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Notes on Some Costa Rican  
Arachnida.

BY  
NATHAN BANKS.

From the Proceedings of The Academy of Natural Sciences  
of Philadelphia, December, 1913.

Issued January 28, 1914.



## NOTES ON SOME COSTA RICAN ARACHNIDA

BY NATHAN BANKS.

In the PROCEEDINGS of the Academy of Natural Sciences of Philadelphia for 1909, pp. 194-234, I published a list of Arachnida from Costa Rica kindly sent me for determination by Prof. Tristan and Dr. Biolley. Since then Prof. Tristan has sent a further consignment of these animals, and Prof. Calvert has sent me the Arachnids collected during his trip in that country (May, 1909, to May, 1910). The following notes are based on these collections. The types from the material sent by Prof. Calvert are in the Academy of Natural Sciences of Philadelphia, the others are in the author's collection.

## DRASSIDÆ

ZIMIROMUS *n. gen.*

A Drassid; eyes as figured; both rows strongly procurved; A. M. E. larger than the other eyes; lip nearly square, maxillæ long and impressed, a black ridge on the outer tip, inner tip with brush of black hairs; a short dorsal groove; spinnerets similar to *Zimiris*; legs slender, with spines, trochanter about one-half the length of the coxa; claws distinctly toothed.

Differs from the other Prodidomoid Drassids in the strongly procurved eye-rows and large A. M. E.

*Zimiromus fragilis* n. sp. Pl. XXVIII, fig. 9.

Cephalothorax, mandibles, and sternum pale yellowish; legs very pale, femora darker; abdomen gray, nearly black above, unmarked, with stiff black hairs at base. Legs slender, with only a few spines on anterior pairs, more numerous on the hind legs, the latter much longer than the abdomen. Vulva large; a long cavity containing a pale transversely ridged tongue.

Length 5 mm.

From Turrialba, Costa Rica (Tristan).

*Teminius conjuncta* n. sp. Pl. XXVIII, fig. 2.

Cephalothorax, mandibles, and sternum dark reddish-brown; legs more yellowish, blacker on femora above and more red-brown on the tarsi and metatarsi I and II; abdomen dark gray, with black

hair. Cephalothorax moderately long, much narrowed in front, legs rather stout, tarsi and metatarsi I and II heavily scopulate beneath, tibia I with one apical spine beneath, tibia II with an apical spine and one near the middle; no spines above on tibiae III or IV, but several below and on sides. Posterior eye-row barely procurved, M. E. scarcely oval, slightly more than their diameter apart, and about twice as far from the equal laterals. Anterior eye-row procurved, all large, M. E. less than their diameter apart, and about half as far from the slightly smaller laterals.

Length 12 mm.

From St. Maria Dota, Costa Rica (Tristan).

## OLUBIONIDÆ

*Clabiona tigrina* Cambridge.

Near Hacienda Guachipelin, Guanacaste; 1,700 feet. Jan. 15, 1910 (Calvert).

*Chemmis paucitigera* Cambr. Pl. XXVIII, fig. 8.

This form may be distinct from *C. frederici* Simon; the figure I give of the vulva agrees better with that given by the elder Cambridge for this species and is quite unlike that given by the younger Cambridge for *C. frederici*; the markings are broken up into small spots.

Turrialba, Costa Rica (Tristan). Juan Viñas, clearing near Rio Reventazon, May 3, 1910 (Calvert).

*Pelayo insignis* Bks. Pl. XXVIII, fig. 14.

A female of this species from St. Maria Dota, Costa Rica, vulva as shown in figure; the basal median mark of the abdomen is broken up into three spots and the apical mark contains a transverse pale spot.

*Anyphæna pretiosa* n. sp. Pl. XXVIII, fig. 4.

Pale yellowish, a dark stripe each side on the cephalothorax; many small dark spots on abdomen, in the middle behind they unite to form a series of chevrons, a dark spot at base of the tibiae; tibiae I and II with four pairs of spines beneath. Mandibles vertical, each with two dark lines in front. A. M. E. much smaller than the other eyes. Vulva as figured.

Length 5 mm.

From St. Maria Dota, Costa Rica (Tristan).

*Anyphæna furcatella* n. sp. Pl. XXVIII, fig. 5.

Pale yellowish; a faint dark stripe each side on the cephalothorax; legs very long and slender and with very long spines; coxæ all



unarmed. A. M. E. very much smaller than the other eyes; mandibles slender, vertical; the tibia of the male palpus is broad and at tip with two acute projections, one of which has a short upper spur.

A female, which may belong to the same species, is unmarked, and has a vulva as figured.

Length 5 mm.

From St. Maria Dota, Costa Rica (Tristan).

*Sillius putus* Cambridge.

Caché, March 7, 1910 (Calvert).

#### AGELENIDÆ

*Agelena* sp.

Juan Viñas, 3,200 feet, in a bromeliad, April 26, 1910, a young specimen (Calvert).

#### THERIDIIDÆ

*Theridion biolleyi* Banks, Pl. XXVIII, fig. 7.

The palpus of the male (previously unknown) is shown in figure; the markings are similar to those of the female.

*Lithyphantes lugubris* Cambr.

From Caché, March 9, 1910 (Calvert).

#### EPEIRIDÆ

*Edricus tricuspidatus* Getaz.

Unknown to the *Biologia*, one female from Juan Viñas, "farther waterfall," 29 Sept., 1909 (Calvert). A figure of the dorsum is given; the abdomen is shorter than in *E. crassicauda*. The length, 5 mm., given in the *Biologia* is wrong, as Getaz says the abdomen is 9 mm. long.

*Tetragnatha alba* Cambridge.

Santa Cruz, Jan. 20, 1910, and Quebrada de Panteon de Liberia, Jan. 12, 1910, both in Guanacaste (Calvert).

*Tetragnatha antillana* Simon.

Caché, stream through coffee plantation, March 3, 1910 (Calvert).

*Tetragnatha guatemalensis* Cambridge.

Banana River region, Nov. 4-10, 1910 (Calvert).

*Tetragnatha mexicana* Keyserling.

Juan Viñas, laguna, 3,300 feet, Feb. 18, 1910 (Calvert).

*Tetragnatha tenuissima* Cambridge.

Juan Viñas, Feb. 15, 1910 (Calvert).

*Leucauge hortorum* Hentz.

Juan Viñas, laguna, Oct. 5, 1909 (Calvert).

*Singa dotana* n. sp. Pl. XXVIII, fig. 1.

Cephalothorax wholly pale yellowish, also the mandibles, palpi, and sternum; legs with deep black bands on apices of all femora, on tips, and partly on sides of patellæ, and a fine dot near middle and tip of tibiae. Abdomen gray, with some irregular blackish patches on the basal part, and many silvery-white spots above and below; each side of the spinnerets is a jet-black spot.

Abdomen much broader than long and concave behind.

Length 3 mm., width of the abdomen 3 mm.

From St. Maria Dota, Costa Rica (Tristan).

Related to *S. abbreviata*, but distinct by markings and shape of the vulva.

*Argiope argentata* Fabricius.

Alajuela, Sept. 9, 1909 (Calvert).

*Mangora trilineata* Cambridge.

Juan Viñas, 2,500 feet, May 3, 1910; 3,300 feet, Oct. 5, 1909 (Calvert).

*Mangora picta* Cambridge.

Juan Viñas, Reventazon Valley, 2,500 feet, in unrolled *Heliconia* leaves, May 1, 1910 (Calvert).

*Acrosoma inaequalis* Cambridge.

Near Cartago, Feb. 1910; Juan Viñas, 3,300 feet, July 27 and Sept. 29, 1909 (Calvert).

*Acrosoma 12-spinosa* Keyserling.

Alajuela, Sept. 6, 1909 (Calvert).

*Gasteracantha lechi* Butler.

Juan Viñas, "farther waterfall," Sept. 29, 1909 (Calvert).

#### SPARASSIDÆ

*Selenops mexicana* Keyserling.

Peña Blanca, Rio Naranjo Valley, near Caché, in arboricolous bromeliad, March 9, 1910 (Calvert).

#### CTENIDÆ

*Cupiennius coccineus* Cambr.

Described from Panama; one from Peña Blanca near Caché, in arboricolous bromeliad, 19 March, 1910 (Calvert).

*Cupiennius griseus* Cambridge.

Juan Viñas, April 29, 1910, one specimen in house (Calvert).

*Trechalea convexa* Cambridge.

Quebrada de Salas, east of Atenas Station, Pacific Railroad,



April 8, 1910; Quebrada Clara, north of Liberia, Guanacaste, Jan. 13, 1910, immersed itself clinging to rock face (Calvert).

*Ctenus* sp.

Juan Viñas, 3,200 feet, in arboricolous bromeliad, April 26, 1910, one immature specimen (Calvert).

*Tinus nigrinus* Cambridge.

Rio Liberia and Quebrada de Panteon, Liberia, Guanacaste, Jan. 11 and 12, 1910; along the banks; wings, etc., of Odonata (*Heterina*, *Argia* and *Perithemis*), in its webs, one female with its egg-ball (Calvert).

#### LYCOSIDÆ

*Lycosa brevitarsis* Cambridge.

Near Hacienda Guachipelin, Guanacaste, 1,700 feet, Jan. 15, 1910 (Calvert).

*Pardosa* sp.

Crater of Volcano Irazú, 10,880 feet, April 1, 1910, one young specimen (Calvert).

#### OXYOPIDÆ

*Oxyopeidon molestum* Cambr.

Juan Viñas, near Rio Reventazon, May 3, 1910 (Calvert).

#### ATTIDÆ

*Dendryphantes maxillosus* Cambr.

From Juan Viñas, July, 1909 (Calvert).

*Cobanus mandibularis* Peck.

From Banana River region, 4 Nov., 1909 (Calvert).

*Sidusa fulvoguttata* Cambridge.

Juan Viñas, 3,200 feet, in arboricolous bromeliad, April 26, 1910 (Calvert).

*Thiodina retarius* Hentz.

Juan Viñas, 2,500 feet, near Rio Reventazon, March 21, 1910 (Calvert).

#### PHALANGIDÆ

*Hernandria ventralis* n. sp.

Black; ventral segments with silvery basal band, also silvery on sides of the posterior segments. Eye-tubercle smooth, with two small granules each side above; dorsal scutum divided into three transverse parts; each with a pair of pale spots, the first part also

divided on the middle line; the surface of scutum smooth; posterior segments each with a transverse row of granules, a median one on the third segment much larger than the others; legs, especially the hind pair, with rows of granules, bearing fine hairs; a large spur above on tip of coxa IV; tarsal joints 5, 6, 8, 6. Palpi with long bristles; tibia and tarsus each with four on outer side, the first and third long, the others very short.

Length 6 mm.

From St. Maria Dota, Costa Rica (Tristan). The silvery bands on the venter are very characteristic.

*Cynorta biguttata* Cambridge.

La Emilia, near Rio Santa Clara, 980 feet, Nov. 17-19, and Juan Viñas, 3,300 feet, Oct. 1, 1909, in bromeliads (Calvert).

*Cynorta flavonata* n. sp.

Dark brown; sides reticulate with yellowish, and emitting branches to middle of the body; two dots on the eye-tubercle; two large yellow spots above on the anal segment almost touching each other; a large yellow spot on each hind coxa; legs pale, densely marked with fine black lines. Dorsum with a pair of low, basal, acute tubercles and a pair of long spines behind, not one-half their length apart, and with very slender tips; surface of dorsum and posterior segments without granules. Femur IV twice as long as the width of body and plainly longer than length of body; tarsal joints six, fourteen, nine, and ten; first three of tarsus I enlarged.

Length 6 mm., hind femur 10 mm.

From San Jose, Costa Rica (Tristan).

*Cynorta longispina* Cambridge.

La Emilia, in epiphytic bromeliad, Nov. 16, 1909 (Calvert).

*Cynorta oculata* n. sp.

Red-brown, legs pale, finely maculate with black, dorsum with four white rings surrounding the four tubercles, venter with two of the basal segments pale on the middle of hind margin, last segment with white mark each side, white spot surrounding the spiracles, and a white stripe above coxae IV. Dorsum smooth, with four humps, the basal pair low and blunt, the apical pair high, but more

[Mr. Banks has recently re-examined a couple of specimens from the same bromeliad, quoted on page 405 of volume XXII of *Entomological News* as *Cynorta* sp., and writes: "The Phalangids are young *Cynorta*; have long palpi; when mature, palpi are very much shorter. I cannot be sure of species; looks like *C. albomaculata* Cambr., which is common in Costa Rica." The locality whence these specimens came was Juan Viñas, Oct. 3 and 4, 1909.—P. P. Calvert.]



than twice their height apart, and each with a rounded tip; tarsal joints 6, 14, 9, 10; hind coxae with a few granules on outer side.

Length 5.5 mm., femur II, 10 mm.; femur IV, 9 mm.

From Ste. Maria Dota, Costa Rica (Tristan).

*Cynorta conspersa* n. sp.

Related to *C. flavornata*, with large yellow spot on outer side of each hind coxa and small dots on the eye-eminence, and a pair of large spots behind on last segment; these last marks, however, are plainly made up of three spots joined together. The dorsum has a great number of small, rounded yellow dots, often marking an elevation, these are most numerous on the sides, two in front of eye-eminence on the front margin. The posterior spines are more slender than in *C. flavornata* and more than their length apart, there are no anterior humps. The tarsal joints are 6, 13, 9, 11; femora II and IV are much longer than the body, second joint of mandible scabrous above, the palpal joints not as broad as in that species.

Length 5 mm.; femur I, 8 mm.; femur IV, 7 mm.

From Juan Viñas, 2,500-3,000 feet, in arboricolous bromeliads, March 20 and 21, 1910 (Calvert).

*STYGNOLEPTES* n. gen.

A Gonyleptid; the hind coxae larger than others and much broader than first segment of abdomen; all coxae distinct; hind coxae separated by a triangular plate; spiracles distinct. Palpi not one-half the length of the body, rather slender, with bristles; all legs short, and tarsi with few joints; eye-tubercle broad and low, with a little granule above on each side near eyes. Cephalothorax small compared to the abdomen, the basal dorsal scutum of abdomen undivided by grooves or furrows.

*Stygnoleptes anatis* n. sp. Pl. XXVIII, fig. 6.

Body reddish, palpi yellowish, legs mostly brown, the bases and the articulations pale. Dorsal surface finely granulate. The cephalothorax not more than one-third as wide nor more than one-fourth as long as the abdomen; the dorsal scutum of abdomen with serrate sides, beyond are four posterior segments, in one specimen the third and fourth bear a pair of submedian tubercles, about twice their length apart; on the anal plate is a long spine projecting behind the body. The palpi have two bristles on outer edge of both tibia and tarsus, and near base of the femur are two situate on tubercles. The coxae are coarsely granulate, the legs short, none of the femora more than one-half the width of the body; the hind

legs are rather longer than the second pair, femora I and II have beneath one or two small spines near tip; leg IV is heavier than the others, and more coarsely granulate; the trochanter has a stout spur, a row of spurs beneath on the femur, one above near tip of the patella, the tibia with one above near base, and a very large one below at middle, and beyond are two smaller ones; all the legs are slightly roughened and provided with very fine, short hairs; tarsus I has three joints, II with six joints, III with four joints, the basal one as long as others together; IV with five joints, the basal one the longest.

Length 3.5 mm.

From Turrialba, Costa Rica (Tristan).

*Meterginus signatus* Banks.

Juan Viñas, in epiphytic bromeliad ("fourth bromeliad") on Rio Reventazon Road, Oct. 3 and 4, 1909 (Calvert; quoted in *Ent. News*, vol. XXII, p. 405, 1911).

*Liobunum biolleyi* Banks.

Cerro Las Pilas, west of Santa Cruz, Guanacaste, a swarm in a dry brook bed, Jan. 21, 1910 (Calvert).

*Liobunum foveolatum* Cambridge.

Rio Oro Valley near Caché, March 8, 1910, a swarm (Calvert).

PSEUDOSCORPIONIDA.

*Chelanops nodulimanus* Tomoev.

On the Harlequin beetle, *Acrocynus longimanus*, from Juan Viñas (Calvert).

*Chelanops uniformis* n. sp. Pl. XXIX, fig. 16.

Hard parts reddish-brown, legs paler. Body rather long, the cephalothorax plainly longer than broad behind, narrowed and rounded in front, minutely granulate, with two transverse furrows, the first at about middle, surface with many short clavate hairs; no eye-spots. The abdominal scutæ finely granulate, each with about seven clavate hairs behind. Pedipalpi slender, longer than the body; trochanter, femur, and tibia finely granulate, and with clavate or subclavate hairs, hand smooth and with simple hairs; femur fully as long as the cephalothorax, nearly straight in front, slightly convex behind; tibia rather shorter than femur, strongly convex on inner basal part, outer side more convex near tip; hand but little broader than tibia, twice as long as broad, neither side much convex, fingers nearly as long as the hand, but little curved;



legs with some clavate hairs near tip of femora, and on the tibia above.

Length 3 mm.; pedipalpi 3.3 mm.

From bromeliads at La Emilia, Juan Viñas, and Reventazon Valley, below Juan Viñas, Costa Rica, Oct. and Nov., 1909; March and April, 1910 (Calvert). The pedipalpi are very similar to those of *Chelifer canestrinii* Balzan.

#### SCORPIONIDA

*Centrurus bicolor* Pocock.

One specimen taken in the office of Philadelphia South Farm (Banana River district), Costa Rica, Nov. 7, 1909 (Calvert).

*Centrurus margaritatus* Cerv.

From Turrucares, August 14 and 15, 1909 (Calvert).

#### SOLPUGIDA

*Ammotrecha stollii* Pocock.

Atenas Station, Pacific Railroad, one specimen running about in bed at hotel, April 8, 1910, 9 P.M.

#### ACARINA

*Canestrinia blattophaga* Banks.

From Santa Cruz, 21 Jan., 1910 (Calvert), in a vial with various insects, including a large cockroach, *Archimandrita marmorata* Stoll, identified by Mr. J. A. G. Rehn.

*Trombidium furcipes* n. sp. Pl. XXX, fig. 21.

Red. Body nearly twice as long as broad, broadest at humeri, constricted behind the humeri and again at insertion of third legs; crista metopica (or groove) reaching to abdomen, with a papilla near posterior third; two sessile eyes each side, the inner one much the smaller. Body densely clothed with minute, short, dense fascicles of hair, each arising from a pit; so close are these as to give the abdomen a pitted appearance from above; legs with short, fine hairs, leg I longer than body, leg IV plainly shorter, and all tarsi at end have a long deep slit in which are located the claws, each side of slit the hairs are long and dense, so that seen from the side the tarsi appear abruptly clavate at tip, and from above appear forked; tarsi longer than preceding joint; palpi quite long, with only short hairs, the thumb fusiform and hardly longer than the long claw.

Length 2 mm.

From Juan Viñas, Costa Rica, June 23 to 29, 1910 (Calvert).

*Rhyncholephus stollii* n. sp. Pl. XXX, fig. 22.

Red. Body about one and two-thirds as long as broad, broadest at humeri, slightly narrowed at insertion of third legs, broadly rounded behind, clothed with very short dense simple hairs, dorsal groove long, reaching much behind eyes, and with a papilla at about one-third way from end; one eye each side. Legs slender, first pair about as long as body, second pair very short, last joint of leg I about one-half the length of the preceding, last joint of leg IV about one-third of preceding joint; palpi with large clavate thumb; genital aperture about one-half its length in front of the small anal aperture, the latter with a dark strip reaching out each side.

Length 3.5 mm.

From San Jose, Costa Rica (Tristan).

*Uropoda clavisetosa* n. sp. Pl. XXIX, fig. 19.

Yellowish. Body about one and a half times as long as broad, broadest behind middle, but not narrowed much in front; dorsum with many long, stout bristles, those around the margin (about 15 each side) are simple, some toward tip are very long, four in front are close together in pairs, on middle of dorsum the bristles are plainly clavate, especially in front, those behind hardly so; legs rather stout, all with few simple bristles, hind coxae more approximate than others, hardly more than diameter apart; venter with an oblique ridge behind hind femur; anus about its length in front of margin, a pair of bristles behind it.

Length .65 mm.

From Juan Viñas, Costa Rica (Calvert), on the Harlequin beetle, *Acrocynus longimanus*.

*Uropoda bisetosa* n. sp. Pl. XXIX fig. 15.

Brownish-yellow. Body about once and two-thirds as long as broad, broadest rather behind the middle, broadly rounded behind, in front tapering, and near tip with concave margins so that there is a prominent process in front which bears two small bristles; dorsum smooth, without hairs; coxae I rather longer than usual, all legs very short, and all but leg I stout, with few hairs, a few spine-like bristles on tarsi; epigynum of female more than twice as long as broad, narrowed behind; anus hardly its length in front of hind margin; behind leg II the peritreme bends suddenly outward and then at once back and bends to leg III.

Length .5 mm.

From Juan Viñas, Costa Rica (Calvert), on the Harlequin beetle, *Acrocynus longimanus*.



*Celænopsis angustus* n. sp. Pl. XXX, fig. 20.

Reddish-brown. Body fully twice as long as broad, middle sides nearly parallel, tapering and almost pointed behind, in front rather concavely narrowed to the rounded front; dorsum smooth, with a few short scattered bristles, these bristles not one-half as long as distance between them, a row of curved bristles over front margin; sternum about as long as broad behind, a bristle in each anterior corner, one each side, and a submedian pair behind; vulva as figured; hind coxæ not their diameter apart; anus nearly three times its length in front of hind margin, a pair of bristles behind it toward tip; first legs slender, with many fine hairs especially at tip, other legs thicker, and with few bristles, hind legs reaching barely beyond abdomen.

Length .6 mm.

On the Scarabæid, *Dynastes hercules*, from Costa Rica (Calvert).

*Hypoaspis distans* n. sp. Pl. XIX, fig. 17.

Yellowish. Body about twice as long as broad, broadest at middle, tapering each way, but most behind; dorsum with a number of short hairs set in hyaline dots, and on margin longer hairs, some of them very long, one each side behind is fully one-half the width of the body; sternal shield rather longer than broad; epistome very long and slender; legs rather long, second pair of male stoutest, all with bristles, some under leg II spine-like, a very long bristle on femur IV, much shorter one on femur III, in female there is also a very long one on femur II.

Length 1 mm.

On the Scarabæid, *Dynastes hercules*, from Costa Rica (Calvert).

#### EXPLANATION OF PLATES XXVIII-XXX.

- PLATE XXVIII.—Fig. 1.—*Singa dotana*.  
 Fig. 2.—*Teminius conjuncta*, vulva.  
 Fig. 3.—*Zimromus fragilis*, spinnerets.  
 Fig. 4.—*Anyphaena pretiosa*, vulva.  
 Fig. 5.—*Anyphaena furcatella*, palpus.  
 Fig. 6.—*Stygnoleptes analis*, leg IV.  
 Fig. 7.—*Theridion biolleyi*, palpus.  
 Fig. 8.—*Chemmis punctigera*, vulva.  
 Fig. 9.—*Zimromus fragilis*, eyes.  
 Fig. 10.—*Anyphaena furcatella*, vulva.  
 Fig. 11.—*Singa dotana*, vulva.  
 Fig. 12.—*Zimromus fragilis*, vulva.  
 Fig. 13.—*Stygnoleptes analis*, palpus.  
 Fig. 14.—*Pelayo insignis*, vulva.

- PLATE XXIX.—Fig. 15.—*Uropoda bisetosa*.  
 Fig. 16.—*Chelanops uniformis*.  
 Fig. 17.—*Hypoaspis distans*, and epistome.

Fig. 18.—*Chelanops uniformis*.

Fig. 19.—*Uropoda clavisetosa*, and hairs.

Fig. 20.—*Celænopsis angustus*.

PLATE XXX.—Fig. 21.—*Trombidium furcipes*, palpus, tarsus, and hairs on dorsum.

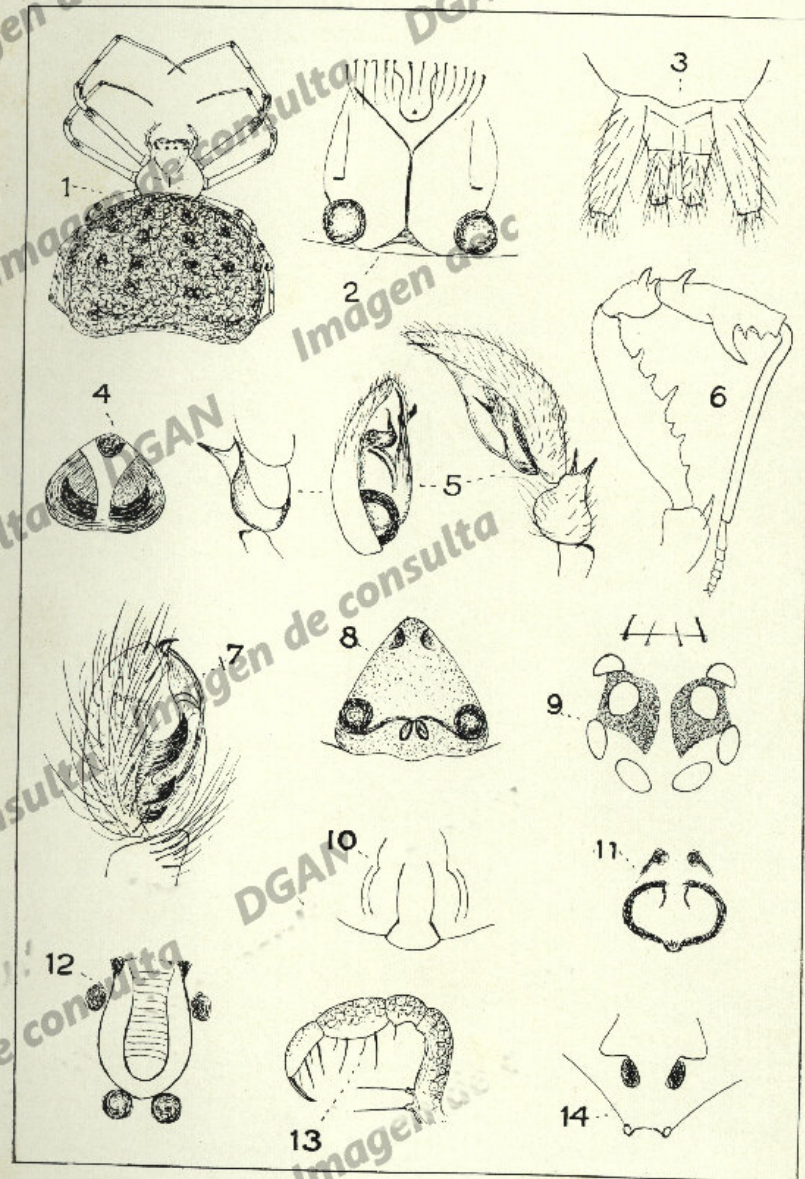
Fig. 22.—*Rhyncholophus stollii*, palpus.

Fig. 23.—*Edricus tricusps*.

Fig. 24.—*Rhyncholophus stollii*.

Fig. 25.—*Rhyncholophus stollii*, legs I and IV.

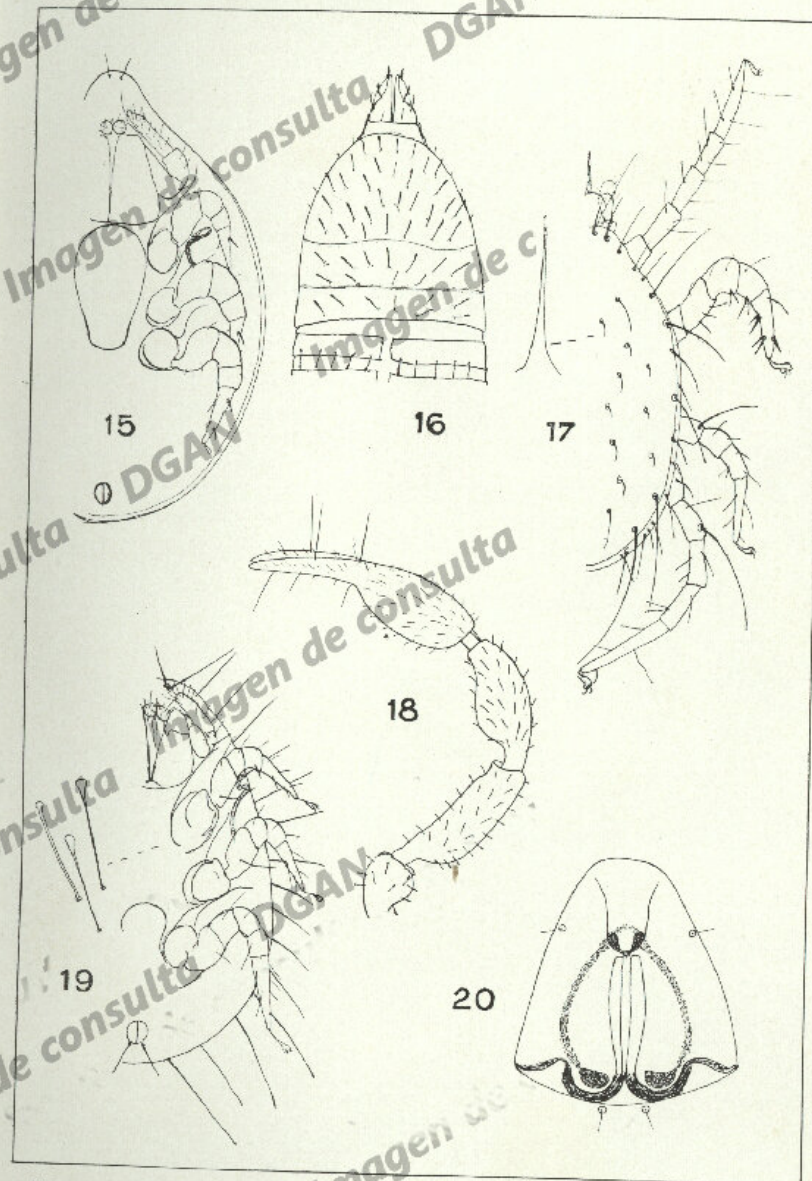




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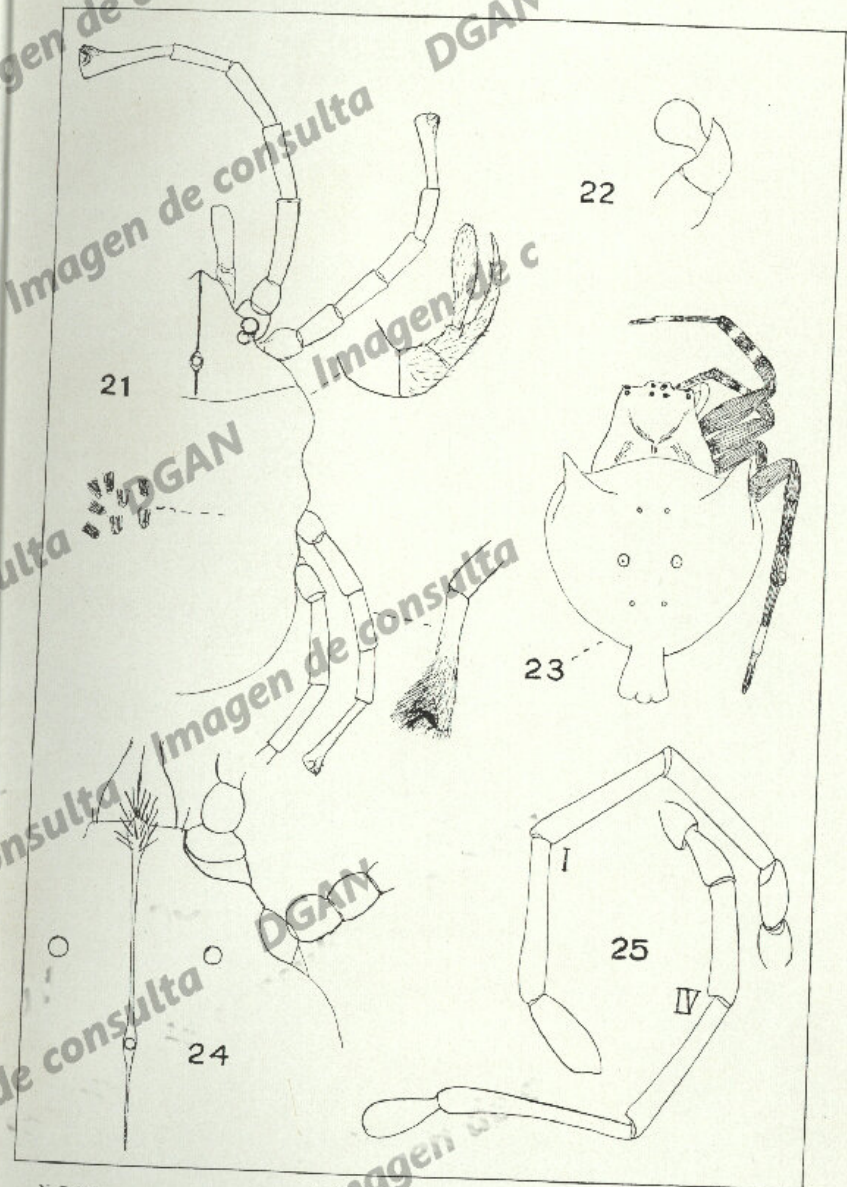




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Museo Nacional

El colector,

J. Fed. Tristan

Junio. 1914

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## DRASSIDÆ.

## ZIMIROMUS n. gen.

A Drassid; eyes as figured; both rows strongly procurved; A. M. E. larger than the other eyes; tip nearly square, maxillæ long and impressed, a black ridge on the outer tip, inner tip with brush of black hairs; a short dorsal groove; spinnerets similar to *Zimiris*; legs slender, with spines, trochanter about one-half the length of the coxa; claws distinctly toothed.

Differs from the other Prodidomoid Drassids in the strongly procurved eye-rows and large A. M. E.

*Zimiromus fragilis* n. sp. Pl. XXVIII, fig. 9.

Cephalothorax, mandibles, and sternum pale yellowish; legs very pale, femora darker; abdomen gray, nearly black above, unmarked, with stiff black hairs at base. Legs slender, with only a few spines on anterior pairs, more numerous on the hind legs, the latter much longer than the abdomen. Vulva large; a long cavity containing a pale transversely ridged tongue.

Length 5 mm.

From Turrialba, Costa Rica (Tristan).

*Teminius conjuncta* n. sp. Pl. XXVIII, fig. 2.

Cephalothorax, mandibles, and sternum dark reddish-brown; legs more yellowish, blacker on femora above and more red-brown on the tarsi and metatarsi I and II; abdomen dark gray, with black

hair. Cephalothorax moderately long, much narrowed in front, legs rather stout, tarsi and metatarsi I and II heavily scopulate beneath, tibia I with one apical spine beneath, tibia II with an apical spine and one near the middle; no spines above on tibiae III or IV, but several below and on sides. Posterior eye-row barely procurved, M. E. scarcely oval, slightly more than their diameter apart, and about twice as far from the equal laterals. Anterior eye-row procurved, all large, M. E. less than their diameter apart, and about half as far from the slightly smaller laterals.

Length 12 mm.

From St. Maria Dota, Costa Rica (Tristan).

## CLUBIONIDÆ.

*Clubiona tigrina* Cambridge.

Near Hacienda Guachipelin, Guanacaste; 1,700 feet. Jan. 15, 1910 (Calvert).

*Chemmis punctigera* Cambr. Pl. XXVIII, fig. 8.

This form may be distinct from *C. frederici* Simon; the figure I give of the vulva agrees better with that given by the elder Cambridge for this species and is quite unlike that given by the younger Cambridge for *C. frederici*; the markings are broken up into small spots.

Turrialba, Costa Rica (Tristan). Juan Viñas, clearing near Rio Reventazon, May 3, 1910 (Calvert).

*Pelayo insignis* Bks. Pl. XXVIII, fig. 14.

A female of this species from St. Maria Dota, Costa Rica, vulva as shown in figure; the basal median mark of the abdomen is broken up into three spots and the apical mark contains a transverse pale spot.

*Anyphaena pretiosa* n. sp. Pl. XXVIII, fig. 4.

Pale yellowish, a dark stripe each side on the cephalothorax; many small dark spots on abdomen, in the middle behind they unite to form a series of chevrons, a dark spot at base of the tibiae; tibiae I and II with four pairs of spines beneath. Mandibles vertical, each with two dark lines in front. A. M. E. much smaller than the other eyes. Vulva as figured.

Length 5 mm.

From St. Maria Dota, Costa Rica (Tristan).

*Anyphaena fuscata* n. sp. Pl. XXVIII, fig. 5.

Pale yellowish; a faint dark stripe each side on the cephalothorax; legs very long and slender and with very long spines; coxae all



unarmed. A. M. E. very much smaller than the other eyes; mandibles slender, vertical; the tibia of the male palpus is broad and at tip with two acute projections, one of which has a short upper spur.

A female, which may belong to the same species, is unmarked, and has a vulva as figured.

Length 5 mm.

From St. Maria Dota, Costa Rica (Tristan).

*Sillus putus* Cambridge.

Caché, March 7, 1910 (Calvert).

#### AGELINIDÆ.

*Agelena* sp.

Juan Viñas, 3,200 feet, in a bromeliad, April 26, 1910, a young specimen (Calvert).

#### THERIDIIDÆ.

*Theridion biolleyi* Banks. Pl. XXVIII, fig. 7.

The palpus of the male (previously unknown) is shown in figure; the markings are similar to those of the female.

*Lithyphantes lugubris* Cambr.

From Caché, March 9, 1910 (Calvert).

#### EPEIRIDÆ.

*Edrius tricuspidatus* Getaz.

Unknown to the *Biologia*; one female from Juan Viñas, "farther waterfall," 29 Sept., 1909 (Calvert). A figure of the dorsum is given; the abdomen is shorter than in *E. crassicauda*. The length 5 mm., given in the *Biologia* is wrong, as Getaz says the abdomen is 9 mm. long.

*Tetragnatha alba* Cambridge.

Santa Cruz, Jan. 20, 1910, and Quebrada de Panteon de Liberia, Jan. 12, 1910, both in Guanacaste (Calvert).

*Tetragnatha antillana* Simon.

Caché, stream through coffee plantation, March 3, 1910 (Calvert).

*Tetragnatha guatemalensis* Cambridge.

Banana River region, Nov. 4-10, 1910 (Calvert).

*Tetragnatha mexicana* Keyserling.

Juan Viñas, laguna, 3,300 feet, Feb. 18, 1910 (Calvert).

*Tetragnatha tenuissima* Cambridge.

Juan Viñas, Feb. 15, 1910 (Calvert).

*Leucange hortorum* Hentz.

Juan Viñas, laguna, Oct. 5, 1909 (Calvert).

*Singa dotana* n. sp. Pl. XXVIII, fig. 1.

Cephalothorax wholly pale yellowish, also the mandibles, palpi, and sternum; legs with deep black bands on apices of all femora, on tips, and partly on sides of patellæ, and a fine dot near middle and tip of tibiae. Abdomen gray, with some irregular blackish patches on the basal part, and many silvery-white spots above and below; each side of the spinnerets is a jet-black spot.

Abdomen much broader than long and concave behind.

Length 3 mm., width of the abdomen 3 mm.

From St. Maria Dota, Costa Rica (Tristan).

Related to *S. abbreviata*, but distinct by markings and shape of the vulva.

*Argiope argentata* Fabricius.

Alajuela, Sept. 9, 1909 (Calvert).

*Mangora trilineata* Cambridge.

Juan Viñas, 2,500 feet, May 3, 1910; 3,300 feet, Oct. 5, 1909 (Calvert).

*Mangora picta* Cambridge.

Juan Viñas, Reventazon Valley, 2,500 feet, in unrolled *Heliconia* leaves, May 1, 1910 (Calvert).

*Acrosoma inaequalis* Cambridge.

Near Cartago, Feb. 1910; Juan Viñas, 3,300 feet, July 27 and Sept. 29, 1909 (Calvert).

*Acrosoma 12-spinosa* Keyserling.

Alajuela, Sept. 6, 1909 (Calvert).

*Gasteracantha kochi* Butler.

Juan Viñas, "farther waterfall," Sept. 29, 1909 (Calvert).

#### SPARASSIDÆ.

*Selenops mexicana* Keyserling.

Peña Blanca, Rio Naranjo Valley, near Caché, in arboricolous bromeliad, March 9, 1910 (Calvert).

#### OTENIDÆ.

*Cupiennius coccineus* Cambr.

Described from Panama; one from Peña Blanca near Caché, in arboricolous bromeliad, 19 March, 1910 (Calvert).

*Cupiennius griseus* Cambridge.

Juan Viñas, April 29, 1910, one specimen in house (Calvert).

*Trechalea convexa* Cambridge.

Quebrada de Salas, east of Atenas Station, Pacific Railroad,



April 8, 1910; Quebrada Clara, north of Liberia, Guanacaste, Jan. 13, 1910, immersed itself clinging to rock face (Calvert).

*Ctenus* sp.

Juan Viñas, 3,200 feet, in arboricolous bromeliad, April 26, 1910, one immature specimen (Calvert).

*Tinus nigrinus* Cambridge.

Rio Liberia and Quebrada de Panteon, Liberia, Guanacaste, Jan. 11 and 12, 1910; along the banks; wings, etc., of Odonata (*Heliconia*, *Argia* and *Perithemis*), in its webs, one female with its egg-ball (Calvert).

#### LYCOSIDÆ.

*Lycosa brevitarsis* Cambridge.

Near Hacienda Guachipelin, Guanacaste, 1,700 feet, Jan. 15, 1910 (Calvert).

*Pardosa* sp.

Crater of Volcano Irazú, 10,880 feet, April 1, 1910, one young specimen (Calvert).

#### OXYOPIDÆ.

*Oxyopeidon molestum* Cambr.

Juan Viñas, near Rio Reventazon, May 3, 1910 (Calvert).

#### ATTIDÆ.

*Dendryphantus maxillosus* Cambr.

From Juan Viñas, July, 1909 (Calvert).

*Cobanus mandibularis* Peck.

From Banana River region, 4 Nov., 1909 (Calvert).

*Sidusa fulvoguttata* Cambridge.

Juan Viñas, 3,200 feet, in arboricolous bromeliad, April 26, 1910 (Calvert).

*Thiodina retarius* Hentz.

Juan Viñas, 2,500 feet, near Rio Reventazon, March 21, 1910 (Calvert).

#### PHALANGIDÆ.

*Hernandria ventralis* n. sp.

Black; ventral segments with silvery basal band, also silvery on sides of the posterior segments. Eye-tubercle smooth, with two small granules each side above; dorsal scutum divided into three transverse parts; each with a pair of pale spots, the first part also

divided on the middle line; the surface of scutum smooth; posterior segments each with a transverse row of granules, a median one on the third segment much larger than the others; legs, especially the hind pair, with rows of granules, bearing fine hairs; a large spur above on tip of coxa IV; tarsal joints 5, 6, 8, 6. Palpi with long bristles; tibia and tarsus each with four on outer side, the first and third long, the others very short.

Length 6 mm.

From St. Maria Dota, Costa Rica (Tristan). The silvery bands on the venter are very characteristic.

*Cynorta biguttata* Cambridge.

La Emilia, near Rio Santa Clara, 980 feet, Nov. 17-19, and Juan Viñas, 3,300 feet, Oct. 1, 1909, in bromeliads (Calvert).

*Cynorta flavornata* n. sp.

Dark brown; sides reticulate with yellowish, and emitting branches to middle of the body; two dots on the eye-tubercle; two large yellow spots above on the anal segment almost touching each other; a large yellow spot on each hind coxa; legs pale, densely marked with fine black lines. Dorsum with a pair of low, basal, acute tubercles and a pair of long spines behind, not one-half their length apart, and with very slender tips; surface of dorsum and posterior segments without granules. Femur IV twice as long as the width of body and plainly longer than length of body; tarsal joints six, fourteen, nine, and ten; first three of tarsus I enlarged.

Length 6 mm., hind femur 10 mm.

From San Jose, Costa Rica (Tristan).

*Cynorta longispina* Cambridge.

La Emilia, in epiphytic bromeliad, Nov. 16, 1909 (Calvert).

*Cynorta oculata* n. sp.

Red-brown, legs pale, finely maculate with black, dorsum with four white rings surrounding the four tubercles, venter with two of the basal segments pale on the middle of hind margin, last segment with white mark each side, white spot surrounding the spiracles, and a white stripe above coxae IV. Dorsum smooth, with four humps, the basal pair low and blunt, the apical pair high, but more

[Mr. Banks has recently re-examined a couple of specimens from the same bromeliad, quoted on page 405 of volume XXII of *Entomological News* as *Cynorta* sp., and writes: "The Phalangids are young *Cynorta*; have long palpi; when mature, palpi are very much shorter. I cannot be sure of species; looks like *C. albomaculata* Cambr., which is common in Costa Rica." The locality whence these specimens came was Juan Viñas, Oct. 3 and 4, 1909.—P. P. Calvert.]



than twice their height apart, and each with a rounded tip; tarsal joints 6, 14, 9, 10; hind coxæ with a few granules on outer side.

Length 5.5 mm.; femur II, 10 mm.; femur IV, 9 mm.

From Ste. Maria Dota, Costa Rica (Tristan).

*Cynorta conspersa* n. sp.

Related to *C. flavornata*, with large yellow spot on outer side of each hind coxa and small dots on the eye-eminence, and a pair of large spots behind on last segment; these last marks, however, are plainly made up of three spots joined together. The dorsum has a great number of small, rounded yellow dots, often marking an elevation, these are most numerous on the sides, two in front of eye-eminence on the front margin. The posterior spines are more slender than in *C. flavornata* and more than their length apart, there are no anterior humps. The tarsal joints are 6, 13, 9, 11; femora II and IV are much longer than the body, second joint of mandible scabrous above, the palpal joints not as broad as in that species.

Length 5 mm.; femur I, 8 mm.; femur IV, 7 mm.

From Juan Viñas, 2,500-3,000 feet, in arborescent bromeliads, March 20 and 21, 1910 (Calvert).

*STYGNOLEPTES* n. gen.

A Gonyleptid; the hind coxæ larger than others and much broader than first segment of abdomen; all coxæ distinct; hind coxæ separated by a triangular plate; spiracles distinct. Palpi not one-half the length of the body, rather slender, with bristles; all legs short and tarsi with few joints; eye-tubercle broad and low, with a little granule above on each side near eyes. Cephalothorax small compared to the abdomen, the basal dorsal scutum of abdomen undivided by grooves or furrows.

*Stygnoleptes analis* n. sp. Pl. XXVIII, fig. 6.

Body reddish, palpi yellowish, legs mostly brown, the bases and the articulations pale. Dorsal surface finely granulate. The cephalothorax not more than one-third as wide nor more than one-fourth as long as the abdomen; the dorsal scutum of abdomen with serrate sides, beyond are four posterior segments, in one specimen the third and fourth bear a pair of submedian tubercles, about twice their length apart; on the anal plate is a long spine projecting behind the body. The palpi have two bristles on outer edge of both tibia and tarsus, and near base of the femur are two situate on tubercles. The coxæ are coarsely granulate, the legs short, none of the femora more than one-half the width of the body; the hind

legs are rather longer than the second pair, femora I and II have beneath one or two small spines near tip; leg IV is heavier than the others, and more coarsely granulate; the trochanter has a stout spur, a row of spurs beneath on the femur, one above near tip of the patella, the tibia with one above near base, and a very large one below at middle, and beyond are two smaller ones; all the legs are slightly roughened and provided with very fine, short hairs; tarsus I has three joints, II with six joints, III with four joints, the basal one as long as others together; IV with five joints, the basal one the longest.

Length 3.5 mm.

From Turrialba, Costa Rica (Tristan).

*Meterginus signatus* Banks.

Juan Viñas, in epiphytic bromeliad ("fourth bromeliad") on Rio Reventazon Road, Oct. 3 and 4, 1909 (Calvert; quoted in *Ent. News*, vol. XXII, p. 405, 1911).

*Liobunum biolleyi* Banks.

Cerro Las Pilas, west of Santa Cruz, Guanacaste, a swarm in a dry brook bed, Jan. 21, 1910 (Calvert).

*Liobunum foveolatum* Cambridge.

Rio Oro Valley near Caché, March 8, 1910, a swarm (Calvert).

PSEUDOSCORPIONIDA.

*Chelanops nodulimanus* Tomosv.

On the Harlequin beetle, *Acrocis longimanus*, from Juan Viñas (Calvert).

*Chelanops uniformis* n. sp. Pl. XXIX, fig. 16.

Hard parts reddish-brown, legs paler. Body rather long, the cephalothorax plainly longer than broad behind, narrowed and rounded in front, minutely granulate, with two transverse furrows, the first at about middle, surface with many short clavate hairs; no eye-spots. The abdominal scutæ finely granulate, each with about seven clavate hairs behind. Pedipalpi slender, longer than the body; trochanter, femur, and tibia finely granulate, and with clavate or subclavate hairs, hand smooth and with simple hairs; femur fully as long as the cephalothorax, nearly straight in front, slightly convex behind; tibia rather shorter than femur, strongly convex on inner basal part, outer side more convex near tip; hand but little broader than tibia, twice as long as broad, neither side much convex, fingers nearly as long as the hand, but little curved;



legs with some clavate hairs near tip of femora, and on the tibia above.

Length 3 mm.; pedipalpi 3.3 mm.

From bromeliads at La Emilia, Juan Viñas, and Reventazon Valley, below Juan Viñas, Costa Rica, Oct. and Nov., 1909; March and April, 1910 (Calvert). The pedipalpi are very similar to those of *Chelifera canestrini* Bulzan.

#### SCORPIONIDA

*Centurus bicolor* Pocock.

One specimen taken in the office of Philadelphia South Farm (Banana River district), Costa Rica, Nov. 7, 1909 (Calvert).

*Centurus margaritatus* Gerv.

From Turrucare, August 14 and 15, 1909 (Calvert).

#### SOLPUGIDA

*Ammotrechha stollii* Pocock.

Atenas Station, Pacific Railroad, one specimen running about in bed at hotel, April 8, 1910, 9 P.M.

#### ACARINA

*Canestrinia blattophaga* Banks.

From Santa Cruz, 21 Jan., 1910 (Calvert), in a vial with various insects, including a large cockroach, *Archimandrita marmorata* Stoll, identified by Mr. J. A. G. Rehn.

*Trombidium fuscipes* n. sp. Pl. XXX, fig. 21.

Red. Body nearly twice as long as broad, broadest at humeri, constricted behind the humeri and again at insertion of third legs; crista metopica (or groove) reaching to abdomen, with a papilla near posterior third; two sessile eyes each side, the inner one much the smaller. Body densely clothed with minute, short, dense fascicles of hair, each arising from a pit; so close are these as to give the abdomen a pitted appearance from above; legs with short, fine hairs, leg I longer than body, leg IV plainly shorter, and all tarsi at end have a long deep slit in which are located the claws, each side of slit the hairs are long and dense, so that seen from the side the tarsi appear abruptly clavate at tip, and from above appear forked; tarsi longer than preceding joint; palpi quite long, with only short hairs, the thumb fusiform and hardly longer than the long claw.

Length 2 mm.

From Juan Viñas, Costa Rica, June 23 to 29, 1910 (Calvert).

*Rhyncholophus stollii* n. sp. Pl. XXX, fig. 22.

Red. Body about one and two-thirds as long as broad, broadest at humeri, slightly narrowed at insertion of third legs, broadly rounded behind, clothed with very short dense simple hairs, dorsal groove long, reaching much behind eyes, and with a papilla at about one-third way from end; one eye each side. Legs slender, first pair about as long as body, second pair very short, last joint of leg I about one-half the length of the preceding, last joint of leg IV about one-third of preceding joint; palpi with large clavate thumb; genital aperture about one-half its length in front of the small anal aperture, the latter with a dark strip reaching out each side.

Length 3.5 mm.

From San Jose, Costa Rica (Tristan).

*Uropoda clavisetosa* n. sp. Pl. XXIX, fig. 19.

Yellowish. Body about one and a half times as long as broad, broadest behind middle, but not narrowed much in front; dorsum with many long, stout bristles, those around the margin (about 15 each side) are simple, some toward tip are very long, four in front are close together in pairs, on middle of dorsum the bristles are plainly clavate, especially in front, those behind hardly so; legs rather stout, all with few simple bristles, hind coxae more approximate than others, hardly more than diameter apart; venter with an oblique ridge behind hind femur; anus about its length in front of margin, a pair of bristles behind it.

Length .65 mm.

From Juan Viñas, Costa Rica (Calvert), on the Harlequin beetle, *Acrocynus longimanus*.

*Uropoda bisetosa* n. sp. Pl. XXIX fig. 15.

Brownish-yellow. Body about once and two-thirds as long as broad, broadest rather behind the middle, broadly rounded behind, in front tapering, and near tip with concave margins so that there is a prominent process in front which bears two small bristles; dorsum smooth, without hairs; coxae I rather longer than usual, all legs very short, and all but leg I stout, with few hairs, a few spine-like bristles on tarsi; epigynum of female more than twice as long as broad, narrowed behind; anus hardly its length in front of hind margin; behind leg II the peritreme bends suddenly outward and then at once back and bends to leg III.

Length .5 mm.

From Juan Viñas, Costa Rica (Calvert), on the Harlequin beetle, *Acrocynus longimanus*.



*Celenopsis angustis* n. sp. Pl. XXX, fig. 20.

Reddish-brown. Body fully twice as long as broad, middle sides nearly parallel, tapering and almost pointed behind, in front rather concavely narrowed to the rounded front; dorsum smooth, with a few short scattered bristles, these bristles not one-half as long as distance between them, a row of curved bristles over front margin; sternum about as long as broad behind, a bristle in each anterior corner, one each side, and a submedian pair behind; vulva as figured; hind coxae not their diameter apart; anus nearly three times its length in front of hind margin, a pair of bristles behind it toward tip; first legs slender, with many fine hairs especially at tip, other legs thicker, and with few bristles, hind legs reaching barely beyond abdomen.

Length .6 mm.

On the Scarabæid, *Dynastes hercules*, from Costa Rica (Calvert).

*Hypospis distans* n. sp. Pl. XIX, fig. 17.

Yellowish. Body about twice as long as broad, broadest at middle, tapering each way, but most behind; dorsum with a number of short hairs set in hyaline dots, and on margin longer hairs, some of them very long, one each side behind is fully one-half the width of the body; sternal shield rather longer than broad; epistome very long and slender; legs rather long, second pair of male stoutest, all with bristles, some under leg II spine-like, a very long bristle on femur IV, much shorter one on femur III, in female there is also a very long one on femur II.

Length 1 mm.

On the Scarabæid, *Dynastes hercules*, from Costa Rica (Calvert).

#### EXPLANATION OF PLATES XXVIII-XXX.

PLATE XXVIII.—Fig. 1.—*Singa dotana*.

Fig. 2.—*Temintus conjuncta*, vulva.

Fig. 3.—*Zimironus fragilis*, spinnerets.

Fig. 4.—*Anyphaena pretiosa*, vulva.

Fig. 5.—*Anyphaena furcatella*, palpus.

Fig. 6.—*Stygnoleptes analis*, leg IV.

Fig. 7.—*Theridion biolleyi*, palpus.

Fig. 8.—*Chemmis punctigera*, vulva.

Fig. 9.—*Zimironus fragilis*, eyes.

Fig. 10.—*Anyphaena furcatella*, vulva.

Fig. 11.—*Singa dotana*, vulva.

Fig. 12.—*Zimironus fragilis*, vulva.

Fig. 13.—*Stygnoleptes analis*, palpus.

Fig. 14.—*Pelago insignis*, vulva.

PLATE XXIX.—Fig. 15.—*Uropoda bisetosa*.

Fig. 16.—*Chelanops uniformis*.

Fig. 17.—*Hypospis distans*, and epistome.

Fig. 18.—*Chelanops uniformis*.

Fig. 19.—*Uropoda clavisetosa*, and hairs.

Fig. 20.—*Celenopsis angustis*.

PLATE XXX.—Fig. 21.—*Trombidium furcipes*, palpus, tarsus, and hairs on dorsum.

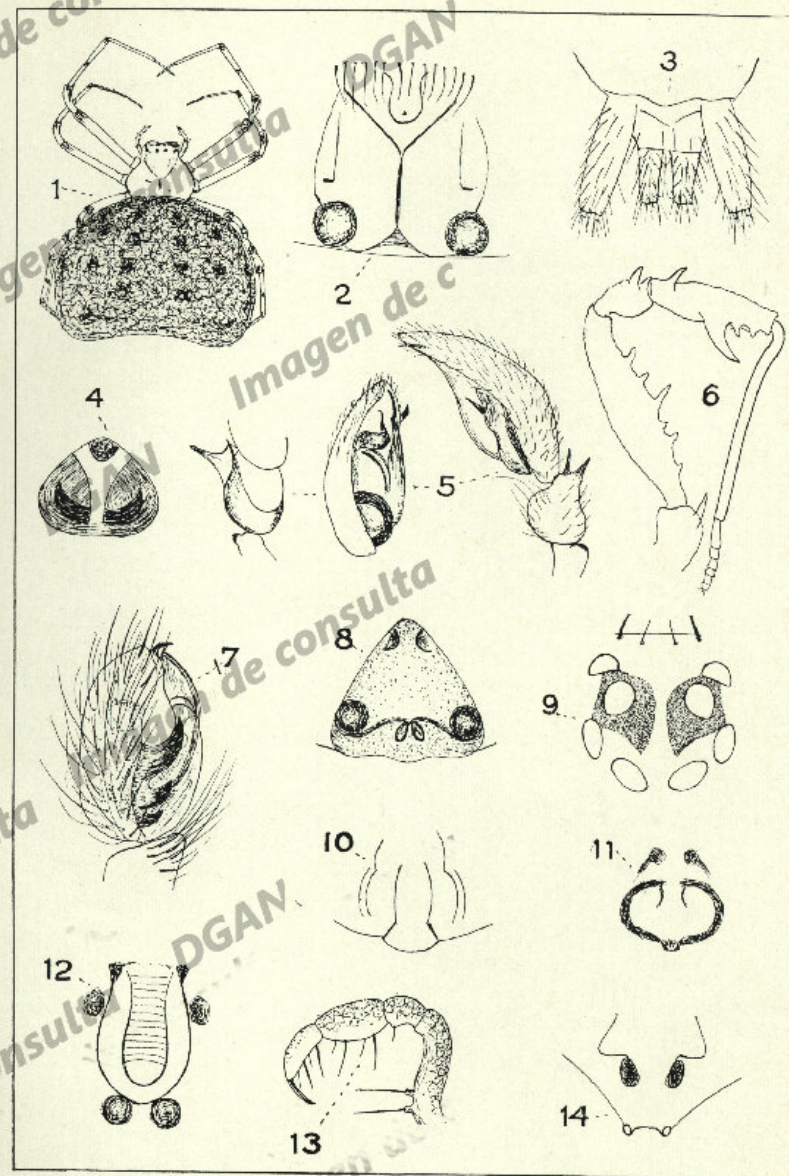
Fig. 22.—*Rhyncholophus stolti*, palpus.

Fig. 23.—*Edricus tricuspidis*.

Fig. 24.—*Rhyncholophus stolti*.

Fig. 25.—*Rhyncholophus stolti*, legs I and IV.

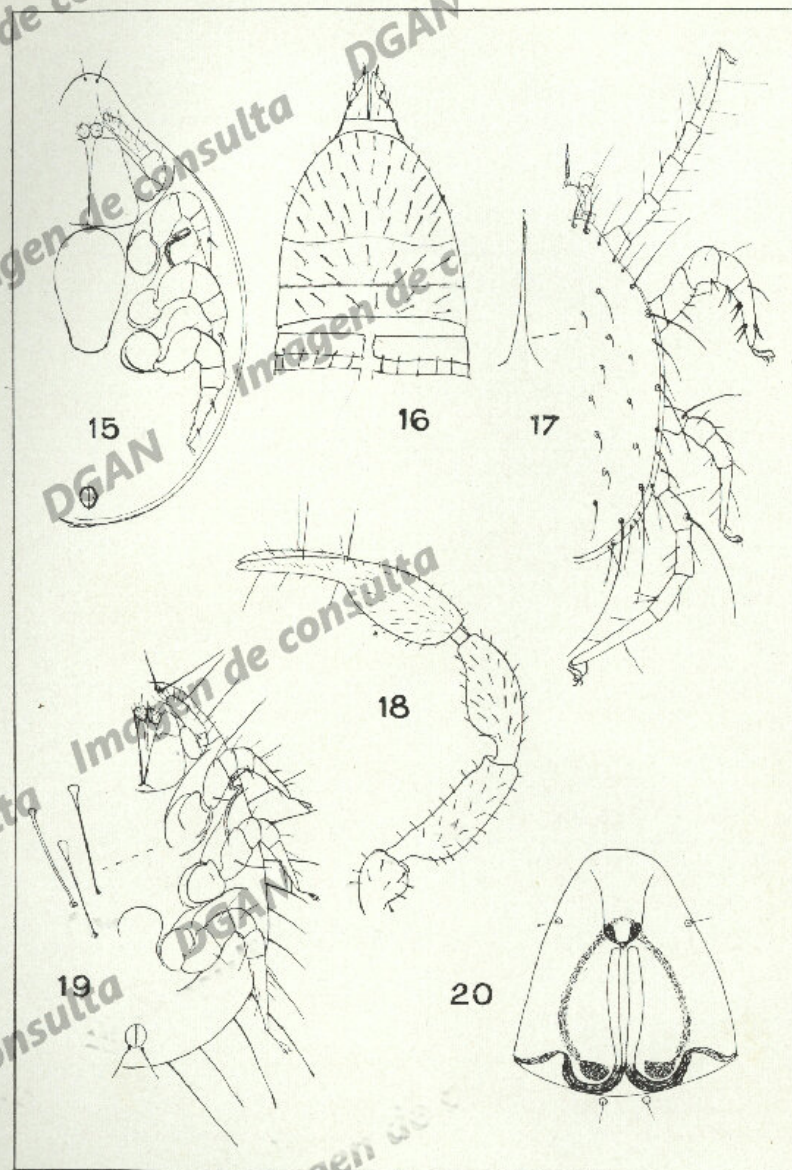




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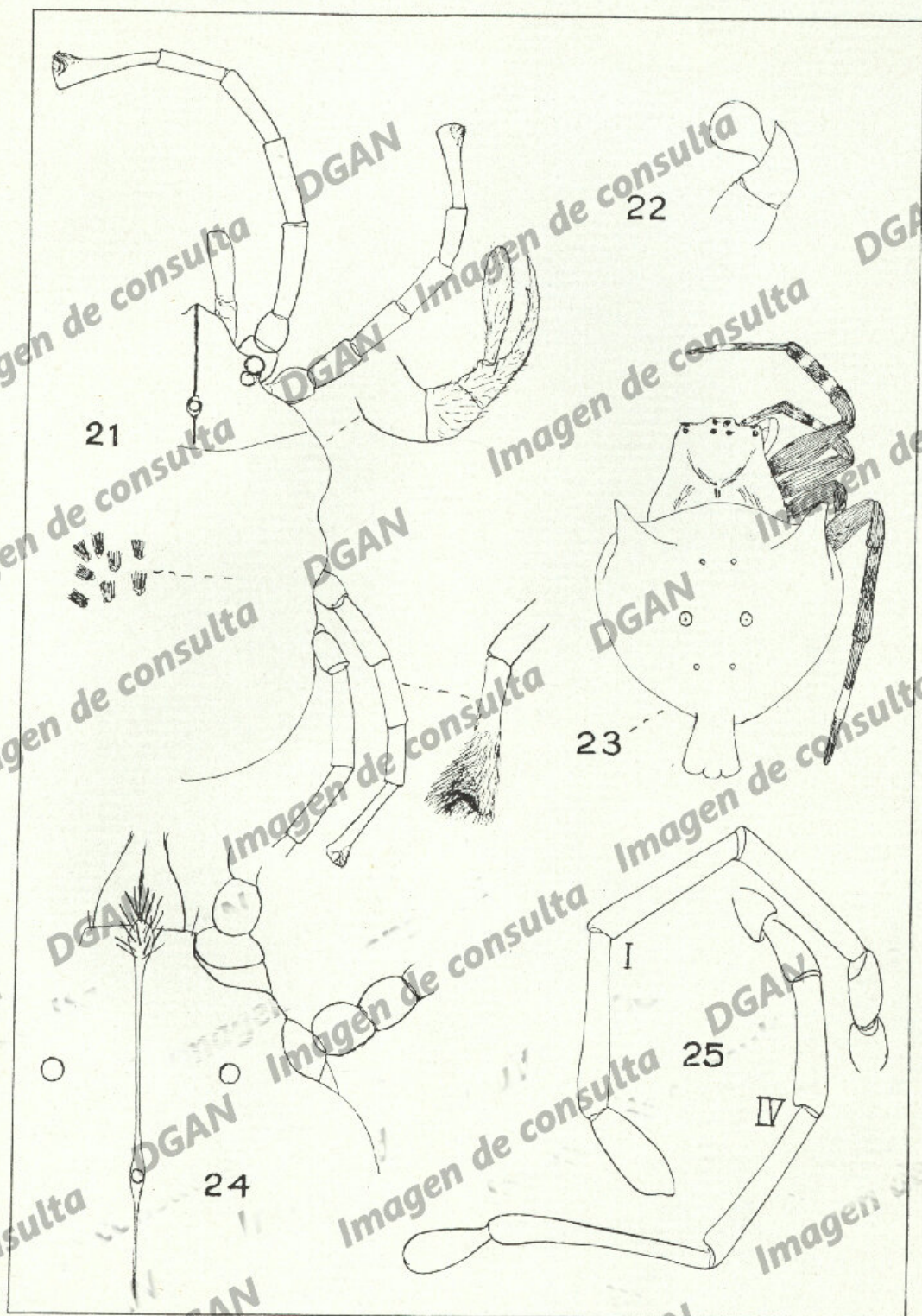




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