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THE ARACHNIDAN FAUNA OF FUNAFUTI.

By W. J. RAINBOW,

Entomologist, Australian Museum.

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THE Arachnological Collection obtained by Mr. Hedley during his sojourn on the Island of Funafuti, although not large, is, nevertheless, more representative of its branch of Invertebrate Fauna than was the Entomological Collection. Had it been possible to have made a thorough and systematic search, there is little doubt but that many interesting forms would have been brought to light. As it is, however, the collection is not without interest, and it is hoped, value. In all there were 88 specimens procured, and these are distributed as follows:—

Order.	Family.	No. of Specimens.
Scorpionidæ	Androctonidæ	4
Chelonethi	Cheliferidæ	8
Acarina	Oribatidæ	14
Araneidæ	Epeiridæ	32
”	Tetragnathidæ	1
”	Uloboridæ	12
”	Drassidæ	3
”	Scytodæ	3
”	Thomisidæ	4
”	Salticidæ	7
	Total	<u>88</u>

Of these the following table will show the results of the examination of the collection:—

Order.	Family.	Known Species.	New Species.
Scorpionidæ	Androctonidæ	0	1
Chelonethi	Cheliferidæ	1	1
Acarinæ	Oribatidæ	0	1
Araneidæ	Epeiridæ	2	10
”	Tetragnathidæ	1	0
”	Uloboridæ	1	0
”	Drassidæ	1	0
”	Scytodæ	1	0
”	Thomisidæ	2	0
”	Salticidæ	1	2
	Total	<u>10</u>	<u>15</u>

It will be seen, therefore, that of the twenty-five species obtained, fifteen would appear to be new to science. The most numerously represented family in the collection is that of the Epeiridæ (known to the natives by the name of "Marakau"), of which two species proved to be known, and ten appear to be new. Of the former *Epeira mangareva*, Walck., has a very wide distribution, extending from the Celebes to New Guinea, and from there to the Island of Mangareva, in the Paumotu or Low Archipelago; the other, *E. plebeja*, L. Koch, was previously recorded by L. Koch from Ovalau and Tonga.* One of the principal features that strikes a student upon examining a collection of Island (female) Epeiridæ, is the close resemblance the different species bear to one another in shape and contour of the epigynum. In the two species enumerated as previously known, and in each of those described below, with three exceptions, namely, *E. distincta*, Rainb., *E. hoggi*, Rainb., and *E. speciosa*, Rainb., the same general uniformity prevails. There are differences, truly, as will be seen on reference to the figures accompanying this paper; thus in one species, the long dark brown, slightly curved chitinous process is closely adpressed, while in another it is poised upon a high tubercle and stands prominently out.

The commonest spider on the Island appeared to be *Uloborus zosis*, Walck. This beautiful Arachnid possesses a very wide geographical range, having been previously recorded from Madagascar, Mauritius, Réunion, Seychelles, St. Helena, Bombay, Java, Amboina, Upolu, Perambuco, Paraná, Rio Grande, Guyana, St. Fe di Bogotà, and the Antilles.†

The other previously known species were formerly recorded as follows:—*Obisium antipodum*, Sim., from New Caledonia; *Tetragnatha laqueata*, L. Koch, Upolu; *Clubiona alveolata*, L. Koch, Upolu; *Dictus striatipes*, L. Koch, Upolu, Tonga, and Viti; *Acompse suavis*, L. Koch, Huaheine, Raietea, and Tahiti; *Sarotes debilis*, L. Koch, Upolu; *S. regius*, Fabr., is another species having a very wide geographical range, as the following list of localities will testify: Singapore, China, Japan, Africa, Dafeta, Mombus, Zanzibar, Isle of France, Senegal, St. Thomas, California, Mexico, Martinique, Brazil, Valparaiso, Fiji, Samoan Archipelago, Tongan Archipelago, Rarotonga, Pelew, Tahiti, Huaheine, Island of Meduro, and New Caledonia. In addition to the species enumerated, there were ten specimens of Epeiridæ, and four of the Salticidæ, that were too young for determination or description, and these have not been enumerated in the tables.

* Koch—Die Arachniden Australiens, i., p. 70, 1871.

† Vide Thorell, "Studi Sui Ragni," etc., ii. "Ragni di Amboina," p. 133. 1878.

Order SCORPIONIDÆ.

FAMILY ANDROCTONIDÆ.

SUB FAMILY ANDROCTININI.

Genus BUTHUS, Leach.*Buthus brevicaudatus*, ♂ et ♀, sp. nov.

(Plate ii., figs. 1, 1a, 1b, 1c.)

Colour somewhat variable, but generally of an obscure yellowish grey above, and pale yellowish underneath; sides dull brown; palpi brown above, yellow-brown underneath; tail dark brown above and laterally, somewhat paler underneath; vesicle pale yellow, glossy; aculeus brown, glossy; eyes black; legs obscure yellow above, pale yellowish underneath.

Cephalothorax as wide behind as it is long, gradually narrowing until near anterior extremity, and thence narrowing off abruptly to anterior margin; anterior and posterior margins strongly indented; a strong longitudinal groove runs down the centre from anterior to posterior extremity, and separates the median eyes; these latter are slightly elevated on small tubercles; the surface is closely and minutely punctured, somewhat uneven and depressed at centre, but more strongly so behind the median eyes; there are also shallow lateral depressions at rear of anterior eyes; behind the median eyes, and at the anterior margin there are a few small granules; in the male the anterior margin is more thickly granulated than in the female examples; a few short hairs fringe the anterior line of the cephalothorax. Tergites finely punctured, but the punctures are somewhat deepest laterally; each is marked with a median keel. Sternites smooth, glossy, with shallow lateral and median depressions, closely and minutely punctured; each is marked with a median keel. Tail short, almost paralle-sided; the first segment is somewhat the shortest, the second and third rather longer and co-equal in length, the fourth and fifth slightly longer than the two preceding and co-equal in length; each segment is keeled laterally, has a median longitudinal depression, and is slightly shagreened and granulated above and laterally; the inferior surface is less distinctly keeled, but more strongly shagreened and granulated, the fifth segment especially so; each segment is sparingly furnished with rather long, strong brown hairs. Vesicle smooth and glossy, furnished with a few moderately long yellowish hairs; aculeus dark brown, strong, and gently curved; vesicle and aculeus together are somewhat longer than the fifth caudal segment. Palpi: superior surface of humerus, brachium, and manus thickly but finely granulated, the granules on their lateral and anterior and posterior extremities are sensibly

the largest and darkest; lower surface exceedingly finely granulated with the exception of the lateral ridges, where the granules are nearly as large as those upon the lateral extremities of the superior surface; manus long, broad, and thicker than brachium; hand-back keeled, similar in colour to superior surface, and thickly furnished with black granules; fingers short, black, incurved, without lobe or excavation; the movable finger is somewhat the longer; humerus, brachium, and manus sparingly furnished with short, fine whitish hairs. Legs sparingly furnished with yellowish hairs, upper surface finely granulated, under surface smooth and glossy. Pectines about half as long as cephalothorax, and furnished with six teeth.

The sexes are distinguished by the palpi, which in the male are longer, broader, and thicker than in the female.

Measurements (in millimeters):—Total length, 27; length of cephalothorax, $3\frac{1}{3}$; width, in front 2, behind $3\frac{1}{3}$; length of tail, 10; length of male humerus $3\frac{1}{2}$, of brachium $3\frac{1}{2}$, of hand 6, of hand-back 6, of moveable finger 4; width of male humerus $1\frac{1}{2}$, of brachium 2, of hand $3\frac{1}{2}$, of hand-back $1\frac{1}{2}$; length of female humerus 3, of brachium 3, of hand 5, of hand-back 5, of moveable finger 3; width of female humerus 1, of brachium $1\frac{1}{2}$, of hand 3, of hand-back $1\frac{1}{2}$.

One male and three female specimens.

Order CHELONETHI.

Sub-Order DIPOCELONTHI.

FAMILY CHELERIFIDÆ.

Obisium antipodum, Simon.....Six specimens.

C.R. Ent. Belg., xxiii., p. clxxiv.

Genus CHELIFER, Geoffr.

Chelifer longidigitatus, sp. nov.

(Plate ii., fig. 2.)

Body obovate, narrowed before, rounded behind. Caput dark brown, granulated. Cephalothorax granulated; anterior segment dark brown, hinder segment pale yellowish above, brown laterally. Eyes prominent, and of an opaline tint. Legs pale yellowish, moderately clothed with short white hair. Palpi dark brown, granulated; basal joints bulbous; hand broad, thick, slightly darker than humerus and brachium; fingers long, reddish-brown, incurved, and furnished with a few elongated, flexible hairs. Abdomen pale yellowish above, with brown submedian and

lateral granulations ; inferior surface pale yellowish, with two longitudinal sub-median rows of brown granulations.

Measurements:—Length of body, $1\frac{1}{2}$ mm.; breadth, 1 mm.; palpi, 2mm.

Two specimens.

Order ACARINA.

FAMILY ORIBATIDÆ.

Genus ORIBATA, Lat.

Oribata lamellata, sp. nov.

(Plate ii., figs. 3, 3a, 3b, 3c, 3d.)

Cephalothorax, $\frac{1}{2}$ mm. long ; abdomen, 1mm. long, 1mm. wide.

Black, opaque ; tergum laminated ; venter somewhat rugulose, closely punctated.

Cephalothorax arched, closely and deeply punctated ; anterior half conical, posterior half suddenly widening ; rostrum round pointed ; rostral hairs long ; palpi invisible from the dorsal aspect ; pseudo-stigmata nearly at the base of the cephalothorax, but not hidden by the abdomen or lamellæ ; pseudo-stigmatic organ rather short, with thin peduncles ; the latter gradually thickening and terminating with somewhat clavate heads ; apodemata not joined to the sternum. Legs strong, closely and finely punctated, furnished with short, strong white hairs ; claws tridactyle, heterodactyle. Abdomen strongly arched, somewhat oval, closely punctated, laminated, the plates overlapping, broadest about the middle, strongly keeled behind ; genital and anal plates large, oval, and occupying nearly the whole length of the ventral plate.

In respect of this creature Mr. Hedley says:—"On the western side of the north arm of the mangrove swamp is a low scarp of breccia, apparently an old beach, and which is described more fully in the Section treating on the Geology of the Atoll. A dense growth of *Ngia* (*Pemphis acidula*) overhung this spot, and under fallen damp leaves and sticks beneath these bushes I found this animal in considerable abundance. Its movements were lethargic in the extreme."

Order ARANEIDÆ.

FAMILY EPEIRIDÆ.

Epeira mangareva ♀ Walck... ..One specimen.

Walck. Hist. Nat. des. Ins. Apt., iv., p. 469, 1847.

L. Koch, Die Arachniden Australiens, i., pp. 85-88, T. vii., figs. 4-5a, 1871.

- Bradley, Proc. Linn. Soc. N.S.W., i., The Araneides of the "Chevert" Expedition, pp. 144-5, 1876.
- Thor., Studi Sui Ragni, etc., i. Ragni di Selebes, *loc. cit.*, p. 394 (54), 1877.
- Thor., Studi Sui Ragni, etc., ii., Ragni di Amboina, *loc. cit.*, pp. 65-69, 1878.

Epeira plebeja, Koch.....Three immature specimens.

L. Koch, Die Arachniden Australiens, i., pp. 69-70, T. vi., figs. 10, 10a, 1871.

Genus EPEIRA, Walck.

Epeira ventricosa, sp. nov.

(Plate ii., figs. 4, 4a, 4b, 4c.)

♀. Cephalothorax, $4\frac{1}{2}$ mm. long, 3mm. broad; abdomen, $10\frac{1}{2}$ mm. long, $7\frac{1}{2}$ mm. broad.

Cephalothorax convex, hairy, yellowish, with median and lateral brown longitudinal bars. Caput moderately high, truncated in front, clothed with moderately long hoary hairs; normal grooves and indentations distinct. Clypeus clothed with short hoary hairs, convex, with lateral grooves radiating from near the centre. Marginal band narrow, yellowish, fringed with hoary hairs. Eyes of an opaline tint; the four comprising the central group are seated upon a somewhat quadrangular tubercle, and form a trapezium, narrowest at the rear; of these the front pair are the largest, and are separated from each other by about twice their individual diameter; the second pair are smaller and are seated to the rear by about twice, and from each other by about once-and-a-half their individual diameter; lateral eyes much the smallest, seated obliquely upon small tubercles, and are almost contiguous to each other. Legs moderately long and strong, with black and yellow annulations, hairy, armed with rather long and strong spines; relative lengths, 1, 2, 4, 3; the second and fourth pairs equal in length, the third much the shortest. Palpi moderately long and strong, similar in colour and armature to legs. Falces long and strong, glossy brown in front and on outer sides; insides pale yellow, fringed at their base with a few short hoary hairs; the margins of the furrow of each falx are armed with a row of three teeth; fangs moderately long and strong, wine-red. Maxillæ rather longer than broad, arched; from base to near apex the colour is brown, thence yellowish; fringed with moderately long and strong black hairs. Labium concolorous, broader than high, rounded off at apex. Sternum shield-shaped, dark brown, approaching bistre, relieved by a longitudinal median line of yellow; surface uneven, hairy. Abdomen ovate, projecting over base of cephalothorax; superior

surface dark, approaching bistre, ornamented with white and grey median patches, and with a broad leaf-like design; sides dark brown also, with a broad uneven longitudinal patch of grey near superior surface, and below this a series of irregular tawny markings; inferior surface sooty black with four white lateral patches. Epigyne a long dark brown chitinous process, terminating in a blunt point.

One specimen.

Epeira longispina, ♂ et ♀, sp. nov.

(Plate iii., fig. 2.)

♂. Cephalothorax $2\frac{1}{2}$ mm. long, 2mm. broad; abdomen 5mm. long, $3\frac{1}{2}$ mm. broad.

Cephalothorax pale yellow, clothed with hoary hairs; the median and lateral longitudinal markings less distinct than in the female. Caput slightly elevated, arched. Clypeus broad, strongly arched, clothed with long hoary hairs, the median cleft, from which the lateral grooves radiate, more distinct than in female example. Marginal band, eyes, and legs similar to those of female. Palpi short, club-shaped, simple. Maxillæ, labium, and sternum similar to those of female. Abdomen ovate, slightly overhanging base of cephalothorax; colour mottled grey; the broad leaf-like design with which the superior surface is ornamented, is of a dark brown colour, and commences near the middle, terminating near spinnerets; the sides, inferior surface and spinnerets similar in coloration and general features to those of the female.

One specimen (immature).

(Plate iii., figs. 1, 1a, 1b.)

♀. Cephalothorax, $4\frac{1}{2}$ mm. long, 3mm. broad; abdomen, 6mm. long, 4mm. broad.

Cephalothorax pale yellow with median and lateral yellow-brown longitudinal markings, and clothed with long hoary hairs. Caput moderately elevated, rounded on the sides and upper part, normal grooves and indentations distinct. Clypeus broad, strongly arched, clothed with moderately long hoary hairs; there is a deep longitudinal cleft or groove in the centre, from whence the lateral grooves radiate. Marginal band moderately broad, glossy, and fringed with short hoary pubescence. Eyes reddish-brown with black rings, the central group forming a trapezium; of these, the two eyes that constitute the front row are sensibly the largest, and are separated from each other by about once their individual diameter; those of the second row are separated from the first by about once their individual diameter, and from each other by a space equal to about two-thirds of the diameter of an eye of the

second row; the lateral pairs are much the smallest of the group, are seated obliquely on small tubercles, and are almost contiguous. Legs long, moderately strong, pale yellow with yellow-brown annulations at ultimate extremity of joints; the limbs clothed with pale yellowish pubescence, and armed with long, strong black spines; relative lengths: 1, 2, 4, 3; of these the second and fourth pairs of legs are co-equal in length, and the third pair the shortest. Palpi similar in colour and armature to legs. Falces glossy, pale yellow, somewhat darkest at base; the upper margin of the furrow of each falx armed with a row of four teeth, and the lower margin with three. Maxillæ pale yellowish, strongly arched, broader at apex than base, sparingly clothed with long black hairs. Labium of a dull obscure colour, broader than long, arched, and rounded off at apex. Sternum oblong-cordate, concolorous, clothed with short hoary pubescence. Abdomen oblong-ovate, projecting over base of cephalothorax, pale yellow, ornamented with a long leaf-like design and dark markings and dots; sides pale yellow also, with yellow-brown markings and dots; inferior surface pale yellow with a broad median patch of dark brown, the patch broader at its anterior than at its posterior extremity, and narrowest at the middle. Spinnerets long, prominent. Epigyne a long, glossy, dark-brown chitinous protuberance, terminating in a blunt point, slightly curved, hollowed out on the under-side, and clothed on its upper side with long dark hairs.

A single specimen.

Epeira multispina, ♂ et ♀, sp. nov.

Plate iii., figs. 4, 4a, 4b, 4c.

♂ Cephalothorax, 3½mm. long, 3mm. broad; abdomen, 4mm. long, 3mm. broad.

Cephalothorax pale yellow, clothed with moderately long hoary hairs. Caput slightly elevated, moderately arched, truncated in front, normal grooves indistinct. Clypeus broad, arched, pale yellow, with broad obscure lateral bands, and clothed with moderately long hoary hairs; there is a deep longitudinal cleft (having the appearance of a fine black line) commencing at junction of cephalic and thoracic segments, from whence radiate the lateral grooves. Marginal band narrow, fringed with fine hoary pubescence. Eyes of an opaline tint with black rings, the four comprising the median group forming a trapezium; of these the front eyes are the largest, and are separated from each other by about once their individual diameter; those in the second row are somewhat smaller, and are separated from the front pair by a space equal to about one diameter of an eye of the second row, and from each other by a space equal to one-half a diameter;

lateral eyes minute, seated obliquely on tubercles and contiguous to each other. Legs pale yellow, clothed with yellowish pubescence, and armed with long black spines; relative lengths: 1, 2, 4, 3. Palpi pale yellow, clothed with yellowish pubescence and long black bristles; copulatory organs dark brown, complicated in structure. Falces pale yellow, divergent, clothed with yellowish pubescence; fangs glossy, dark brown at base, wine-red at points. Maxillæ glossy, pale yellow, arched, inclining inwards, fringed with long, coarse hairs at sides and ultimate extremities. Labium somewhat darker, arched, broader than long, furnished with a few moderately long yellowish hairs. Sternum cordate, moderately convex, pale yellowish at its centre, darker laterally, clothed with yellowish pubescence. Abdomen ovate, overhanging base of cephalothorax, pale yellowish, with dark brown leaf-like pattern down the centre, and clothed with long, coarse, yellowish hairs; sides yellowish, with dark brown markings, and long, coarse yellow hairs; inferior surface pale yellow, with dark brown median patch, broader in front than behind, narrowest at the centre. Spinnerets long, prominent.

One specimen.

(Plate iii., figs. 3, 3a, 3b, 3c.)

♀. Cephalothorax, 5mm. long, 3mm. broad; abdomen, 9mm. long, 6½mm. broad.

Cephalothorax convex, hairy, yellowish, with median and lateral dark brown longitudinal bars. Caput moderately high, truncated in front, rounded on the sides and upper part, normal grooves distinct, thickly clothed with coarse hoary hairs. Clypeus broad, strongly arched, clothed with long, coarse hoary hairs; a deep longitudinal cleft, situated at junction of cephalic and thoracic segments from whence radiate the lateral grooves. Marginal band broad, fringed with pale yellowish pubescence. Eyes of an opaline tint with black rings; the four central eyes are seated upon a somewhat quadrangular eminence, and form a trapezium; of these, the two forming the front row are the largest of the group, and are separated from each other by a space equal to once their individual diameter; the second row are somewhat smaller than those of the first, and are separated from the latter by rather more than one diameter of an eye of the second row, and from each other by a space equal to about two-thirds of a diameter; lateral eyes seated on small tubercles and contiguous to each other. Legs long and strong, pale yellow with dark brown annulations at ultimate extremities of joints; in addition to the annulations referred to, the femurs of the first and second pairs of legs have each a long, dark brown patch on the outer surface; limbs clothed with short yellowish pubescence, and armed with numerous

long and strong black spines; relative lengths: 1, 2, 4, 3; the second and fourth pairs co-equal, and the third the shortest. Palpi moderately long, clothed with yellowish pubescence and long black hairs; colour and armature similar to legs. Falces pale yellowish, somewhat darker at base, divergent, inner margins at the base fringed with yellowish pubescence; the upper margin of the furrow of each falx armed with a row of four teeth, and the lower with a row of three; fangs long, strong, glossy, brown at base, wine-red at points. Maxillæ widely divergent, obscurely tinted at base, pale yellowish above, moderately arched, fringed on the outer and inner margins with white and a few long black hairs. Labium concolorous, broader than long. Sternum cordate, moderately convex, dark brown, with a pale yellowish median wedge-shaped patch, broadest in the front, clothed with long, fine yellowish and a few black hairs. Abdomen ovate, yellowish-grey, clothed with short yellowish pubescence; projecting over base of cephalothorax; the broad leaf-like design upon superior surface darkest laterally; sides somewhat lighter in colour; inferior surface grey with a median patch of dark brown, the latter broader in front than behind, and indented laterally with pale yellowish, and this again bordered with dark brown. Spinnerets long and prominent. Epigyne, a long and slightly curved chitinous process, dark brown laterally, yellowish on the upper surface, and fringed with long, yellowish hairs above, and hollowed on the underside; at the base of this process there is a large and somewhat globose fleshy lobe, hollow within, the lobe of a dirty yellowish colour.

One specimen.

Epeira etheridgei, sp. nov.

(Plate iii., figs. 5, 5a, 5b, 5c.)

♀. Cephalothorax, 4mm. long, 3mm. broad; abdomen, 7mm. long, 5½mm. broad.

Cephalothorax pale yellow, with median and lateral longitudinal brown bars; the median bar oblong wedge-shaped, broadest in the vicinity of the median eye, and terminating in a fine point immediately below the junction of the cephalic and thoracic segments, the whole surface of the cephalothorax clothed with long hoary hairs. Caput moderately high, truncated in front, rounded on the sides and upper part. Clypeus broad, strongly arched; a strong, deep longitudinal cleft at the centre, from whence radiate the lateral grooves. Marginal band broad, pale yellow, fringed with short yellowish pubescence. Eyes as in female example of *E. multispina*, Rainb. Legs long and strong, yellow with brown annulations; each limb clothed with yellow and black hairs, and armed with long, strong black spines; relative

lengths: 1, 2, 4, 3; the second and fourth pairs co-equal in length, and the third much the shortest. Palpi moderately long and strong, similar in colour and armature to legs. Falces yellow, fringed on inner side with few moderately long hoary hairs, divergent at apex; the upper margins of the grooves of the furrow of each falx armed with four teeth, and the lower with three; fangs long and strong, dark brown at base, wine-red at tips. Maxillæ widely divergent, arched, obscurely tinted at base, pale yellowish at apex, outer margins fringed with long coarse black hairs. Labium concolorous, arched, broader than long. Sternum cordate, dark brown, clothed with moderately long, hoary hairs. Abdomen ovate, projecting over base of cephalothorax, clothed with short whitish hairs, superior surface yellowish-grey; the broad leaf-like design much the darkest laterally; sides clothed with short whitish hairs, yellowish-grey towards superior surface, somewhat darker below, especially towards posterior extremity; inferior surface dark grey, clothed with short, yellowish hairs; there is also a median patch of dark brown, slightly broader behind than in front, and indented laterally with two white patches; two white spots are located on each side of spinnerets, of which the front pair are considerably the largest. Spinnerets long and prominent, obscure yellowish-brown, and clothed with rather long black hairs. Epigyne seated on a pale fleshy lobe; the long chitinous process similar in colour and structure to *E. multispina*, Rainb.

One mature and one immature specimen. The latter is smaller and much lighter in colour than the former, and the longitudinal median and lateral bars, so prominent on the cephalothorax of the adult, are not present; the same remark also applies to the dark annulations upon the legs and palpi of the adult form.

I have much pleasure in dedicating this species to Mr. R. Etheridge, Junr., Curator of the Australian Museum.

Epeira festiva, sp. nov.

(Plate iv., figs. 1, 1a, 1b.)

♀. Cephalothorax, 4mm. long, 3mm. broad; abdomen, 8½mm. long, 6mm. broad.

Cephalothorax yellow-brown with broad longitudinal median and dark brown bars; the entire surface clothed with coarse hoary hairs. Caput elevated, truncated in front, normal grooves distinct. Clypeus broad, arched, and has a deep median depression, from whence radiate lateral grooves, the latter indistinct. Marginal band broad, pale yellowish, fringed with hoary pubescence. Eyes of an opaline tint, with black rings; the four comprising the central group seated upon a somewhat quadrangular eminence, and form a trapezium; of these the eyes comprising the front row

are the largest of the group, and are separated from each other by a space equal to about one-and-a-half their individual diameter; those of the second row are somewhat smaller and are separated from their front neighbours by a space equal to about two-and-a-half their individual diameter, and from each other by a space equal to once their individual diameter; lateral eyes much the smallest, placed obliquely on small tubercles, and contiguous to each other; of these the front lateral eyes are somewhat the largest. Legs long and strong, with yellow and dark brown annulations; each limb clothed with long yellow and black hairs, and armed with moderately long, strong black spines; relative lengths, 1, 4, 2, 3. Palpi similar in colour and armature to legs. Falces long, strong, divergent at apex, glossy, dark brown, inner margins yellow-brown, and fringed with rather long yellowish hairs; the margins of the furrow of each falx armed with a row of three teeth; fangs long, dark brown at base, wine-red at points. Maxillæ long, broad, moderately arched, divergent, dark-brown at base, flesh-coloured at apex; inner margins thickly fringed with fine yellowish hairs; a few white hairs on outer surface. Labium arched, short, broad, dark brown, approaching bistre. Sternum concolorous, shield-shaped; surface uneven, slightly depressed at centre, sparingly clothed with hoary hairs. Abdomen ovate, projecting over base of cephalothorax; superior surface ornamented with a long, narrow, whitish leaf-like design at centre, with broad lateral dark brown sinuous bands flecked with white, immediately below which there is on each side a dull white sinuous band; superior surface and sides sparingly clothed with short whitish hairs; sides and inferior surface dark-brown with white markings. Spinnerets long, prominent, yellow-brown. Epigyne seated upon a high, pale fleshy lobe; the long chitinous process similar to *E. multispina*, Rainb.

One specimen.

Epeira obscura, sp. nov.

(Plate iv., figs. 2, 2a, 2b, 2c.)

♀. Cephalothorax 4mm. long, 3mm broad; abdomen, 6mm. long, 4½mm. broad.

Cephalothorax yellow, with broad median and lateral longitudinal dark brown bars, uneven in outline. Caput arched, truncated in front, clothed with long white and dark brown hairs, normal grooves distinct. Clypeus broad, arched; there is a deep longitudinal cleft commencing near junction of cephalic and thoracic segments, from whence radiate lateral grooves, the latter faintly discernable. Marginal band broad, yellow, fringed with a few short yellowish hairs. Eyes similar to female example of *E. multispina*. Legs long and strong, yellow, with dark brown annulations, clothed with long, black and yellow hair,

and armed with numerous long black spines; relative lengths, 1, 2, 4, 3; the second and fourth pairs somewhat shorter than the first, and co-equal in length; the third pair much the shortest. Falces moderately long, obscure yellowish, divergent at apex, inner margins fringed with long yellowish hairs; the upper margin of the furrow of each falx armed with four teeth, and the lower with three. Maxillæ long, arched, widely divergent; outer margins fringed with long black hairs, and the inner with yellowish; colours: dark brown, apex and inner margins of each pale yellow. Labium broader than long, dark brown, apex pale yellow. Sternum cordate, dark brown, hairy. Abdomen overhanging base of cephalothorax; superior surface clothed with pale yellowish hairs; colour: dark brown, flecked laterally with yellow; a long, broken, uneven yellowish patch at centre, commencing at anterior extremity, and terminating about midway; sides dark brown, streaked with yellow; inferior surface dark brown, with yellow lateral patches, and clothed with dark brown and yellowish hairs. Spinnerets long, prominent, yellow-brown, clothed with coarse black hairs. Epigyne elevated on a pale fleshy lobe, the latter cleft deeply and longitudinally in front; the long chitinous process similar to *E. multispina*, Rainb.

One mature and two immature specimens.

Epeira annulipes, sp. nov.

(Plate iv., figs. 3, 3a, 3b, 3c.)

♀. Cephalothorax, 4mm. long, 3mm. broad; abdomen, 8mm. long, $4\frac{1}{2}$ mm. broad.

Cephalothorax convex, hairy, with pale yellow and dark brown longitudinal bars. Caput moderately high, strongly arched, truncated in front, clothed with long hoary hairs; normal grooves distinct. Clypeus broad, arched, clothed on upper part with long hoary hairs, and on the sides with short white and brown hairs; at the centre, commencing at junction of cephalic and thoracic segments there is a deep, longitudinal, moderately long cleft; lateral grooves somewhat indistinct. Marginal band, pale yellow, fringed with short hoary pubescence. Eyes of a greyish lustre with black rings; the four comprising the central group are seated on a slightly elevated quadrangular eminence, and form a trapezium; of these the front pair are slightly the largest, and are separated from each other by a space equal to one and a half their individual diameter; those of the second row are separated from their anterior neighbours by a space equal to twice their individual diameter, and from each other by about one diameter; side eyes seated obliquely on small tubercles, and contiguous to each other. Legs long and strong; coxæ dark brown above, greyish underneath; femurs yellow, with dark brown annulations above, white underneath; trochanters, tibiai, and metatarsi

grey, with dark brown annulations; each limb armed with long, strong, black spines; in addition to the latter there are also a few short black spines on the femoral joints; relative lengths, 1, 2, 4, 3—the second and fourth pairs somewhat shorter than the first pair, but co-equal in length. Palpi similar in colour and armature to legs. Falces long, glossy, dark brown, approaching bistre; inner margins yellow, divergent at apex, fringed with rather long hoary hairs on the inner margins; the upper margin of the furrow of each falx is armed with a row of four teeth, and the lower with three; fangs, long, strong, dark brown at base, wine-red at points. Maxillæ broad, divergent, moderately arched, dark brown at base, yellowish at apex and inner margins; a few short hoary hairs on the outer surface, inner margins thickly fringed with yellowish hairs. Labium broader than long, dark brown at base, yellowish at apex. Sternum cordate, shiny, moderately convex; colour: black, with a pale yellowish median streak commencing in front, and running to about two-thirds its length. Abdomen oblong-ovate, projecting over base of cephalothorax, strongly arched, clothed with moderately long, fine hairs; anterior portion and sides light grey, with dark brown markings; from the centre to posterior extremity there is a dark yellowish-brown patch, sinuous laterally; inferior surface dark brown laterally; at the centre there is a broad brownish-grey patch extending from epigyne to near the spinnerets, from which it is separated by a rather broad transverse greyish bar; on each side of the patch there is a longitudinal band of white, narrowest at the centre. Epigyne a long chitinous process, yellowish-brown above, and clothed with rather long dark hair, dark brown laterally, and grooved underneath; the process elevated on a small, broad white fleshy eminence.

One mature and one immature specimen.

Epeira distincta, sp. nov.

(Plate iv., figs. 4, 4a, 4b.)

♀. Cephalothorax, 4mm. long, 3mm. broad; abdomen, 10mm. long, 7mm. broad.

Cephalothorax pale yellow with long narrow longitudinal dark brown bars; the whole surface clothed with long, coarse hoary hairs. Caput arched, slightly elevated, truncated in front; normal grooves distinct. Clypeus strongly arched; a deep longitudinal cleft or groove commencing at base of cephalic and thoracic segments; lateral grooves fairly distinct. Marginal band broad, fringed with yellowish hairs, of which those in front are much the shortest. Eyes pearl-grey lustre with black rings; the four comprising the central group form a trapezium, and of

these the eyes of the front pair are sensibly the largest, and are separated from each other by a space equal to about once their individual diameter; the eyes comprising the second pair are separated from their anterior neighbours by a space equal to once the diameter of an eye of the second row, and from each other by a space equal to about two-thirds of a diameter; side eyes seated obliquely on small tubercles and contiguous to each other. Legs long and moderately strong, yellowish-grey with yellow-brown annulations, clothed with yellowish hairs, and armed with long black spines; relative lengths, 1, 2, 4, 3; the second and fourth pair somewhat shorter than the first, and co-equal. Palpi similar in colour and armature to the legs. Falces long, divergent at apex, shiny, yellowish, inner margins fringed with yellowish hairs; apex dark brown on inner margins; the upper margin of the furrow of each falx is armed with a row of four teeth, and the lower with three. Maxillæ broad, arched, yellow-brown, widely divergent; the outer lateral surface is thinly fringed with yellowish hairs, and the inner lateral surface thickly so. Labium concolorous. Sternum cordate, dark brown, yellowish in the centre, surface uneven, clothed with long yellowish hairs. Abdomen ovate, large, projecting over base of cephalothorax, clothed with short yellowish hairs; colour, yellowish-grey, the upper surface ornamented with a large and prominent dark grey leaf-like design, extending from near anterior to posterior extremity; sides yellowish-grey, with dark markings; inferior surface light grey at sides; at centre, extending from epigyne to spinnerets, there is a long sooty-black patch, broadest near anterior extremity; on each side of this patch there is a long white band, broadest at posterior extremity, and these are bordered again with a sooty-black stripe somewhat broadest at its anterior extremity; on each side of spinnerets, and seated somewhat in front, there is a large white spot. Epigyne a long, transverse slit, with a broad, and fairly prominent dark brown lip overhanging.

One mature and one immature specimen.

Epeira hoggi, sp. nov.

(Plate v., figs. 1, 1a.)

♀. Cephalothorax, 4mm. long, $2\frac{1}{2}$ mm. broad; abdomen, 6mm. long, $3\frac{1}{2}$ mm. broad.

Cephalothorax convex, pale yellow with broad lateral longitudinal brown bars, the whole surface clothed with hoary hairs. Caput arched, moderately high, truncated in front; a longitudinal dark brown stripe commences at ocular area, where it is much the broadest and terminates at the median longitudinal cleft situated at the junction of cephalic and thoracic segments. Clypeus broad, arched, lateral radial grooves indistinct. Marginal band broad, yellow, fringed with short, hoary hairs. Eyes

of an opaline tint with black rings; the four central eyes are seated upon a slightly elevated and somewhat quadrangular surface, and form a trapezium; of this group the two comprising the front row are somewhat larger than those of the second, and are separated from each other by a space equal to about twice their individual diameter; those of the second row are separated from their front neighbours by a space equal to about one-and-a-half the diameter of an eye of the front row, and from each other by once their individual diameter; side eyes seated obliquely on small tubercles, and nearly contiguous to each other. Legs long and strong, of a somewhat yellowish-green colour with broad dark brown annulations; each limb clothed with yellowish and dark brown hairs, and armed with long, black spines; relative lengths, 1, 4, 2, 3. Palpi similar in colour and armature to legs. Falces long, glossy, strong, divergent at apex, inner margins fringed with white hairs; colour, at base, dark brown, at apex, yellowish-brown; each margin of the furrow of each falx armed with a row of three teeth; fangs dark brown at base, wine-red at points. Maxillæ broad, moderately arched, divergent, dark brown at base, yellow at apex at inner margins; fringed on outer margins with long dark hairs and on the inner with yellowish pubescence. Labium short, broad, arched, dark brown at base, yellowish at apex. Sternum shield-shaped, convex, dark brown with yellowish median streak, commencing at anterior extremity and continuing to about two-thirds its length; moderately clothed with short hairs. Abdomen ovate, projecting over base of cephalothorax, moderately clothed with rather long yellowish hairs; colour, yellowish-grey, with a large dark brown leaf-like design, somewhat lighter at the middle, and relieved laterally with whitish flecks; sides grey with dark brown markings, terminating in a large dark patch near spinnerets; inferior surface dark brown with lateral patches of yellowish-grey in front, and patches of white near spinnerets. Spinnerets long, prominent, yellow-brown. Epigyne a transverse slit, with large yellow overhanging lip.

One specimen.

I have very much pleasure in dedicating this species to my esteemed friend and correspondent, Mr. H. R. Hogg, M.A., of Cheniston, Victoria, author of the admirable and valuable paper on "The Araneidæ of the Horn Exploring Expedition."*

Epeira speciosa, sp. nov.

(Plate v., figs. 2, 2a.)

♀. Cephalothorax $1\frac{1}{2}$ mm. long, 1 mm. broad; abdomen, $2\frac{1}{2}$ mm. long, $1\frac{1}{2}$ mm. broad.

* Rep. Horn Expl. Exp., ii., Zool., pp. 309-356, pl. 24. 1896.

Cephalothorax convex, yellow-brown, with a longitudinal dark brown stripe proceeding from the front to posterior extremity. Caput high, strongly arched, truncated in front, normal grooves distinct; furnished with a few long hoary hairs. Clypeus arched, furnished with a few hoary hairs; lateral radial grooves indistinct. Marginal band narrow, fringed with hoary pubescence. Eyes of a glassy-yellowish colour; the four comprising the central group are equal in size, and form a trapezium; of these the two constituting the front row are separated from each other by a space equal to fully twice their individual diameter; the second row is separated from the first by a space equal to nearly two diameters, and from each other by rather more than one diameter; lateral pairs placed obliquely on small tubercles, and nearly contiguous. Legs long, strong, yellowish-brown, clothed with long yellowish hairs, and armed with long yellowish spines; relative lengths, 1, 2, 4, 3; the second and fourth pair co-equal, but somewhat shorter than the first. Palpi similar in colour and armature to legs. Falces dark brown, long, strong, divergent at apex. Maxillæ dark brown, arched, inclining inwards. Labium concolorous, broader than long. Sternum dark brown, shield-shaped, convex, surface sparingly clothed with hoary hairs, the sides rather thickly so. Abdomen ovate, overhanging base of cephalothorax, clothed with pale yellowish pubescence; colour: saffron, a longitudinal dark brown mark extends for a short distance from anterior extremity, at the termination of which there are three dark brown spots, two of which are somewhat lateral, and the third, which is placed a little lower down is seated in the median line; commencing about midway there is a broad, dark leaf-like design which terminates near the posterior extremity; sides of a saffron colour also; inferior surface concolorous laterally with dark brown markings; a dark brown patch, narrowest at centre, extends from epigyne to spinnerets. Epigyne a transverse curved slit with a large broad lip overhanging.

Three specimens.

FAMILY TETRAGNATHIDÆ.

Tetragnatha laqueata, L. Koch.....One ♀ specimen.
L. Koch, Die Arachniden Australiens, i., pp. 190-2, T. xvi.,
figs. 5-5f, 1871.

FAMILY EULOBORIDÆ.

Uloborus zosis, Walck.....Twelve ♀ specimens.
Uloborus zosis, Walck., Hist. Nat. des Ins. Apt., ii., p. 231,
pl. 20, fig. 2 (*Zosis caraïbe*), 1841.
L. Koch, Die Arachniden Australiens, i., pp. 221-4, T. xix.,
figs. 3-3e, 1871.

Thor., Studi sui Ragni, etc., ii., Ragni di Amboina, *loc. cit.*, pp. 129-33, 1878.

Thor., Studi sui Ragni, etc., iii., Ragni dell' Austro-Malesia e del Capo York, p. 158, 1881.

FAMILY SCYTODÆ.

Dictis striatipes, L. Koch.....One ♀ specimen.

L. Koch, Die Arachniden Australiens, i., pp. 294-6, T. xxiv., figs. 5-5e, 1871.

FAMILY DRASSIDÆ.

Clubiona alveolata, L. Koch.....Three ♀ specimens.

L. Koch, Die Arachniden Australiens, i., pp. 421-3, T. xxxiii., figs. 7-7a, 1871.

FAMILY THOMISIDÆ.

Sarotes debilis, L. Koch.....One ♀ specimen.

L. Koch, Die Arachniden Australiens, i., pp. 671-3, T. lv., figs. 3-3a, 1871.

S. regius, Fabr.....Three ♀ specimens.

L. Koch, Die Arachniden Australiens, i., pp. 675-8, T. lvi., figs. 1-1a, 2-2b, 1871.

The specimens were taken in a native's hut.

FAMILY SALTICIDÆ.

Acompse suavis, L. Koch.....One immature ♀ specimen.

L. Koch, Die Arachniden Australiens, ii., pp. 1146-9, T. xcix., figs. 6-6d, 7-7d, 1883.

Genus HYLLUS, C. Koch.

Hyllus ferox, sp. nov.

(Plate v., figs. 3, 3a, 3b, 3c.)

♀. Cephalothorax, 6mm. long, 5mm. broad; abdomen, 7mm. long, 4mm. broad.

Cephalothorax somewhat shield-shaped, long, broad, high, reddish-brown. Caput reddish-brown, with purple tinge in front, and clothed with a few yellowish scale-like hairs; besides these latter it is also fringed in front and at the sides with a few rather long reddish-brown hairs; below the front row of eyes the margin is thickly clothed with yellowish pubescence. Clypeus broad, arched, reddish-brown, sparingly clothed with short yellowish pubescence; a moderately deep depression is seated midway between the two eyes comprising the third or posterior row; laterally, immediately under each eye of the second row, and seated rather low down, there is a large and prominent tubercle.

Marginal band narrow, black. Eyes of a pearl-grey lustre with black rings; each is surrounded with a thick fringe of red scale-like hairs; those comprising the front series form a curved row, the curvature directed forward; of these the two central eyes are much the largest; the two comprising the second row are exceedingly minute, and are placed midway between the lateral eyes of the front row, and those of the third series; the latter are equal in size, or nearly so, to the lateral eyes of the front row, and are separated from them by a distance of one and a half millimeters. Legs moderately long, reddish-brown; the anterior pair are the longest and much the strongest; each ambulatory limb is clothed with yellowish hairs, and armed with long, strong, black spines; relative lengths, 1, 2, 4, 3. Palpi rather long, slender, yellowish, clothed with long yellow hairs, and armed with short, strong, black spines. Falces robust, moderately long, strongly arched in front, divergent at apex, reddish-brown, with a somewhat purple tinge, thickly clothed at base with rather long yellowish hairs, and scantily so in front, and at outer margins with short yellowish pubescence; inner margins rather more freely clothed with somewhat longer hairs; the upper margin of the furrow of each falx is armed with a row of four teeth, and the lower margin with a row of two; fangs long, strong, reddish-brown. Maxillæ long, club-shaped, moderately arched; the surface sparingly clothed with rather long hoary hairs, and the inner margins at apex thickly so with long dark brown hairs. Labium concolorous, long, conical, thickly clothed with long yellowish hairs. Sternum elliptical, convex, pale-yellowish, thickly clothed with long yellowish hairs. Abdomen oblong-ovate; superior surface thickly clothed with short, closely adpressed golden scale-like hairs, and are furnished with a few long yellowish hairs; commencing at a distance of two millimetres from anterior extremity, and continuing towards spinnerets, there are two lateral sooty-black bands, the margins of which are sinuous; these bands are rounded off in front and pointed at posterior extremity; sides lightly grooved or furrowed, thickly clothed with short golden scale-like hairs; inferior surface pale yellow, thickly clothed with short yellowish pubescence. Epigyne slightly elevated in front, with two somewhat spherical lobes; deeply grooved laterally and in front. Spinnerets long, yellow-brown, thickly clothed with long yellowish hairs.

One specimen.

Speaking of this capture Mr. Hedley says:—"This example was the only one seen by any of the party; but no credit accrues to me for collecting it, for the creature obligingly collected itself. With an interest for biological research, and in a spirit of self-sacrifice which other undescribed species would do well to copy, she dropped straight into a collecting-tube. I was at the time

crouched under a mangrove tree (*Rhizophora mucronata*), at the edge of the swamp, picking specimens of an *Enteropneusta* from a puddle, so I permitted the spider, when it descended from the leaves above, to drown in the water, and transferred it to formol when I reached camp."

Hyllus audax, sp. nov.

(Plate v., figs. 4, 4a.)

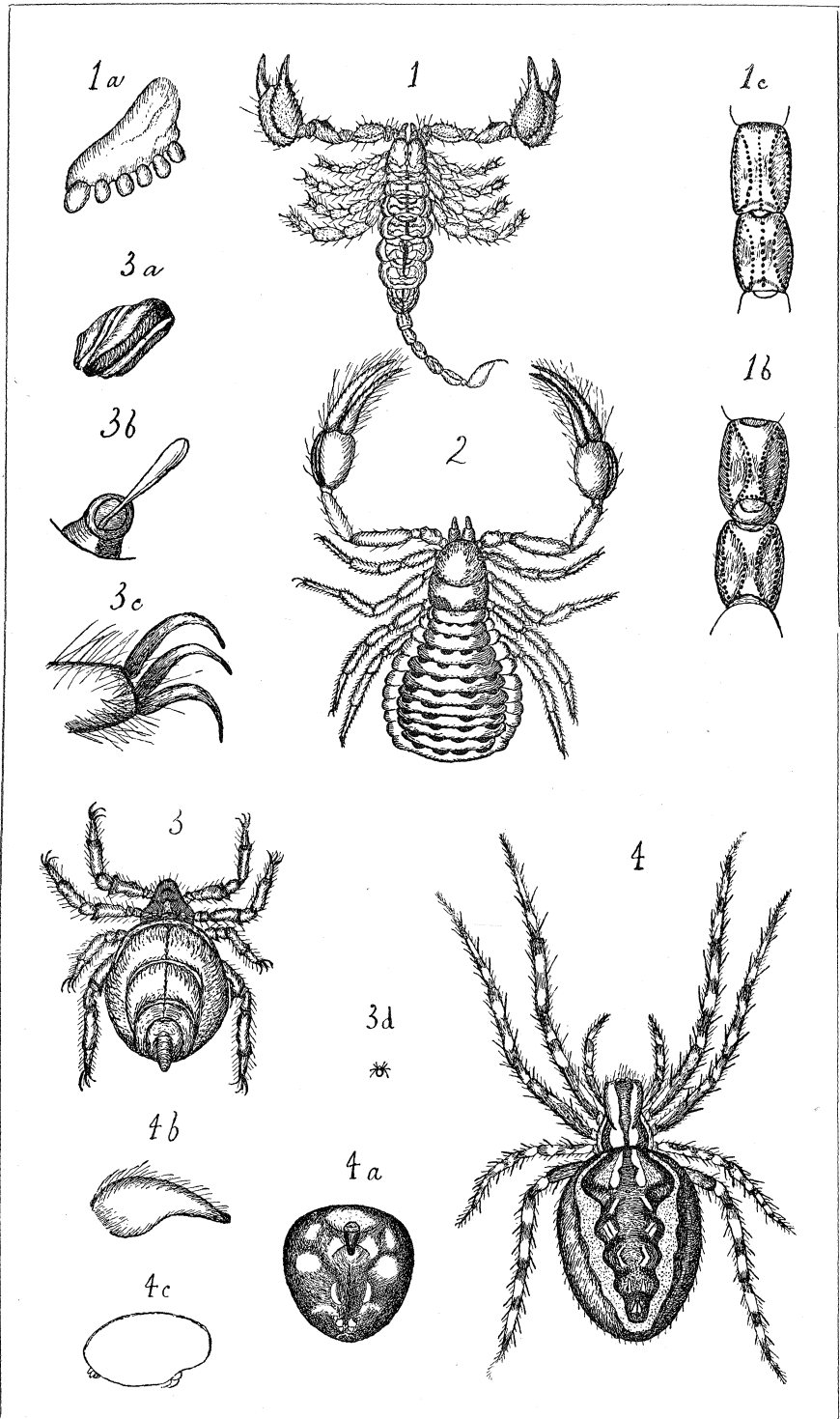
♀. Cephalothorax, 4mm. long, 3½mm. broad; abdomen, 5½mm. long, 3mm. broad.

Cephalothorax somewhat shield-shaped, long, broad, high. Caput dark brown approaching bistre, glabrous above, fringed in front and at sides with a few rather long dark brown hairs, and below the front row of eyes thickly clothed with silvery scale-like hairs. Clypeus broad, arched, reddish-brown, sparingly clothed with short hoary pubescence; there is a moderately deep depression seated midway between the two eyes comprising the third posterior row; immediately under each eye of the second row, and seated moderately low down, there is a large and prominent tubercle. Marginal band narrow, black. Eyes similar to those of *H. ferox*, Rainb., except in so far as the space intervening between the third row and the lateral eyes of the front series, the distance in this species being one millimetre. Legs moderately long, reddish-brown; the first pair much the longest and strongest; each ambulatory limb is clothed with brown hairs, and armed with long, black, strong spines; relative lengths, 1, 2, 4, 3. Palpi long, somewhat lighter in colour, clothed with long yellowish hairs, and armed with short, strong, black spines. Falces robust, moderately long, strongly arched in front, divergent at apex, dark brown, clothed with a few short hoary hairs at base; inner margins rather thickly fringed with long dark brown hairs; the upper margin of the furrow of each falx is armed with a row of four teeth, and the lower margin with a row of two; fangs long, strong, reddish-brown. Maxillæ and labium as in *H. ferox*. Sternum elliptical, convex, pale yellow, moderately clothed with long, yellowish hairs. Abdomen oblong-ovate; superior surface thickly clothed with short, closely adpressed golden scale-like hairs; commencing at anterior extremity, and terminating near spinnerets, there are two lateral sooty-black bands, the margins of which are sinuous; sides lightly grooved or furrowed longitudinally, and thickly clothed with short adpressed golden scale-like hairs; inferior surface pale yellowish, thickly clothed with silvery pubescence. Epigyne slightly elevated in front, with two somewhat spherical lobes; deeply grooved laterally and in front. Spinnerets long, yellow-brown, thickly clothed with long yellowish hairs.

One specimen.

EXPLANATION OF PLATE II.

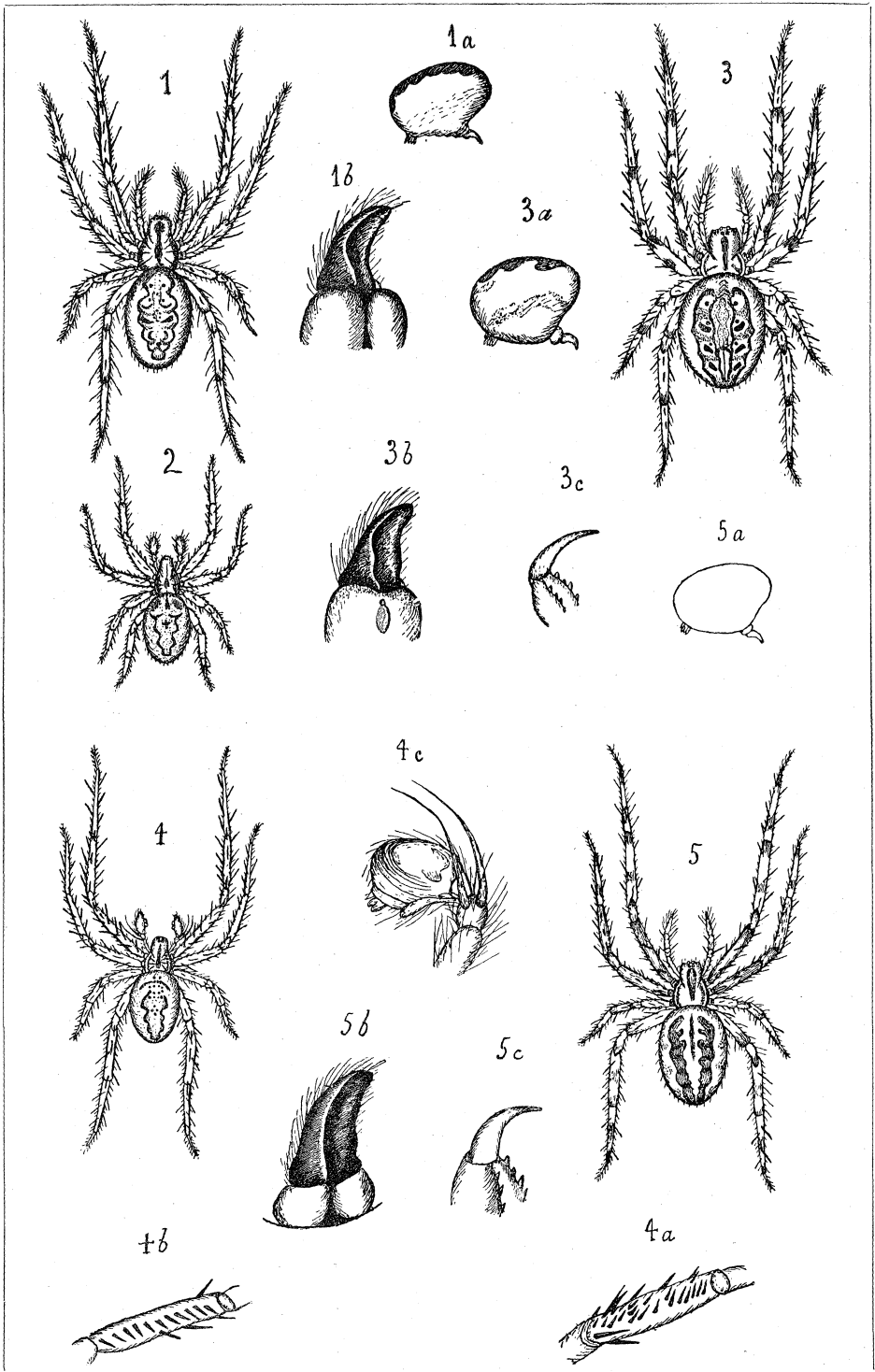
- Fig. 1. *Buthus brevicaudatus*, Rainb.
,, 1a. ,, ,, comb.
,, 1b. ,, ,, 2nd & 3rd segment of tail, superior surface.
,, 1c. ,, ,, ,, ,, inferior surface.
,, 2. *Chelifer longidigitatus*, Rainb.
,, 3. *Oribata lamellata*, Rainb.
,, 3a. ,, ,, abdomen, side view.
,, 3b. ,, ,, pseudo-stigmata.
,, 3c. ,, ,, tarsus.
,, 3d. ,, ,, natural size.
,, 4. *Epeira ventricosa*, ♀, Rainb.
,, 4a. ,, ,, underside of abdomen.
,, 4b. ,, ,, epigyne, side view.
,, 4c. ,, ,, abdomen, in profile.



W. J. RAINBOW, del.

EXPLANATION OF PLATE III.

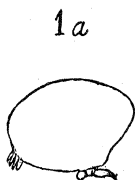
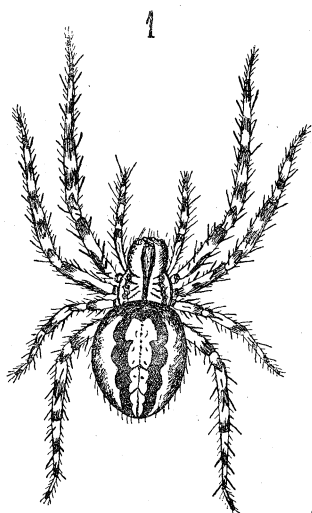
- Fig. 1. *Epeira longispina*, ♀, Rainb.
,, 1a. ,, ,, abdomen, side view.
,, 1b. ,, ,, epigyne.
,, 2. ,, ,, ♂ (immature), Rainb.
,, 3. *Epeira multispina*, ♀, Rainb.
,, 3a. ,, ,, abdomen, side view.
,, 3b. ,, ,, epigyne.
,, 3c. ,, ,, falx.
,, 4. ,, ,, ♂, Rainb.
,, 4a. ,, ,, trochanter of second pair of legs, underside.
,, 4b. ,, ,, femur of do., underside.
,, 4c. ,, ,, right palpus, viewed from above.
,, 5. *Epeira etheridgei*, ♀, Rainb.
,, 5a. ,, ,, abdomen, side view.
,, 5b. ,, ,, epigyne.
,, 5c. ,, ,, falx.



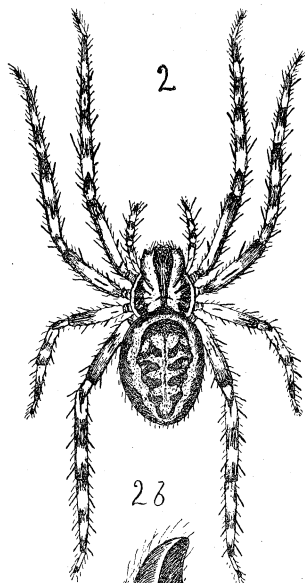
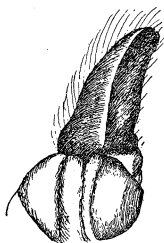
W. J. RAINBOW, del.

EXPLANATION OF PLATE IV.

- Fig. 1. *Epeira festiva*, ♀, Rainb.
,, 1a. ,, ,, abdomen, side view.
,, 1b. ,, ,, epigyne.
,, 2. *Epeira obscura*, ♀, Rainb.
,, 2a. ,, ,, abdomen, side view.
,, 2b. ,, ,, epigyne.
,, 2c. ,, ,, falx.
,, 3. *Epeira annulipes*, ♀, Rainb.
,, 3a. ,, ,, abdomen, side view.
,, 3b. ,, ,, epigyne.
,, 3c. ,, ,, falx.
,, 4. *Epeira distincta*, ♀, Rainb.
,, 4a. ,, ,, epigyne.
,, 4b. ,, ,, falx.



1b



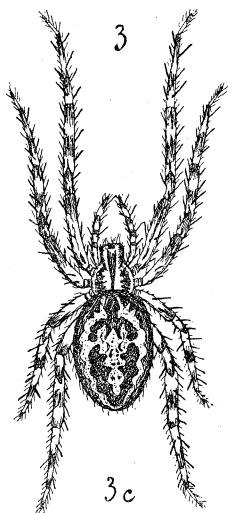
2b



2a



2c



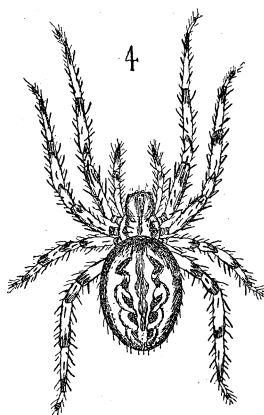
3a



3b



3c



4b



4a



EXPLANATION OF PLATE V.

- Fig. 1. *Epeira hoggi*, ♀, Rainb.
,, 1a. ,, ,, epigyne.
,, 2. *Epeira speciosa*, ♀, Rainb.
,, 2a. ,, ,, epigyne.
,, 3. *Hyllus ferox*, ♀, Rainb.
,, 3a. ,, ,, falces and front row of eyes.
,, 3b. ,, ,, falx.
,, 3c. ,, ,, epigyne.
,, 4. *Hyllus audax*, ♀, Rainb.
,, 4a. ,, ,, epigyne.

