with one or two longer papillæ distally; second also with some sharp tubercles in front. *Palpi* thicker than the legs, thickly granular; the femur at the base on the inner side with four strong spines and one more distal, and beneath with one smaller and three strong spines, and one strong spine on the inner side inferiorly; tibia, patella, and tarsus subequal in length; the tibia without distinct and large paired spines beneath; tarsus with three pairs of longer spines in addition to the tubercles; claw short.

Legs tubercular and granular, unspined, even the femur of the 1st hardly spined below; some longish cylindrical papillæ on the outer side of the 2nd and 4th coxæ; tarsal segments 4, 11, 4, 4.

♀. Differs from ♂ in that the papillæ on the anterior border of the carapace are shorter and form a median angular projection;

the spines on the base of the inner side of the femur of the palp are much smaller, and the tibia is armed internally with longer hair-tipped papillæ.

Measurements in mm.:—(♂) Total length 7.5; palpus 5; 1st leg 8, 2nd 13, 3rd 9, 4th 12.

Loc. Grahamstown in S. Africa (*Dr. Schönland*).

This species at least differs from *A. obtectum* and *A. lutens* Loman, from Knysna, in having the ocular tubercle rounded on the summit instead of angularly acuminate, and also in the armature, at least of the femur of the palp, and apparently of the first leg, since Loman gives the presence of spines beneath the femur of this appendage as a generic feature. With *A. asperatum* Karsch, which was probably from Port Elizabeth, where Mr. I. L. Drège resides, it is not possible to make any comparison.

Genus LARIFUGA Loman.

PHALANGIUM RUGOSUM Guér. (*Icon. Reg. Anim.* iii. Arachn. p. 12, pl. iv. fig. 4 (nec 4a-4b), 1829-1843¹; also Gervais, *Ins. Apt.* iii. p. 128, 1844), the type of which was in Keyserling's Collection and is now preserved in the British Museum, belongs to the genus *Larifuga* Loman, but seems to approach rather nearer the genus *Adeum* than does the typical species *L. weberi*, since the sternum is apparently less sharply angular and therefore not so markedly pentagonal in shape. It further differs in that the ocular tubercle is not apically acuminate, but bears 4-5 tubercles on the summit; the dorsal scute is granular, with smooth transverse segmental areas separated by bands of granules arranged in 2-3 rows, each of the segments being marked by at least one pair of small submedian tubercles, those of the last being in line with a transverse row of coarse tubercles, while those of the first are almost lost amid the granules that lie behind the ocular tubercle—the tubercles, in fact, are practically the same in number and position as in *L. weberi*; anteriorly the carapace has one median porrect tooth and five large subvertical teeth above the anterior border. The three anterior free terga have a row of coarse tubercles, the first of them having as well a row of granules; the anal tergite has smaller, more scattered tubercles; there is a transverse row of granules on the sterna. Coxæ beset with scattered granules. The basal segment of the mandible with a distal row of fine tubercular teeth, the external the smallest. Trochanter of palp with three strong spines below; femur with about five, the two basal the largest but unequal.

¹ In Guérin's original description, reference is made to pl. iv. fig. 4b, which purports to represent the ventral surface of the specimen numbered 4. It is evident, however, that this drawing of the ventral surface is taken from some species of Phalangiidae and not from the specimen shown in fig. 4. This is clearly proved by the difference in the size of the palpi of the two. Fig. 4b probably represents the underside of the European Phalangium, the ocular tubercle of which is shown by fig. 4a.

Family TRLENONYCHIDÆ.

The principal characters of the genera of this family in its restricted sense may be tabulated as follows:—

a. Ocular tubercle very high.....	<i>Acumontia</i> .
b. Ocular tubercle low.	
a ¹ . Ocular tubercle upon or close to the anterior margin of the carapace.	
a ² . Anterior area of dorsal scute shorter than the rest of its components taken together.....	[<i>Nuncia</i> . <i>Trienonyx</i> &
b ² . Anterior area of dorsal scute as long as the rest of its components taken together.....	<i>Diasia</i> .
b ¹ . Ocular tubercle some distance behind the anterior border of the carapace.	
a ³ . Anteorcular portion of carapace horizontal; palpi strongly spined; claw of 3rd (♀ of 4th) leg strongly branched	<i>Sorensenella</i> .
b ³ . Anteorcular portion of carapace sloped downwards and forwards; palpi weakly spined; claws of 3rd and 4th legs weakly branched	<i>Lomanella</i> .

Genus TRLENONYX Sörens.

TRLENONYX CORIACEA, sp. n. (Text-fig. 83, B & C, p. 408.)

♀. *Colour* deep brownish; legs yellow, clouded with black; mandibles and femur of palp black.

Dorsal surface (text-fig. 83, B & C) coriaceous, the segments of the carapace and abdomen each marked by an ill-defined series of low tubercles. *Ocular tubercle* conical, bluntly rounded, neither spinous, tubercular, nor granular. *Abdominal sterna* smooth.

Mandibles smooth above, basal segment a little longer than wide, with one apical tubercle above, second segment with a few granules. *Palpi* moderately robust, the trochanter with a pair of tubercles below; femur with a pair below the base and one near the distal end, about four, whereof two are spiniform, above and two or three internally; patella with one on the inner side beneath; tibia with three pairs of variously sized spines or tubercles; tarsus with two inner and three outer spines.

Coxa of 1st leg without spines or long tubercles, simply tubercular like that of the 2nd leg below; that of 3rd less tubercular, that of 4th nearly smooth below, some strong tubercles on the posterior side of the 2nd and anterior side of the 4th; groove between coxæ of 3rd and 4th tubercular; trochanters of 1st, 2nd, and 3rd weakly tubercular, femora of the same and tibia of 1st and 2nd also weakly tubercular; tarsus of 1st with three segments, of 2nd with eight, of 3rd and 4th with four; a pair of spines at the distal end of the protarsus of 1st, 3rd, and 4th; three distal segments of 3rd tarsus subequal in length, antepenultimate segment of 4th tarsus shorter than the sum of the two distal segments but longer than either.

♂. Differs from ♀ in having a strong cephalic constriction and the posterior portion of the body more elevated; the ocular tubercle triangular, more sharply pointed; the maxillary pro-

cesses of the second pair of legs longer and more pointed, and the spines on the palpi stronger.

Measurements in mm.:—(♀) Total length 5·5; palpus 4; 1st leg 7, 2nd 10, 3rd 6, 4th 10.

Loc. New Zealand: Auckland (*D. A. Steel*).

TRLENONYX ASPERA, sp. n.

Colour (dry) paler than *T. coriacea*. Shape of *body* much like that of the female of that species, the dorsal surface somewhat sparsely but coarsely granular. *Ocular tubercle* low, granular; free tergites with a row of subequal tubercles and some granules as well.

Mandibles with spine on basal segment, and spiniform tubercles on second segment.

Palpi much stronger and more strongly spined than in *T. coriacea*; femur convex above, and armed with about four spines and some tubercles, some tubercles externally, three long spines beneath externally and one smaller internally, two on the inner side distally; patella with one or two tubercles, and one internal and one external spine; tibia about one-fourth or one-third longer than the patella, smoother, armed with three pairs of strong spines and a smaller proximal one on the outer side; tarsus with four pairs of spines. *Legs* longer, femur of 1st armed above and below with strong tuberculiform spines, a few on the tibia also; tarsal segments 3, 13, 4, 4; the distal portion of the protarsus constricted to form a short spherical or nodular piece, quite different from the elongate subconical piece of *T. coriacea*.

Measurements in mm.:—Total length 5; of palpus 5; 1st leg 8, 3rd 7·5, 4th 12.

Loc. Australia.

TRLENONYX SUBLEVIS, sp. n. (Text-fig. 84, D, p. 410.)

Colour brownish; legs variegated with yellow.

Shape of *body* in profile intermediate between the male and female of *T. coriacea*, but the ocular eminence not so far forward, its anterior surface sloping backwards and upwards from a little behind the anterior edge of the carapace. *Dorsal scute* and *tergites* almost smooth, minutely coriaceous but with scarcely a trace of segmental tubercles or granules; no tubercles near the fore part of the cephalic area, merely the normal median spines. *Sterna* with the transverse row of tubercles nearly obsolete.

Mandibles with basal segment very long, subcylindrical, at least four times as long as broad, with a small posterior dorsal distal tubercle; second segment with a series of tubercles ending in one longer spine in front.

Palpi long and powerful; trochanter with a few short spines above and one long spine below; femur convex above, armed above and internally with dentiform tubercles, one on the inner side being spiniform, beneath with one long basal spine and some smaller spines or tubercles; patella with one inner spine; tibia

one-third longer than patella, with three long internal and two long external spines in addition to some smaller ones between and beyond the latter; tarsus with three internal and three external spines, the proximal external small; claw longish and slightly curved. *Coxa* of palp and of 1st leg bispinate in front; coxa of 1st and 2nd legs tubercular, the latter externally spinate; remaining coxæ nearly smooth, some tubercles on the posterior border of 3rd and 4th. Maxillary process of 2nd leg (text-fig. 84, D) double, consisting of a large quadrate tubercular process in addition to the normal process. Remaining segments of legs not spined, femora of 1st and 2nd at most tubercular; tarsal segments 3, 10 or 11, 4, 4; distal extremity of protarsi elongate, subconical.

Measurements in mm.:—Total length 6; palp 8; 1st leg 10, 4th 14.

Loc. West Taieri Bush, Otago, New Zealand (*J. V. Jennings*).

In a young specimen of this species (3.5 mm. long) the tarsus of the 1st leg is bisegmented, that of the 2nd bisegmented with merely indications of subsegmentation, those of the 3rd and 4th trisegmented, the distal segment of the 4th showing faint signs of subdivision; the sternum is more like that of *Adæum* in shape.

The known species of the genus from the Australian Region may be tabulated as follows:—

- | | |
|--|------------------|
| a. Dorsal scute furnished posteriorly with transversely and metamericly disposed series of granules and with one pair of spiniform tubercles | <i>rapax.</i> |
| b. Dorsal scute without metamericly disposed rows of granules and no paired spiniform tubercles. | |
| a ¹ . Dorsal scute granular or coarsely coriaceous. | |
| a ² . Dorsal scute coriaceous; distal portion of protarsal segment of legs elongate, pyramidal | <i>coriacea.</i> |
| b ² . Dorsal scute coarsely and sparsely granular; distal portion of protarsus spherical and nodular | <i>aspera.</i> |
| b ¹ . Dorsal scute neither granular nor coarsely coriaceous | <i>sublævis.</i> |

The species from Stephen's Isl., New Zealand, recently described by Loman (*Zool. Jahrb., Syst.* xvi, 1902, p. 214) as *Nuncia sperata*, is said to differ generically from *Trienonyx* in having the ocular tubercle large, convex and unarmed.

Genus ACUMONTIA Loman.

Zool. Jahrb., Syst. xi, p. 528 (1898).

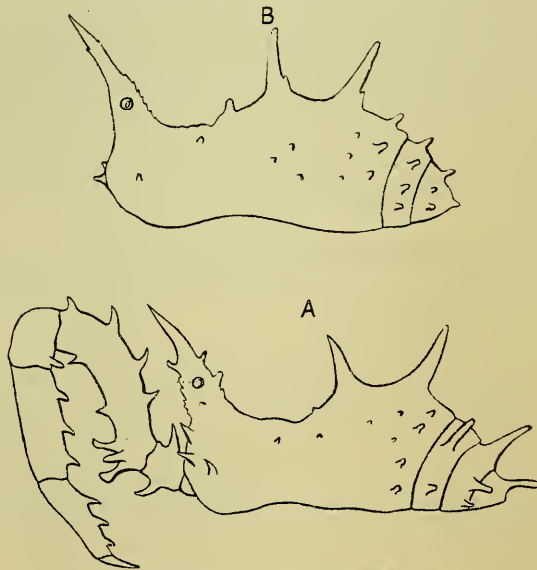
ACUMONTIA ROSTRATA, sp. n. (Text-fig. 82, p. 406.)

♂. *Colour* a uniform blackish brown.

Dorsal scute with lightly sinuous sides, granular, elevated posteriorly; armed in front on each side with three suberect spines in addition to the three, one median and one on either side, which project forwards between and externally to the mandibles (text-fig. 82, A). *Ocular tubercle* very high, armed with a few

tubercular spines and surmounted by a long pointed smooth process; the eye about the middle of the tubercular portion. The posterior elevated area armed with two pairs of long, suberect, divergent spines; a few scattered tubercles elsewhere, and a row of tubercles, of which one towards the lateral margin is larger, along the posterior border. First free *tergite* with one long spine midway between the middle and the lateral border, and one short submarginal spine; second with two shortish submarginal spines and one long submedian spine on each side; third with one long submedian spine on each side; for the rest the plates show a row of tubercles; anal tergite with a pair of subcentral, larger tubercles, a posterior median cluster, and some marginal tubercles. *Sterna* with a row of tubercles each.

Text-fig. 82.

*Acumontia rostrata*, ♂ ♀.

- A. Lateral view of dorsal surface and palpus of male.
 B. " " " " of female.

Mandibles large, as thick as the palpi; basal segment with one superior spine, second segment with about half a dozen tubercular spines of varying size.

Palpi (text-fig. 82, A) very long and strong; trochanter with one large upper and under spine, a smaller external spine as well; femur arcuate, armed below with five spines, three of which are proximal, above with a series of four and one more internal, and internally with two; patella with one infero-external and two

internal tubercular spines; tibia and tarsus with three pairs of long and strong spines.

Legs with coxæ tubercular, that of the 1st with about three strong blunt spines; coxæ of 2nd and 4th pairs tubercular above; trochanter tubercularly spinous, that of the 4th with two longish superior spines; femur of 1st with three spines in its proximal half below, of the 3rd with spinous tubercles posteriorly. Tarsal segments of 1st leg 5, of 2nd 13-15, of 3rd and 4th 4.

♀. Smaller and more thickly granular; ocular tubercle less tubercular; dorsal scute without the anterior three pairs of spines, the long spines shorter than in the male and preceded by a pair of low tubercular spines; no long spines on the free tergites, but the tubercles all longer and more spiniform than in the male (text-fig. 82, B). *Palpi* shorter, but otherwise similar to those of male. Distal protarsal segment of 1st leg thickened but strongly excavated below.

Measurements in mm.:—♂. Total length of body 7; of palp about 12; 1st leg about 15, of 2nd about 25, of 3rd 27, of 4th 24.

Loc. Madagascar: Ambohimombo, in the Tanala district (*C. I. Forsyth Major*, type ♂); also Betsileo (*Deans Cowan*).

The specimens from Betsileo are three in number, an adult and two subadult females, the latter differing from the former in the absence of the emargination at the extremity of the protarsus of the 1st leg. They are distinguished from the typical examples from Ambohimombo by the shortness of the dorsal spines and tubercles, which are only about half as long as those of the female of the typical form of *A. rostrata*. I propose therefore to regard the Betsileo form as a subspecies which may be called *A. rostrata* subsp. *cowani* nov.

A. rostrata certainly differs from *A. armata* Loman in the spine-armature of the dorsal surface, the dissimilarity between the sexes with regard to spine-armature, &c.

It is noticeable that Loman makes no mention of the modification of the distal end of the protarsus of the 1st leg in either of the sexes of *A. armata*.

Judging, too, by the measurements given of the appendages, *A. armata* is a much shorter-legged form than either of the species here described. The following are the leg-lengths in millim. of *A. armata*:—1st leg 7.5, 2nd 11, 3rd 8.5, 4th 12.

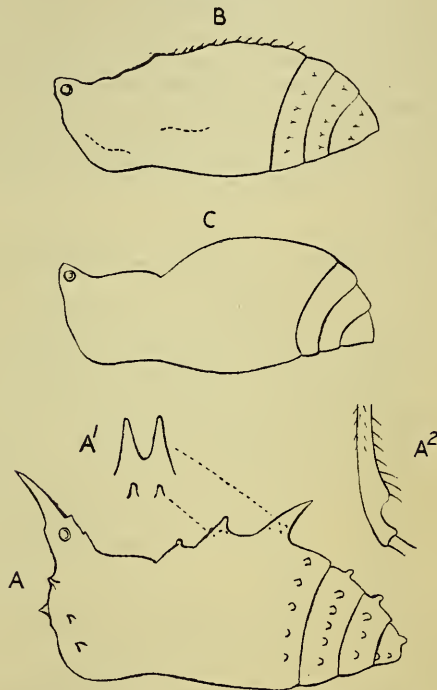
ACUMONTIA MAJORI, sp. n. (Text-fig. 83, A, p. 408.)

♂? *Colour* more ruddy brown than the foregoing.

Dorsal scute sparsely granular; ocular tubercle as high as in *A. rostrata*, but thicker at the base and less tubercular than in the male of that species; a pair of small spines on each side of the carapace near its fore border, in addition to the three projecting between and outside the mandibles; posterior area less elevated than in *A. rostrata*, and armed with two pairs of spines, the posterior long, the anterior short, directed obliquely

upwards and backwards, parallel, not diverging from each other (text-fig. 83, A, A¹). A row of tubercles in front of the posterior border of the scute and of the free tergites; a submedian pair on the 2nd and 3rd of the latter larger than the rest. *Sterna* with a series of small tubercles.

Text-fig. 83.



Acumontia majori, ♀♀, and *Triænonyx coriacea*, ♀.

A. Lateral view of dorsal surface; A¹. Spines of the scute from above; and A². Extremity of protarsus of 1st leg of female *Acumontia majori*. B. Lateral view of dorsal surface of female; and C. Lateral view of dorsal scute of male *Triænonyx coriacea*.

Mandibles with basal segment longer than in *A. rostrata*; second segment with a few antero-interior spiniform tubercles. *Palpi* similar to those of *A. rostrata*, but shorter; spines much the same except that the external spines on the tibia are short, tubercular, and much shorter than the internal which are very strong; tibia granular below; tarsus with four pairs of spines, the apical small.

Coxa of 1st leg strongly spined, of 2nd tubercular internally, of 3rd with one tubercle near the middle line, of 2nd and 4th

spinous above; trochanters not spiny; femur of 1st with some weak inferior spines, of the rest not spiny. Tarsus of 1st with 5, of 2nd with 12, of 3rd and 4th with 4 segments.

♀ (?). With three small tubercular spines on each side of the head-shield in front. Palpi a little larger, no spine on the dorsal side of the trochanter; femur with three strong dorsal spines, the distal one represented in the other sex obsolete, and one strong median internal spine. Distal end of protarsus of 1st leg incressate, with the inferior distal half of the thickened area strongly emarginate.

Size about the same as that of *A. rostrata*.

Loc. Madagascar; Ambohimombo (*C. I. Forsyth Major*).

The specimen I have described as the male of this species is probably not quite adult. It is smaller than the other, and in the spine-armature of the palpi much more nearly resembles both sexes of *A. rostrata*. The other specimen I regard as the adult female, on account of the peculiar modification of the extremity of the protarsus of the 1st leg (text-fig. 83, A²), which also obtains in the specimen considered to be the female of *A. rostrata*.

The following is a key to the known species of *Acumontia*:—

Males.

- | | | |
|------------------|--|-------------------|
| a. | Free abdominal tergites furnished with a few very long spines | <i>rostrata</i> . |
| b. | Free abdominal tergites furnished with tubercles or short tuberculi-form spines. | |
| a ¹ . | Antero-lateral tubercles on the carapace very small, the posterior pair of spines on the dorsal scute close together, contiguous basally | <i>majori</i> . |
| b ¹ . | Antero-lateral tubercles large; posterior dorsal spines shorter and widely separated basally | <i>armata</i> . |

Females.

- | | | |
|------------------|--|-------------------|
| a. | Two pairs of long subequal spines on posterior portion of dorsal scute; antero-lateral spines absent | <i>rostrata</i> . |
| b. | Posterior two pairs of spines unequal, the anterior short. | |
| a ¹ . | Posterior spines basally contiguous | <i>majori</i> . |
| b ¹ . | Posterior spines basally widely separated | <i>armata</i> . |

Genus SORESENELLA, nov.

Distinguishable from *Tricenonyx*, &c. by the situation of the ocular tubercle in the centre of the cephalic scute and behind its anterior margin. Lateral branches of claws of 3rd (probably also of 4th) leg considerably longer than the median branch—hence the tarsus appears to be *three-clawed*.

Type, *S. prehensor*.

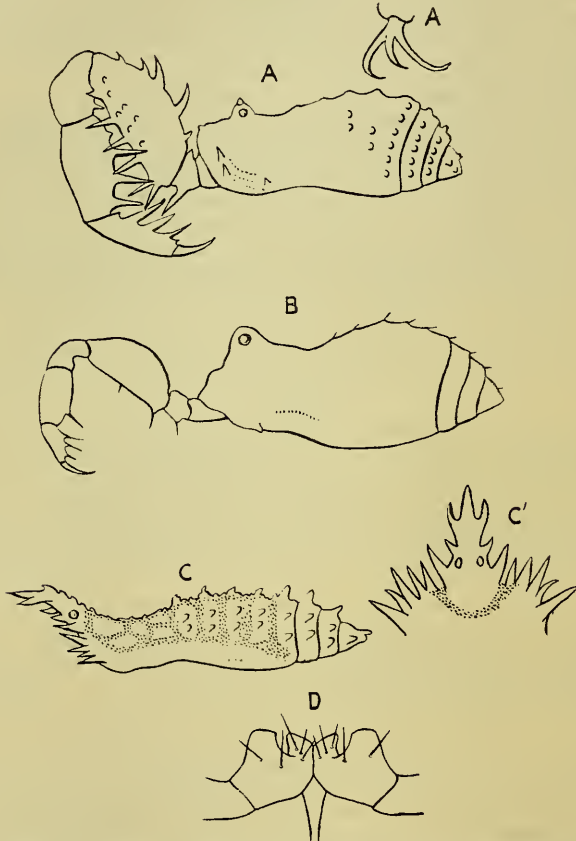
SORESENELLA PREHENSOR, sp. n. (Text-fig. 84, A, p. 410.)

Colour uniformly brownish.

Dorsal surface (text-fig. 84, A) tolerably smooth; anterior border of cephalic scute mesially tridentate; three lateral spines on each side, the inner the largest, the posterior lying far back

above the basal articulation of the third leg; ocular eminence low, transverse, with a dentiform tubercle on its summit. Behind the ocular eminence the median and to a less extent the lateral area of the dorsal scute is segmentally tubercular, a

Text-fig. 84.



Sorensenella prehensor, *Lomanella raniceps*, *Trienobunus pectinatus*, and *Trienonyx sublaevis*.

- A. Lateral view of dorsal scute and palpus; and A'. Claw of 3rd leg of *Sorensenella prehensor*. B. Lateral view of dorsal surface and palpus of *Lomanella raniceps*. C. Lateral view of dorsal surface; and C'. Anterior end of carapace, from above, of *Trienobunus pectinatus*. D. Maxillary lobes of 2nd pair of legs of *Trienonyx sublaevis*.

row of tubercles running before its posterior border and before that of the two following free tergites. *Sterna* nearly smooth, with a nearly obsolete row of tubercles.

Mandibles (largely hidden from view) with a small tubercle on the basal segment, a much larger one on the proximal end of the second.

Palpi (text-fig. 84, A) very powerful; trochanter with short superior and a long inferior spine; femur robust, convex dorsally, and armed with four or five spines, externally furnished with a few tubercles, armed below externally with six long spines, its inner surface with about six longer and shorter spines; patella strongly constricted, with one short external and two long internal spines; tibia longer than patella, armed externally with three long spines and a basal tubercular spine, internally with four spines, the distal short; tarsus long, armed with three pairs of long spines, a pair of distal, and one proximal external tubercular spine.

Coxæ of *legs* granular; of 1st spined in front, of 2nd and 4th with one external spine; the rest of the segments unspined, nearly smooth; femur of 1st weakly tubercular below. Tarsal segments 3, 10, 4 (fractured on 4th leg); first and second segments of first tarsus subequal, the sum of them rather longer than the first or proximal segment; on the third tarsus the first segment as long as the sum of the other three, the second and fourth subequal, and either of them longer than the second.

Measurements in mm.:—Total length 3·5; palp about 6; of 4th leg 8·5.

Loc. New Zealand (*Dr. Richardson*).

There is in the British Museum a second well-marked species of this genus represented by a damaged specimen without indication of locality, which, for these reasons, I refrain from naming.

GENUS LOMANELLA, NOV.

Distinguished from the hitherto described genera of Triænonychidæ, with the exception of *Sorensenella*, by the position of the ocular tubercle some distance behind the anterior border of the dorsal scute; the area in front of the tubercle, however, falls obliquely downwards and forwards. Spiracles conspicuous, on a level with the middle of the distal half of the 4th coxa, which is not enlarged. Palpi weakly spined.

Type, *L. raniceps*.

LOMANELLA RANICEPS, sp. n. (Text-fig. 84, B.)

Colour blackish, dorsal surface (text-fig. 84, B) ornamented mesially with transverse yellow stripes, a large yellow patch above the bases of the 3rd and 4th legs; legs and palpi variegated yellow and black; sterna longitudinally banded black and yellow.

Dorsal surface closely, finely, and evenly granular all over, the fused and free terga indicated by transverse series of coarser granules; anterior border of scute evenly convex, with a process arising above the base of the 2nd leg, concave above the 3rd and 4th legs, then evenly convex to the middle line posteriorly.

Mandibles small, basal segment unarmed above, its distal end

forming a low rounded elevation; second segment scarcely tubercular.

Palpi (text-fig. 84, B) long and robust; femur strongly convex above, with a setiferous tubercle at the base below, and a smaller one near the middle of the inner surface; patella without tubercles; tibia convex below, one-third longer than the patella, armed beneath beyond the middle with a pair of setiferous tubercles; tarsus armed with three pairs of setiferous tubercles, the distal the smallest.

Coxæ of *legs* granular like the dorsal surface, some larger granules on the posterior border of the 2nd, 3rd, and 4th legs; rest of the leg-segments without spines; femur of 1st tubercular beneath. Tarsal segments 3, 5, 4, 4; those of the 1st leg subequal, the second segment only slightly shorter; of 3rd leg the first tarsal is about as long as the second and third, the third and fourth being subequal and slightly shorter than the second; much the same proportion of segments prevails on the tarsus of the 4th leg.

Measurements in mm.:—Total length 2·5; palp 3; 2nd leg 7, 4th 6.

Loc. Tasmania. Specimen received from Mr. G. W. Peckham.

Group LANIATORES.

Family HINZUANIDÆ.

Genus HINZUANUS (Karsch) Loman.

HINZUANUS LEIGHI, sp. n.

Colour of trunk and legs yellow, thickly clouded with black, the mandibles mostly yellow; femur and patella of palp yellow, distal segments infuscate, a pale ring round the femora and tibiæ of the legs.

Trunk thickly granular above and below; no spiniform processes on the fore border of the carapace. *Eyes* large, distance between them much greater than that between either and the fore border of the carapace. A deep groove behind the carapace; abdomen elevated, convex, its third and fourth segments with a pair of sharp submedian tubercular spines; a row of large tubercles along the posterior border of the dorsal scute and of the following three tergal plates; the anterior four tergites subequal in length. Femur of *palp* with a setiferous tubercle beneath; patella with apical spine, tibia and tarsus with two pairs of spines. Tarsus of 1st *leg* with three, of 2nd to 4th with five tarsal segments.

Measurements in mm.:—Total length 4; width 2; height 2; 1st leg 7, 2nd 11, 3rd 8·5, 4th 12·5.

Loc. S. Africa: Natal (*G. F. Leigh*).

Distinguishable by the presence of the spiniform tubercles on the third and fourth tergites, a character suggestive of what occurs in the genus *Lacurbs*. Since *Hinzuanus*, according

to Loman, supersedes *Biantes*, the family name should be Hinzuaniidae.

Family ONCOPODIDÆ.

Genus PELITNUS, Thor.

PELITNUS PULVILLATUS, sp. n.

Colour a tolerably rich reddish brown, the dorsal side of the body sometimes infusate and contrasting with the paler appendages, the latter very indistinctly banded.

Differs from *P. annulipes* Poc. in the following particulars:—*Body* wider, the abdominal portion being almost as wide as long; its upper side more convex longitudinally, the first free tergite rising somewhat abruptly higher than the dorsal surface of the carapace, the third tergite the highest point of the body, excluding the ocular tubercle. Ocular tubercle erect, slender apically, separated from the posterior sulcus of the carapace by a space which at least equals its own basal diameter, its anterior border vertical. The 1st, 2nd, 3rd, 4th, and 5th sterna with their posterior half covered, except laterally, with a thick carpet of short, close-set hairs.

Palpus with its femur dorsally more tumid and more convex on the inner side; spine on lower side of trochanter of palp smaller than that on the femur, which is large and triangular; all the segments of the legs and palpi relatively shorter and stouter.

Measurements in mm.:—Total length 6; width 4.2; of 1st leg 8, 2nd 12, 3rd 9, 4th 13.

Loc. Malay Peninsula: Selangore. "In cave" (*H. N. Ridley*).

PELITNUS PILIGER, sp. n.

Nearly allied to *P. pulvillatus*, but with the upper side of the trunk blackish and contrasting strongly with the paler appendages. the mandibles and palpi being clear reddish yellow, without trace of infuscation; femora and tibiæ of the legs infusate. Body and appendages of the same relative size and form as in *P. pulvillatus*, but the postocular area of the carapace sloping upwards from the groove to the tubercle not horizontal, the tubercle itself wider than high, with a bluntly rounded summit. Spine on trochanter of *palp* longer, cylindrical, smaller than that of the femur, which is also cylindrical and curved forwards.

Measurements in mm.:—Total length 6; width 4.2; 1st leg 8, 2nd 12, 3rd 9, 4th 13¹.

Loc. Malay Peninsula: Bukit Besar, 2500 feet alt. "Under bark of fallen tree" (*Annandale and Robinson*).

These two species differ from the previously described members of the genus in the presence of the transverse bands of coarse pubescence upon the abdominal sterna.

¹ In this and other cases the measurements of the legs do not include the coxæ.