

DESCRIPTIONS OF ONE NEW GENUS AND FIFTEEN NEW SPECIES OF TROPICAL AMERICAN ORTHOPTERA

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The new forms described in the present paper have been encountered in making certain comparative examinations, necessitated in the preparation of papers which have recently appeared or are now in preparation. The greater portion of the new species are based on material forming part of several extensive series, which, for various reasons, it is not possible to fully study at this time. It seems advisable, however, that the new descriptions should appear, particularly as it is necessary to quote certain of them in other papers now awaiting publication. All of the new forms are based on material from the collection of the Academy of Natural Sciences of Philadelphia, where the types are located.

Seven of the species described are Costa Rican and eight are from various localities in South America.

BLATTIDAE

The following species was distributed to a number of collections in Europe and America by the late Dr. Saussure, under the manuscript name of *E. carbonaria*. This latter name was never adequately proposed, and it seems most fitting in fully describing the species to commemorate the name of the student who assisted in bringing it, and numerous similar discoveries in the zoology of his adopted country, to the attention of others—Prof. Pablo Biolley.

Eurycotis biolleyi new species (Pl. XVIII, figs. 1, 2, 3 and 4.)

1896. *Eurycotis carbonaria* Tristan, Informe Mus. Nac. Costa Rica, 1896, p.

15. [La Palma and Azahar de Cartago, Costa Rica.] (Nomen nudum.)

1900. *Eurycotis carbonaria* Biolley, *Ibid.*, 1899–1900, p. 46. [La Palma and Azahar de Cartago, Costa Rica.] (Insufficient, three word characterization.)

Allied to *E. mexicana* (Saussure), from the Eastern Cordillera and Plateau of Mexico, but differing in the more angulate and less rounded apices of the tegmina, in the proportionately broader

abdomen, in the greater interspace between the eyes, in the pronounced depression and expansion of the caudal tibiae of the male, in the more elongate and slender median and caudal tarsi, in the caudal metatarsi of the male being subequal in length to the remainder of the tarsus, instead of distinctly shorter as in *mexicana*, in the supra-anal plate of the male being proportionately broader, in the subgenital plate of the male being transverse with the distal margin broadly truncate, instead of trigonal with the apex narrow and V-emarginate as in *mexicana*, and in the apices of the cerci of the female surpassing the supra-anal plate, instead of subequal to the same as in *mexicana*.

The expansion of the caudal tibiae of the male recalls *E. tibialis* Hebard,¹ from Hispaniola, but in the present species the expansion is more regular and the dorsal surface bears a deep longitudinal groove, instead of a shorter ovate depression as in *tibialis*, in which species this expansion is equally marked in the female. From *tibialis*, however, the present species is quite distinct, the size being much less, the abdominal form different, the form of the supra-anal plate of the male and details of the head not as in *tibialis*.

Type.—♂; Pacayas, Costa Rica. Elevation, 1430 meters. April, 1906. (P. Biolley; no. 39.) [Academy of Natural Sciences of Philadelphia, Type no. 5351.]

Size medium: form elliptical, depressed: surface polished.

Head with the occiput regularly arcuate transversely; interspace between the eyes very broad, equal to the length of the head from the occiput to the clypeal suture, the interspace between the ocellar spots distinctly less than that between the eyes; eyes reversed reniform, subpyriform in basal outline, this rectangulate at the dorso-cephalic angle; antennae subequal to the body length.

Pronotum of the form usual in the genus; cephalic margin subtruncate in the greater portion of the supra-occipital region, caudal margin arcuato-truncate mesad, subtruncate laterad; lateral and cephalic margins narrowly cingulate. Mesonotum and metanotum of the type usual in the genus. Tegmina not surpassing the caudal margin of the mesonotum, lateral, their length almost twice their greatest width; external margin slightly arcuate, weakly cingulate, apex rectangulate, internal and distal margin regularly arcuate. Wings absent.

Abdomen very short ovate, more deplanate than the thoracic segments, disto-dorsal abdominal segments with distinct but not strongly pronounced caudad projections of the cauda langles. Supra-anal plate distinctly transverse, the greatest length contained nearly two and one-half times in the proximal

¹ Entom. News, xxvii, p. 264, pl. xiv, fig. 1 and text fig., (1916).

width of the plate; lateral supra-cercal emarginations of the plate decided, the median portion trapezoidal, the distal margin sinuato-truncate, the lateral angles of the same broadly rounding into the lateral margins of that area: cerci broad, depressed fusiform, the apex moderately acute, in length surpassing the margin of the supra-anal plate by about two-thirds the length of the latter: subgenital plate strongly transverse, the portion between the styles somewhat produced distad of the insertion of the styles and broadly truncate with the lateral angles rounded obtuse-angulate; styles elongate, simple, tapering.

Cephalic femora with the ventro-cephalic margin bearing a regular series of spines except proximad. Median femora with both ventral margins regularly and strongly spined; median tibiae subdepressed; median tarsi with the metatarsus distinctly shorter than the remaining joints together. Caudal femora with the armament of the margins as in the median limbs; caudal tibiae depressed, elongate subfusiform in general outline, the surface of the dorsal and of the ventral faces with a broad, longitudinal impressed area of a general boat-shaped character; caudal tarsi elongate, the metatarsus almost subequal in length to the remainder of the tarsus.

Allotype.—♀; Tablazo, Costa Rica. Elevation, 1900 meters. September, 1906. (J. F. Tristán.) [Acad. Nat. Sci. Phila.]

Differing from the description of the male in the following features. General form with the abdomen faintly broader in proportion than in the male. Abdomen with the caudo-lateral angles of the dista-dorsal segments more produced than in the male. Supra-anal plate subtrigonal in general form, moderately projecting, faintly rostrate, tectate distad, the dorsal surface there briefly subcarinate; converging lateral margins of the plate appreciably concave proximad, the distal portion of the margin broadly V-emarginate, this rounding laterad into the lateral margins proper: cerci depressed broad-fusiform, in length reaching to the extremities of the subgenital valves, apices acute: subgenital plate very ample, the valvate portion occupying slightly more than half the length of the plate, basal suture of the valves occupying about one-half the entire width of the plate. Caudal tibiae moderately depressed, not at all expanded as in the male and without impressed areas on the dorsal and ventral faces.

General color varying from hessian brown to pitch black, in the paler individuals the thoracic and abdominal segments, the coxae and the tegmina narrowly edged with pitch black; apex of the abdomen entirely or largely pitch black in those which show any color contrasts, the subgenital and supra-anal plates of the male sex lined on the distal margin, and the cerci of both sexes tipped with ochraceous, this latter coloration varying to a certain degree. Distal tarsal joint of all tarsi, the arolium and claws of the same with the base color ochraceous-orange, the extremity of the joint, and to a less decided or constant degree the arolium and claws, infusate.

	Length of body	Length of pronotum	Greatest width of pronotum	Length of tegmen	Length of caudal tibia	Length of caudal tarsus
♂						
Pacayas, <i>type</i>	20.5 mm.	6 mm.	8.9 mm.	3.2 mm.	7.3 mm.	5.1 mm.
Santa Maria de Dota, <i>paratype</i> . . .	23.2	6.7	10.3	3.8	—	—
Cartago, <i>para-</i> <i>type</i>	24.2	6.2	9	3.4	8	—
Monte Redon- do, <i>paratype</i>	18.7	5.7	8.3	3	6.6	4.2
♀						
Tablazo, <i>allo-</i> <i>type</i>	20.2	6.1	9.4	3.7	7.7	5.6
La Palma, <i>paratype</i> . .	27	7.9	11.5	4.6	10.5	7.9
La Palma, <i>paratype</i> . .	26	6.4	9.4	4.2	8	6
Pacayas, <i>para-</i> <i>type</i>	23	6.3	8.9	3.5	8	—
Pacayas, <i>para-</i> <i>type</i>	25.2	6.2	9.6	4	8	—
Santa Maria de Dota, <i>paratype</i> . .	25.8	6.5	10	4.2	8.8	5.6
Santa Maria de Dota, <i>paratype</i> . .	26	6.9	10	4	8	6
Navarro, <i>para-</i> <i>type</i>	21	6.5	9.7	4	8.5	5.3

In addition to the type and allotype we have before us a series of four adult males and one immature male, twelve adult females and fourteen immature females. Of these three adult males and eleven adult females have been considered paratypes, the adults not considered paratypes being teneral or without exact locality. The localities represented by these specimens are as follows:

Pacayas, Costa Rica. Elevation, 1430 meters. April, 1916. (P. Biolley.) One male (*type*), two females (*paratypes*). [A. N. S. P.]

Tablazo, Costa Rica. Elevation, 1900 meters. September, 1906. (J. Fidel Tristán.) Four females (*allotypes* and two *paratypes*). [A. N. S. P.]

La Palma, Costa Rica. Elevation, 1600 meters. May, 1906; June, 1908. (J. Fidel Tristán.) Two females (*paratypes*). [A. N. S. P.]

Itiquis, Costa Rica. April 19, 1916. (A. Alfaro.) One female (*paratype*). [A. N. S. P.]

Cartago, Costa Rica. May 31, 1909. (P. P. Calvert.) One male (*paratype*). [A. N. S. P.]

Monte Redondo, Costa Rica. March, 1902. (L. Bruner.) One male (*paratype*); one immature male and two immature females. [Hebard Cln.]

Santa Maria de Dota, Costa Rica. January, 1909. (J. Fidel Tristán.) One male (*paratype*), two females (*paratypes*) and nine immature females. [A. N. S. P.]

Navarro, Costa Rica. (J. Fidel Tristán.) One female (*paratype*). [A. N. S. P.]

San José, Costa Rica. September, and October 24, 1915. (A. Alfaro; one in crown of dry jocoto (*Spondias purpurea*).) One female (*paratype*); one immature female. [A. N. S. P.]

Tiribi, Costa Rica. April, 1916. (A. Alfaro.) One immature female. [A. N. S. P.]

Costa Rica. Labelled "Eurycotis carbonaria Sss." One male; one immature female. [A. N. S. P.; received from Dr. Saussure.]

From the above data it is evident the species is rather widely distributed at moderate elevations in the central mountain and table-land region of Costa Rica.

The features of variation which are evident from the series are: size variation, which is demonstrated by the table of measurements given above; the width of the face and the interocular region, which latter, especially in the male sex, is slightly narrower or distinctly broader than described above, the maximum width being in the male *paratype* from Santa Maria de Dota, in which the width between the eyes is appreciably greater than the depth of the face from the occiput to the clypeal suture, the whole head being broader than average and correlated with an unusually wide pronotum; caudo-lateral production of the disto-dorsal abdominal segments, which in the female sex show appreciable variation, in one of the La Palma females these being so sharply produced as to be sub-spiniform; color fluctuations, described above.

MANTIDAE

POGONOGASTER² new genus

A member of the *Miopteryginae*, belonging to the oligonycine section, but in no way closely related to any of the known genera. It is however, apparently, more nearly related to *Harpagonyx*, *Spanionyx* and *Thrinaconyx* than to any of the other genera. From all of these it may be distinguished by its truncate occiput, which also lacks angulate juxta-ocular lobes; by the form of the pronotum, which seen in lateral aspect is subsigmoid, recalling the Old World genus *Toxodera*; by the tuberculate dorsum of the pronotum; by the considerably developed triangular supra-coxal expansions of the pronotum; by the abdomen having a medio-dorsal series of foliaceous expansions and occasionally similar lateral expansions, and by features of the cephalic tibial spine formula.

The genus is most aberrant in general form and appearance, and would appear at first glance to have little in common with the genera with which it is here associated. More careful study shows, however, that the affinity of *Pogonogaster* is with the oligonycine miopterygids.

Description of the Genus.—(Female sex alone known.) Head transverse; occiput straight, with rounded juxta-ocular elevations; ocelli minute (♀), in broad triangle; facial scutellum transverse; eyes rounded. Pronotum elongate, sigmoid in lateral view; supra-coxal expansions decided, acute, sub-foliaceous; dorsal surface bearing on the collar a median and a postmedian paired tubercle or a single low swelling, on the shaft a pair of decided tubercles mesad at the caudal margin; shaft with a distinct median carina; all margins serrate or serrulate. Tegmina and wings in adult (♀) probably undeveloped or abbreviate. Abdomen with the dorsal segments having the caudal margins developed mesad on the proximal segments into erect foliaceous structures, which distad are expanded and the margins are serrato-dentate, on the distal segments the structures are merely projecting folds of the margin; lateral the dorsal segments may or may not develop proximad a series of structures similar to the median ones: venter of the abdomen with a series of median folds of the caudal margins of the segments: supra-anal plate (♀)

² From *πωγων* beard, *γαστηρ* belly.

linguiform, tectate, carinate dorsad. Cephalic femora with distal five-eighths very slender; discoidal spines three in number: cephalic tibiae abbreviate, not a third as long as the femora, in addition to the claw with an internal, an external and two distal spines, proximal portion of the ventral margin with a series of several small denticulations. Median and caudal limbs elongate; femora faintly swollen in the pregenicular region; genicular lobes produced, rounded acuminate; caudal metatarsi forming distinctly more than half of the entire tarsal length.

Genotype.—*P. tristani* new species.

Pogonogaster tristani new species (Pl. XVIII, figs. 5 and 6; pl. XX, fig. 1.)

Type.—♀; La Palma, Costa Rica. Elevation, 1600 meters. May, 1906. (J. Fidel Tristán.) [Academy of Natural Sciences of Philadelphia, Type no. 5353.]

Size medium: form moderately elongate, abdomen fusiform: surface unpolished.

Head in general form transverse, subtrigonal: occiput when seen from the cephalic aspect transverse truncate, with very low and rounded juxta-ocular swellings: front dorsad of the ocelli with a fine but decided, transverse arcuate carination: facial shield strongly transverse, low, the width at least three times the greatest depth, dorsal margin arcuate, dorso-lateral angles obtuse: clypeus produced in a conical tubercle: eyes prominent, almost semicircular in outline when seen from the front, when seen from the dorsum the eyes are subglobose, when seen in lateral view the eyes are ovate in basal outline: antennae imperfect, proximal joint small.

Pronotum when seen from the dorsum has the general form elongate cruciform, the greatest width across the supra-coxal expansion subequal to the length of the collar and about two-fifths of the entire pronotal length, when seen from the side the pronotum is bisigmoid, the collar and the caudal extremity ascending, the portion between gently arcuate dorsad: collar with the margin well-rounded cephalad, faintly narrowing at the middle of the collar, thence regularly expanding to the acute apices of the supra-coxal expansions, the latter subfoliaceous and arcuate dorsad; shaft regularly narrowing from the maximum width of the supra-coxal expansions to about the cephalic two-fifths of the shaft, thence regularly but very slightly expanding to the caudal extremity, the caudal margin arcuate-truncate: surface of the pronotum with, on the shaft a decided median conical tubercle and a smaller but similar one cephalad of the median protuberance, on the shaft at the caudal margin is situated a pair of closely placed, prominent, rounded tubercles; collar with a faint median carina, shaft with a distinct and continuous median carina, which at the cephalic two-fifths and at the caudal four-fifths develops small, erect, rounded lobes, the cephalic one the larger; serrulations of the margins more regular and numerous on the collar and caudad on the shaft, sparser cephalad

on the shaft, on the supra-coxal expansions more crenulato-serrulate. Tegmina and wings represented by well-veined lateral pads: mesonotum and metanotum with a distinct median carination.

Abdomen with the median line of the second, third and fourth segments of the abdomen bearing highly developed, erect, foliaceous appendages, which each consist of a single thickness cephalad and lateral wings to the same caudad, the wings more ample than the single portion and also broader distad than proximad, the margins of the appendages with numerous digitiform points, the appendage on the fourth segment smaller than the other two; fifth to ninth segments with the median line bearing low appendages, which are more nearly erect fold of the integument than true lobes, of these that on the fifth is the largest, those on the sixth to ninth regularly increasing in size, the sixth the smallest: lateral appendages developed on the second to seventh segments, those on the second to fourth segments very similar in character to those on the median line, but somewhat smaller, those on the other segments simple deplanate lobes with the margins crenulato-digitate: ventral abdominal segments with a median fold of the integument at the caudal margin: supra-anal plate elongate linguiform, decurved, subtectate, carinate mesad: cerci simple, not tapering, not reaching to the apex of the supra-anal plate: subgenital plate relative short, of the usual rostrate mantid type.

Cephalic coxae three-fourths as long as the pronotum, slightly inflated proximad, more slender distad, internal face with the distal lobe moderately developed, margins sparsely denticulate: cephalic femora slender, faintly sigmoid, distal five-eighths tapering, very slender; median discoidal spine the longest of the three; external margin with five spines, of which the distal one is much the shortest; internal margin with nine spines arranged in this formula (reading from the distal extremity) i l l l l l i i; margins of the cephalic femora, other than those sections bearing the regular spine series, sparsely denticulate, the medio-ventral one distinctly and regularly serrato-dentate: cephalic tibiae (without claw) not quite one-third as long as the femur, subsigmoid, the apical claw large, slender, moderately falcate; dorso-distal section with a prominent, falcate spine and a smaller, straight spine immediately ventrad of the larger spine and on the internal face; internal margin with a single median, large, straight oblique spine; external margin with a single straight spine distad; ventral margin proximad with three minute serrulations: cephalic tarsi incomplete. Median and caudal limbs very slender and elongate: femora subcompressed and faintly arcuate immediately before the distal extremity; genicular lobes subacuminate: caudal tarsi very faintly shorter than the tibiae, very slender, the metatarsus comprising five-eighths of the tarsal length.

General color antimony yellow, becoming dull buckthorn brown on the abdomen, the shaft of the pronotum washed with ferruginous; limbs of the body color passing into weak and pale turtle green, the spines fuscous tipped; head with the occiput washed with dull mummy brown, eyes dresden brown.

Length of body, 25.5 mm.; length of pronotum, 8.3; length of cephalic femur 7.5; length of caudal femur, 8.3.

The type of this interesting species is unique.

ACRIDIDAE

Diedronotus centralis new species (Pl. XVIII, figs. 7 and 8.)

Closely related to *D. angulatus* and *mexicanus*, agreeing with these in the general form and height of the pronotum, but differing from the former in the proportionately more elongate pronotum, which has the lateral angles of the disk less produced, in the angle of the caudal margin of the disk being less decidedly produced, in the higher median pronotal carina, in the broader, nearly sub-rectangular fastigium (when seen from the dorsum), in the more rounded fastigio-facial angle, in the hardly sulcate frontal costa, in the less elongate and blunter tegmina and wings, and in its larger size. From *mexicanus*, with the allotype of which it has been compared, the new species differs in the pronotum being more longitudinal with the lateral angles of the disk less angulate and more rounded, in the median carina of the same slightly lower but of the same general type, in the head being broader, in the fastigium having its dorsal form more nearly rectangulate, in the head as a whole being broader, in the frontal costa being but faintly sulcate, in the eyes more reniform-ovate in basal outline, in the much more rounded fastigio-facial angle, in the more inflated proximal portion of the caudal femora and in the larger size.

The species is quite distinct from *D. discoideus* and *rosulentus*, both of which, while related, can be readily distinguished from *centralis* by their much more elongate pronotum and the very distinctly lower median carina of the same.

Type.—♀; El Pelón, Guanacaste, Costa Rica. January, 1915. (P. Biolley.) [Academy of Natural Sciences of Philadelphia, Type no. 5354.]

Size large: form subcompressed: surface in general weakly cribroso-punctulate.

Head with occiput vaulted, descending cephalad to the weakly declivent fastigium, width between the eyes equal to three-fourths of the depth of the eye; fastigium when seen from the dorsum slightly acute-angulate, surface non-excavate; when seen from the side the fastigio-facial angle is rounded rectangulate; frontal costa relatively narrow dorsad, moderately expanding to between the antennae, subequal thence to immediately ventrad of the ocellus, weakly indicated from that point to the clypeal suture, the margins there hardly indicated, surface of costa very faintly sulcate for a short distance ventrad and dorsad of the ocellus; supplementary facial carinae rather delicately indicated, diverging ventrad: eyes but little prominent when seen from

the dorsum, reniform in basal outline, depth subequal to that of the infra-ocular sulcus: antennae in length equal to about five-sixths of the greatest length of the dorsum of the pronotum, moderately depressed, apex bluntly acuminate.

Pronotum with median carina strongly elevated and regularly arcuate, the highest point of crest above the caudal angles of the lateral carinae equal to three-fifths the greatest width of disk across these angles, caudal portion of median crest crenulate, elsewhere the margin is smooth, with principal sulcus deeply and narrowly bisecting the same, the sulci of prozona (two) intersecting but not dividing the crest; greatest width of disk (across the caudal angles of the lateral carinae) contained nearly twice in the greatest length of the same; cephalic margin of disk rectangulate mesad, the lateral portions of this margin gently concave; caudal margin of disk elongate produced acuminate, the lateral portions of the margin weakly concave; lateral carinae of the disk decided, regularly diverging caudad to the distinct angle immediately before the caudal margin is reached, these margins bluntly crenulato-serrulate; surface of the disk with regularly placed elevated spiculate points: lateral lobes of pronotum with greatest depth equal to three-fourths of the greatest dorsal length; cephalic margin of lobes weakly sinuate, ventro-cephalic angle obtuse, ventral margin obliquely sinuato-truncate cephalad, weakly arcuate caudad, ventro-caudal angle rounded, caudal margin of the lobes obliquely concavo-truncate; surface of the lobes appreciably concave immediately ventrad of the lateral carinae of the disk. Tegmina very faintly surpassing the apices of the caudal femora, of the form usual in the genus, the greatest width of tegmen contained four and one-half times in the greatest length of the same; costal margin with a decided basal lobe at proximal fourth, apex rectangulate, well arcuate on costal side, oblique truncate on sutural side, sutural margin straight in greater part; secondary venation and reticulation involved and delicate, no intercalary vein present. Wings reaching to the apices of the tegmina when the organs of flight are in repose, when expanded the wings are relatively narrow, the greatest width contained nearly twice in the greatest length of the same; apex slightly acute, distal margin of anterior field oblique truncate; distal margin of axillary field strongly arcuate sub-lobate; peripheral margin of radiate field weakly crenulate, becoming crenate distad. Prosternal spine strongly compressed, in distal section slightly expanded cephalo-caudad, the apex slightly acute and caudal in position: interspace between the mesosternal lobes distinctly narrower than the individual lobes, subquadrate, the point of least width slightly cephalad of the middle, meso-caudal angle of lobes obtusely rounded: interspace between the metasternal lobes moderately transverse, short, slightly narrowed caudad.

Ovipositor jaws short, robust, distad sharply curved dorsad (dorsal valves) or ventrad (ventral valves).

Cephalic and median limbs rather slender, for the relatively heavy body of the insect. Caudal femora equal in length to slightly more than one-half of

the body length, of the form usual in the genus, greatest depth contained four and one-half times in the greatest length, subcompressed, dorsal margin markedly serrulate, genicular lobes acuminate: caudal tibiae slightly shorter than the femora, armed on the external margin with eleven to twelve spines, on the internal margin with ten spines, those of the internal margin appreciably longer than those of the external margin; internal spurs with the ventral one and one-half times as long as the dorsal one, external spurs smaller, subequal.

General coloration ranging from dresden brown frosted with ochraceous-tawny and warm buff (paratype) to ochraceous-tawny passing on the pronotum, pleura, tegmina and caudal femora to ferruginous (tawny). Pronotum with the medium and lateral carinae as well as the margins of the lateral lobes edged with ochraceous-buff. Eyes chestnut. Tegmina with a single well-marked transverse figure at the proximal fourth, this made up of one or two large figures in the discoidal field and a smaller but sharply defined dot in the marginal field, distad of this group regular and oblique transverse bars are weakly indicated. Wings with the disk of radiate field pale spectrum red (paratype) to jasper red (type), this also present as a wash on the proximal half of the anterior field and faintly so on the same section of the axillary field, band of fuscous not wide but regularly arcuate, reaching to the proximal section of the peripheral margin, the spur well indicated and extending nearly to the base of the wing, but the infuscation is there weakened; distal section of the wing infuscate (paratype) or subhyaline (type). Caudal tibiae wood brown to army brown, the spines Naples yellow to mustard yellow and black tipped.

Measurements (in millimeters)

	Length of body	Length of pronotum	Greatest width of pronotal disk	Length of tegmen	Length of caudal femur
♀					
El Pelón, <i>type</i>	56	19.7	10.1	42	32.5
Guanacaste, <i>paratype</i> . . .	54.9	19.4	10	41	32

In addition to the type we have a female individual, labelled simply "Guanacaste," Costa Rica (January, 1915; A. Alfaro), which we consider paratype. This specimen shows no features of difference from the type, excepting those of color mentioned above and the presence of as many as eleven spines on the internal margin of the caudal tibiae.

Coscineuta matensis new species (Pl. XVIII, figs. 9, 10 and 11; pl. XX, fig. 2.)

Closely related to *C. sordida* Rehn,³ from north-eastern Brazil, but differing in the more decided scrobiculation of the genae, pronotum and pleura, in the proportionately broader and shorter tegmina, in the produced and more attenuate ovipositor jaws of the female, these being straighter, blunter and with the usual

marginal serrulations weakly or not at all indicated, in the presence of yellow instead of red on the dorsal surface of the abdomen in both sexes, and in the absence of a decided yellow line along the ventral margin of the external pagina of the caudal femora, as found in *sordida*.

When compared with *C. coxalis* (Serville), the present species is seen to differ in numerous features of the coloration, in the metazona of the pronotum being distinctly shorter than the prozona, instead of subequal as in *coxalis*, and in the specialized structure of the ovipositor jaws of the female. The species *sordida* and *matensis* are members of a species group well removed from *coxalis*.

Type.—♀; Rio Mato, Venezuela. October to November, 1909. (M. A. Carriker Jr.) [Academy of Natural Sciences of Philadelphia, Type no. 5315.]

Size relatively large: form robust: surface of head, pronotum and pleura rugoso-cicatricose, scattered sections of the same sub-strumose, the impressions producing a decided scrobiculation.

Head very similar to that of *C. sordida* but proportionately broader across both the eyes and the genae: fastigium strongly declivent, much more so than in *sordida*, when seen from the dorsum the surface of the fastigium is distinctly bifoveolate with a median ridge; when seen from the side the interantennal portion of the frontal costa is not at all produced and rounds regularly into the weakly arcuate line of the face; when seen from the front the interantennal portion of the frontal costa is slightly narrower than in *sordida*, while the strumose character of the ventral section of the frontal costa, of the face and supplementary carinae of the same is less decided than in *sordida*, being more broken into separated nodes: eyes moderately prominent, flattened short elliptical in basal outline, the greatest depth contained nearly twice in that of the infra-ocular sulcus: antennae over twice as long as the dorsum of the pronotum, slender.

Pronotum quite short, robust, scrobiculose-cicatricose: greatest dorsal width of disk contained slightly more than one and one-fifth times in the length of the same; cephalic margin of the disk with a weak median emargination, caudal margin of the disk arcuate with a very faint angulation mesad; median carina weak, but faintly more evident than in *sordida* and not so much confused with the strumose pattern; transverse sulci less evident than in *sordida*, narrower: lateral lobes of the pronotum slightly narrower in proportion to the depth than in *sordida*; margins of the lobes in general as in *sordida* but the ventro-cephalic angle is distinctly strumose. Tegmina surpassing the femoral apices by about two-thirds of the length of the pronotal disk, relatively broad, the

³ Trans. Amer. Entom. Soc., xlii, p. 290, (1916).

greatest width contained slightly less than five times in the greatest length of the same: margins as a whole as in *sordida* but the distal margin is less strongly oblique truncate. Wings proportionately broader than in *sordida*, the greatest width contained twice in the greatest length of the same; anterior field relatively broad and with its distal margin slightly less sharply angulate than in *sordida*; axillary field appreciably broader, its margin more regularly arcuate and in detail more crenulate than in *sordida*. Prosternal spine conical, erect, slightly antrorse: interspace between the mesosternal lobes slightly transverse, regularly widening distad, the caudo-internal angle of the lobes well rounded: metasternal lobes separated by a space equal to about one-half that separating the mesosternal lobes.

Abdomen moderately compressed, the dorsum tectato-carinate longitudinally: ovipositor elongate, much produced, but particularly the dorsal pair, appreciably compressed; dorsal pair of valves in lateral view straight proximad, faintly sigmoid distad, the dorsal surface narrowly excavato-deplanate, the dorsal margins subcarinate and distad faintly crenulato-serrulate, the apex bluntly acute when seen from the side, faintly recurved; ventral pair of valves appreciably shorter than the dorsal valves, very slender, almost straight, the distal section decidedly compressed, the margins unarmed, the apex hardly decurved.

Cephalic coxae with the conspicuously colored section markedly strumose. Cephalic and median limbs relatively short. Caudal femora nearly equal to one-half the body length, moderately compressed, in shape and proportions much as in *sordida*: caudal tibiae proportioned as in *sordida*, pilose, armed on the external margin with six and on the internal margin with seven to eight spines: caudal tarsi as in *sordida*.

Allotype.—♂; Same data as the type. [Acad. Nat. Sci. Phila.]

Differing from the description of the type in the features here mentioned. Size relatively small. Head not differing from the description of that portion in the male; antennae three times as long as the dorsum of the pronotum. Pronotum with the greatest width of the disk contained one and one-fourth times in the greatest length of the same: lateral lobes proportionately narrower in relation to the depth than in *sordida*. Tegmina surpassing the apices of the femora by about the length of the pronotal disk, otherwise as in the female. Interspace between the mesosternal lobes sublongitudinal, appreciably constricted briefly cephalad of the middle, regularly and considerably expanding caudad of the same: interspace between the metasternal lobes strongly longitudinal and very narrow. Supra-anal plate of the same form as that found in *C. sordida*, the sigmoid transverse carina at the proximal two-fifths being slightly less prominent than in that species: cerci of the same general type as occurs in *sordida*, but more elongate and attenuate distad, the apex also faintly decurved: subgenital plate similar to that of *sordida*. Caudal femora slightly longer than one-half the body length: caudal tibiae with five to six spines on the external margin and seven to eight spines on the internal margin.

General color of the dorsal and lateral surfaces ranging from dark olive and dusky olive green to dark ivy green, the base color of the tegmina ranging from seal brown to fuscous black, strumose areas on the head, pronotum and pleura zinc orange to yellow ocher.

Eyes uniform tawny, dresden brown or mars brown; antennae blackish, proximad flecked with olive green.

Tegmina with the venation completely outlined in yellow ocher to olive-ocher. Wings infumate with fuscous, the coloration intensified to infuscation distad and around the periphery of the radiate field, the costa and the longitudinal veins heavily pencilled with fuscous, the disk very narrowly and weakly tinted with antimony yellow proximad.

Abdomen with the greater portion of the dorsal surface ranging in shade from orange to yellow ocher, the lateral faces of the abdomen blue black; in the male the yellow dorsal surface is hardly interrupted, the distal margin of the segments laterad, and to a certain degree ventrad, lined with dusky green-blue, the ventral surface of the abdominal segments largely verdegris green, with each segment, excepting the two distal ones, with a triangular figure of dull wax yellow; apex of the abdomen in the male blue black; in the female the yellow of the dorsal surface is broken into broad distal borders of the segments, all of the remainder of the abdomen blue black, the ventral surface occasionally with faint traces of ventral pale markings, ovipositor jaws dull wax yellow.

Cephalic coxae with the strumose area colored similarly to those on the head and thoracic segments. Cephalic and median limbs blue black, the following pattern more decided in the male than in the female and in the latter occasionally subobsolete, femora lined dorsad and ventrad with the pale color which washes the strumositities of the body, tibiae lined ventrad with the same (on cephalic limbs variable), tarsi distinctly lined dorsad. Caudal femora with the external face of the general color, weakly tinted ventro-laterad with hesian brown; ventral and internal surfaces ox-blood red; incomplete pregenicular annulus present only on the ventral and internal faces, internal genicular lobe and ventral portion of the external genicular lobe primuline yellow; longitudinal carinae and portion of the external paginal pattern rather finely lined with olive-yellow to wax yellow: caudal tibiae of the general color: caudal tarsi with an external lining of wax yellow present in the male sex and occasionally to a slight extent in the female as well.

Measurements (in millimeters)

	Length of body	Length of pronotum	Greatest caudal width of pronotal disk	Length of tegmen	Length of caudal femur
♂					
Rio Mato, Venezuela, <i>allo-</i> <i>type</i>	26	4.4	3.6	21.7	14.2
Rio Mato, Venezuela, <i>paratype</i>	25.5	4.6	3.5	21	13.5
♀					
Rio Mato, Venezuela, <i>type</i>	34	6.4	5	28.8	18.3
Rio Mato, Venezuela, <i>paratype</i>	35	6.5	5	27.6	17.3

In addition to the type and allotypes we have before us seven paratypes specimens (two males and five females) bearing the same data as the type. These specimens show no noteworthy features of difference from the descriptions of the type and allotype here given, excepting in the general tone of the coloration and its main features, which variation has been adequately discussed above, and in the number of spines on the margins of the caudal tibiae. The latter we find varies on the external margin from four to six, and on the internal margin from seven to eight.

Leiotettix mendosensis new species (Pl. XVIII, figs. 12, 13 and 14.)

A striking new species allied to *L. sanguineus* Bruner and *politus*, *pulcher* and *hastatus* Rehn, all forms from Paraguay and the northern portion of Argentina. From all these species the new form differs in the broad, blade-like, hooked and inwardly directed distal half of the male cercus. The new *mendosensis* also differs from *hastatus* in the somewhat shorter subgenital plate of the male, the more slender general form, the narrower vertex and fastigium, the more pronounced median carina of the pronotum and the more finely angulate caudal margin of the pronotal disk, as well as the more slender caudal femora; from *politus* in the broader vertex, more impressed fastigium and narrower and uniformly impresso-sulcate frontal costa; from *sanguineus* in the same features and also in the reddish caudal tibiae and from *pulcher* in the more slender form, more longitudinal pronotum, which has the median carina somewhat more pronounced, and in the less bullate head.

Type.—♂; San Ignacio, Province of Mendoza, Argentina. Elevation 1235 meters. March 15, 1908. (P. Jorgensen.) [Acad. Nat. Sci. Phila., Type no. 5293.]

Size medium: form slender, compressed.

Head with the dorsal length subequal to three-fourths the dorsal length of the pronotum; occiput gently arcuate when seen from the side, decurving regularly cephalad to the fastigio-facial angle, interspace between the eyes faintly broader than the interantennal width of the frontal costa; fastigium slightly broader than the interocular space, rather shallowly but broadly and distinctly excavate, lateral margins delicate, carinulate, the excavation of the fastigium separated from the frontal costa by a transverse obtuse-angulate carination; fastigio-facial angle rounded obtuse when seen from the side,

face rather strongly and regularly retreating; frontal costa at the dorsal angle faintly more than one-half as wide as the interocular space, the margins expanding thence to the inter-antennal section, which is half again as wide as the fastigio-facial angle, ventrad faintly narrowed, then faintly and gradually expanding to the clypeal suture, surface of the costa punctato-excavate dorsad, distinctly excavate and sulcate ventrad of the interantennal regions, margins carinate; supplementary facial carinae moderately sinuate, diverging ventrad: eyes moderately prominent when seen from the dorsum, in basal outline broad ovate, their depth nearly twice that of the infra-ocular sulcus: antennae slightly less than one and one-third times as long as the dorsum of the head and pronotum together, weakly depressed.

Pronotum elongate, dorsal length slightly more than one and one-half times the greatest width of the dorsum, not sellate when seen from the side, the dorsal line nearly straight in profile; cephalic margin of disk subtruncate, caudal margin of same obtuse-angulate with the angle rather narrowly rounded, lateral angles of the disk rounded, subparallel; median carina distinct, prozona forming slightly more than one-half the length of the dorsum of the pronotum, metazona ruguloso-punctulate; transverse sulci distinct, the caudal one alone severing the median carina: lateral lobes about one-fourth longer than the greatest depth of the lobes; cephalic margin of lobes slightly oblique truncate, ventro-cephalic angle broadly rounded obtuse, ventral margin broad obtuse-angulate with the median angle rounded, ventro-caudal angle broadly rounded, nearly rectangulate, caudal margin sinuato-truncate. Tegmina surpassing the apices of the caudal femora by one-half the dorsal length of the pronotum, narrow, subequal, apex rounded. Wings reaching to the apices of the tegmina. Prosternal spine prominent, erect, conical; interspace between the mesosternal lobes distinctly longitudinal, its least width equal to less than one-half the length of the interspace, internal border of the mesosternal lobes arcuate, meso-caudal angles of same rounded rectangulate: metasternal lobes attingent.

Furcula developed as brief, attingent, simple fingers, which are no more than one-sixth of the length of the supra-anal plate: supra-anal plate in general trigonal, the lateral margins parallel in the proximal two-fifths, thence straight convergent to the apical fifth, where the margin is broadly obtuse-angulate; in the medio-longitudinal section the plate is moderately elevated, in the proximal half this is distinctly sulcate, narrowing distad, while immediately proximad of the apex of the plate there is a slight median impression, laterad of the median elevated area the plate is longitudinally and convergingly concave: cerci about one and one-third times as long as the supra-anal plate, moderately compressed proximad, strongly compressed distad; proximad, when seen from the side, tapering from the broad base to the very narrow middle, distal half sharply angulate inwards at an angle of forty-five degrees to the proximal half, in side view very broad subfalciiform, the dorsal margin strongly arcuate, convex, ventral margin gently concave, the tip acute: subgenital plate produced, elongate, scoop-shaped, regularly narrowing when seen from the dorsum, the apex rounded, when seen from the side the margin is moderately sigmoid, weakly cingulate proximad.

Cephalic and median limbs of average development. Caudal femora two and one-half times as long as the pronotal disk, with the greatest depth contained three and one-half times in the greatest length of the same: caudal tibiae falling short of the femoral length by about the length of the metazona of the pronotum, armed on the external margins with seven to eight spines, on the internal margins with eight to nine spines.

General color very dull aniline yellow, approaching orange-citrine on the dorsum of the pronotum, the limbs touched with citrine, the apex of the abdomen weakly light cadmium; fastigium and face caudad to the infra-ocular sulcus, clove brown. The broad postocular bars, which take up one-half the depth of the lateral lobes of the pronotum, are continued to and over the dorsal portion of the pleura, shining blackish brown. Eyes dark chestnut; antennae pinkish cinnamon proximad, passing to tawny-olive distad, the apex infusate. Tegmina with discoidal field bearing a gradually weakening continuation of the postocular bars, chiefly formed by lining of the venation. A second blackish brown irregular line is indicated on the mesopleura dorso-cephalad of the median coxal insertion, and on the metapleura dorso-cephalad of the caudal coxal insertion. Caudal femora with the genicular arches blackish brown, the dorsal surface of the interlobal section clove brown; caudal tibiae passing from ochraceous-salmon proximad to coral red distad, spines antimony yellow, black tipped. Caudal tarsi ochraceous-buff, dorsum of metatarsi washed with pale coral red.

Length of body, 20.2 mm.; length of pronotum, 4; greatest dorsal width of pronotal disk, 2.5; length of tegmen, 16; length of caudal femur, 10.5.

The type is unique.

Dichroplus forcipatus new species⁴ (Pl. XVIII, fig. 15.)

Closely allied to *D. brasiliensis* (pl. XVIII, fig. 16), but differing in the slightly longer tegmina and wings, the obsolete or at least subobsolete character of the usual dark lateral bars and the complete elimination of the generally marked pale dorso-lateral bars of *brasiliensis*, in the less squarely truncate distal margin of the caudal genicular lobes, in the much duller color contrasts of the caudal femora and tibiae, in the more delicately conical prosternal spine, in the male supra-anal plate having the distal portion very

⁴ Several years ago the author recorded (Proc. Acad. Nat. Sci. Phila., 1913, p. 345, (1913)) a single male specimen of the genus *Dichroplus* from the territory of Misiones, Argentina, as *D. brasiliensis*, the latter a species very briefly characterized in its original description, where no mention was made of the genitalic characters of the male. At that time females of true *brasiliensis* were at hand, but no males, and with these females the Misiones male agreed quite well. Since that date, however, we have received a series of both sexes of *brasiliensis* and a few additional specimens of both sexes of the Misiones form and we find them to be distinct, differing most strikingly in the form of the male cerci.

broadly obtuse-angulate, instead of the whole plate acute triangular, in the male cerci being simple, slender distad and incurved, instead of compressed distad and directed caudad with the form sigmoid when seen from above, and in the slightly more produced male subgenital plate. Giglio-Tos' *D. distinguendus*, described from San Pedro Province, Paraguay,⁵ may be closely related to this species, not having been recognized by us in the material we have studied, but from the diagnosis it apparently differs from *forcipatus* in having the frontal costa entirely obtuse sulcate, in its greater size, its proportionately shorter tegmina, its brown-greenish caudal tibiae and other details of the coloration.

Type.—♂; Misiones, Argentina. December 14, 1910. (P. Jorgensen.) [Acad. Nat. Sci. Phila., Type no. 5292.]

Size medium: form relatively slender: surface dull.

Occiput strongly arcuate when seen from the side, rather strongly declivent to the fastigium, which has the same angle; interocular width faintly less than interantennal width of frontal costa: fastigium with greatest width of its disk faintly greater than the interocular width of the vertex, very shallowly excavate, margins distinct but not high; fastigio-facial angle broadly rounded when seen from the side, appreciably produced, extending cephalad of the eye a distance equal to one-half the width of the latter: facial line distinctly retreating: frontal costa narrowing to the fastigio-facial junction, expanding moderately between the antennal bases, slightly narrowed ventrad of the median ocellus, gently diverging ventrad of this, subobsolete at the clypeal suture, dorsal section of costa punctato-excavate, about and ventrad of the median ocellus for about two-thirds of the distance between the ocellus and the clypeal suture moderately and broadly sulcate, ventral section non-sulcate: supplementary facial carinae distinct, sinuate, but slightly diverging ventrad: eyes moderately prominent when seen from the dorsum, in basal outline subovate, distinctly flattened cephalad, their greatest depth nearly twice as great as the length of the infra-ocular sulcus: antennae twice as long as the dorsum of the pronotum, subdepressed.

Pronotum with the greatest dorsal length two-fifths of the length of the caudal femora, in form but very faintly sellate when seen from the side: disk of pronotum with greatest (caudal) width of disk contained slightly more than one and two-fifths in the greatest length of the same: cephalic margin of disk subtruncate with a very faint median emargination; caudal margin of disk obtuse sub-rectangulate, with apex of angle narrowly rounded and margins decidedly cingulate: median carina obsolete on the prozona and cephalic third of metazona, distinct but low on the caudal two-thirds of the metazona; prozona and metazona subequal in length; transverse sulci distinct, narrow: lateral lobes of the pronotum with the greatest dorsal length one-third greater

⁵ Bollett. Mus. Zool. Anat. Comp. Torino, ix, no. 184, p. 22, (1894).

than the greatest depth of the same; cephalic margin of lobes sinuato-subtruncate, ventro-cephalic angle obtuse, narrowly rounded, ventral margin obtuse-angulate, cephalic section weakly concave, ventro-caudal angle rounded obtuse, caudal margin oblique subtruncate. Tegmina projecting distad of the apices of the caudal femora a distance equal to two-thirds of the length of the pronotum; apex rounded subangulate; venation coarse, subelevated. Wings reaching to tegminal apices. Prosternal spine erect, conical, acute: interspace between the mesosternal lobes longitudinal, its least width equal to twice the length of the same, broadening caudad, meso-caudal angles of the lobes rounded rectangulate: metasternal lobes narrowly attingent.

Furcula very brief, subattingent, faintly divergent, narrow, rounded fingers: supra-anal plate short linguiform, lateral margins in general arcuate convergent to the obtusely rounded apex, the margin slightly indented at the proximal fourth; surface of the plate with a median, deeply excavate area on proximal half, this narrowing distad and with distinct subelevated margins, distal half of median section of surface of plate weakly elevated and with slight, lateral, parallel shoulders, extensive lateral sections of the surface of the plate distinctly concave: cerci extending caudad to the apex of the supra-anal plate, in general form substyliiform, tapering from a relatively broad base to a slender distal section, which is approximately one-third as deep as the base of the cercus, and very faintly spatulate, the apex very bluntly rounded; when seen from the dorsum the cerci are regularly inbowed and as a pair forcipate: subgenital plate greatly produced, weakly impressed, attenuate when seen from the dorsum, faintly bulbous and rounded at apex, when seen from the side the margin of the plate is very weakly arcuate, the apex distinctly shallower than the base: pallium weakly erected.

Cephalic and median limbs with femora moderately inflated, tibiae proportionately slender. Caudal femora relatively slender, narrowing distad, the greatest depth contained three and one-half times in the greatest length of the same, usual bullation of the proximal portion not strongly indicated, subcompressed, pagina deeply engraved: caudal tibiae slightly shorter than the femora, armed on external margin with nine spines, on internal margin with ten to twelve spines.

Allotype.—♀; Misiones, Argentina. December, 1910. (P. Jorgensen.) [Academy of Natural Sciences of Philadelphia.]

Differing from the above description of the type in the following details. Size rather above average: form relatively robust.

Occiput, interocular space and fastigium less strongly arcuate, the latter evenly and not strongly arcuate declivent; interocular width faintly greater than the interantennal width of the frontal costa: fastigium with its greatest width subequal to its greatest length, hardly excavate; facial line less decidedly retreating and more vertical, the fastigio-facial angle projecting cephalad of eye a distance equal to more than one-half the width of the eye: frontal costa regularly and faintly narrowing dorsad in dorsal section, otherwise as in male, the sulcation less extensive and decided: supplementary facial carinae more distinctly diverging ventrad than in the male: eyes little prominent when

viewed from the dorsum, in basal outline subreniform-ovate, flattened cephalad, their greatest depth nearly one and one-half times the length of the infra-ocular sulcus: antennae one and three-fourths times as long as the dorsum of the pronotum, not as strongly depressed as in the male.

Pronotum nearly plane dorsad: cephalic margin of disk truncate, caudal margin of disk very faintly more rectangulate than in the male, the margins distinctly sinuate: median carina obsolete on the prozona, distinct but low on the metazona: lateral lobes of pronotum with the greatest depth faintly greater than the greatest dorsal length. Tegmina projecting caudad of the apices of the caudal femora a distance equal to one-half the dorsal length of the pronotum, apex more rounded than in the male. Interspace between the mesosternal lobes subquadrate, slightly narrower than the width of one of the lobes, the latter squared with the angles narrowly rounded: interspace between the metasternal lobes narrow.

Ovipositor jaws compressed, produced, strongly arcuate and attenuate distad.

Cephalic and median femora not inflated.

General color ranging from tawny to mummy brown, occasionally (in type and allotype) with dorsal surface of head and pronotum distinctly washed with fuscous, decided postocular bars of blackish occasionally (in type alone) present on the prozona of the lateral lobes of the pronotum and also weakly indicated on the metazona of the same. Tegmina obscurely blotched to a variable degree with small areas of fuscous, occasionally these are absent (σ^7 paratype): antennae antimony yellow, becoming buckthorn brown distad. Caudal femora with dorsal surface obscurely trimaculate with fuscous, occasionally these are absent (σ^7 paratype): ventral and internal surfaces of the caudal femora dull carmine to acajou red in the male, mottled light brownish olive to mottled chaetura black in the female: external face of the caudal femora always paler than the general color, occasionally (σ^7 paratype) washed with pale rainette green: ventro-lateral carinae of caudal femora distinctly ticked with the light and dark tones of the coloration: caudal tibiae ranging from dull vinaceous-gray to vinaceous-slate, the spines cream-buff, with the tips black.

The paratypic male represents a recessive phase of the coloration with almost no dark markings, the type and allotype represent the strongly intensive condition.

Measurements (in millimeters)

	Length of body	Length of pronotum	Greatest dorsal width of pronotum	Length of tegmen	Length of caudal femur
σ^7 type.....	19.4	4.2	2.8	16.4	10.5
σ^7 paratype.....	18.4	4.4	3	15	11
♀ allotype.....	26.8	6.4	4.2	21	15
♀ paratype.....	27.6	5.9	4.2	20.5	14.5

In addition to the type and allotype we have before us a male and a female paratype, both from the Misiones and collected by Jorgensen, the former taken April 10, 1910, the latter in December, 1910. Aside from the color features mentioned in the description no noteworthy differences are apparent, except that the paratypic male has but eight spines on the external margin of the caudal tibiae.

Eurotettix schrottkyi new species (Pl. XVIII, figs. 17, 18 and 19.)

Near to *E. robustus* Bruner,⁶ from Chapada, Matto Grosso, Brazil, but differing in the more ovoid tegmina of the male, the more slender caudal femora and the striking coloration, the sutural half of the male tegmina and ventral section of the lateral face of the caudal femora of both sexes being solidly yellow, in strong contrast to the general color.

Type.—♂; Puerto Cantera, Paraguay. January. (C. Schrottky; no. 14.) [Academy of Natural Sciences of Philadelphia, Type no. 5232.]

Size medium: form robust: surface dull or very weakly glabrous on the sides and venter of the abdomen, venter of the thorax and on the greater part of the limbs.

Head with the occiput moderately arcuate, regularly declivent over the interocular section and the fastigium; interocular width of the vertex subequal to the width of the frontal costa at the median ocellus: fastigium moderately longitudinal, its greatest length one and one-half times its greatest width, very shallowly but broadly excavate, margins distinct but low; fastigio-facial angle rounded when seen from the side; interantennal section of face very faintly produced, ventral section of face moderately retreating: frontal costa slightly narrowed at the fastigio-facial angle, weakly expanding to the interantennal region, subequal thence to the median ocellus, weakly expanding thence ventrad and subobsolete a short distance dorsad of the clypeal suture; dorsal section of costa punctato-sulcate, sulcate a very short distance dorsad and a greater distance ventrad of the ocellus, margins thick and not defined; supplementary facial carinae moderately divergent ventrad: eyes when seen from the dorsum moderately prominent, in basal outline broad ovate, markedly flattened cephalad and weakly so ventrad, forming an appreciable obtuse ventrocephalic angle, in depth the eye is equal to one and one-half times the length of the infra-ocular sulcus: antennae missing.

Pronotum with greatest caudal width of disk contained one and one-half times in the greatest length of the same, the dorsal surface arcuate in transverse section, rounding into the lateral lobes without a distinct angle: cephalic margin of disk gently arcuate with a broad though relatively shallow, median

⁶ Ann. Carneg. Mus., viii, p. 135.

V-shaped emargination; caudal margin of disk broad obtuse-angulate with the angle broadly rounded, the margins laterad faintly emarginate and as a whole narrowly cingulate: median carina not indicated on the prozona, faintly marked on the metazona; prozona occupying about three-fifths of the dorsum of the pronotum; transverse sulci complete, finely impressed: lateral lobes of the pronotum with greatest depth contained one and one-third times in the greatest dorsal length of the same; cephalic margin of the lobes moderately oblique sub-truncate, ventro-caudal angle obtuse, ventral margin broadly obtuse-angulate, the median angle of same rounded, cephalic section weakly concave, ventro-caudal angle rounded, caudal margin oblique truncate; sulci deeply impressed on the lateral lobes. Tegmina coriaceous, with close network of veins, the general longitudinal veins evident, abbreviate, falling slightly short of the distal margin of the proximal abdominal segment, narrowly non-attinent mesad, faintly shorter than the disk of the pronotum, short lanceolate elliptical in form, the greatest width contained one and seven-tenths in the greatest length of the same: costal margin strongly arcuate except in the proximal section, where it is nearly straight, sutural margin moderately arcuate, apex narrowly rounded rectangulate. Wings rudimentary. Prosternal spine conical, apex blunted, slightly retrorse in general direction: interspace between the mesosternal lobes faintly longitudinal, strongly widening caudad, the lobes obliquely truncate, with meso-caudal angle obtuse: metasternal lobes very narrowly separated.

Abdomen moderately compressed proximad, apex moderately elevated, non-clavate: furcula minute, attingent, very short and blunt fingers: supra-anal plate trigonal, the proximal breadth slightly greater than the median length, margins sinuato-convergent, the apical section blunter, obtuse-sub-rectangulate, the immediate apex rounded; surface of the plate elevated medio-longitudinally, the distal section more ampliate, proximad there is indicated for about one-third of the length of the plate a deep, rounded sulcus, the vicinity of which is roughened and haired, laterad the surface of the plate is broadly, rather deeply and regularly concave: cerci short, not reaching to the apex of the supra-anal plate, in general form falciform, very broad and compressed at base, regularly narrowing to the distal third, which is relatively slender—that is one-fourth as broad as the base—upcurved and with the apex blunt; when seen from the dorsum the cerci are straight in the proximal two-thirds, rather sharply though obtusely incurved at distal third, straight oblique thence distad: subgenital plate moderately elongate, conical, acuminate, dorsal margins straight when seen from the side, ventro-distal line in profile regularly straight ascendant, viewed from the dorsum the margins converge regularly to the relatively narrowly rounded apex: pallium slightly elevated proximad.

Cephalic and median femora considerably inflated: caudal femora two and one-half times as long as the dorsum of the pronotum, subcompressed, moderately slender, greatest depth contained four times in the greatest length; external paginae regularly sculptured, genicular lobes broadly rounded: caudal tibiae slightly shorter than the caudal femora, armed on the external margin

with nine, on the internal margin with ten spines, internal distal spurs subequal in length, external distal spurs distinctly shorter than the internal, subequal in length to one another.

Allotype.—♀; Same data as type. [Acad. Nat. Sci. Phila.]

Differing from the description of the male in the following features.

Fastigium when seen from the side more arcuate, the fastigio-facial angle more broadly rounded and less prominent than in the male; fastigium slightly broader, even more shallowly excavate, margins subobsolete; inter-antennal section of the frontal costa slightly less produced when seen from the side: frontal costa of the general form found in the male but broader, with the sulcation rather shallower: eyes somewhat less prominent than in the male, in basal outline slightly less broadly ovate than in the male, in depth equal to one and one-fourth times the length of the infra-ocular sulcus: antennae in length subequal to the length of the head and dorsum of the pronotum combined, slender.

Pronotum with disk one and one-third times as long as greatest width, median carina subobsolete on the metazona, entirely obsolete on the prozona; prozona of disk very slightly longer than the metazona of the same: median angle of the ventral margin of the lobes of the pronotum not rounded. Tegmina of similar length, but distinctly broader, being broad ovate in outline, greatest breadth contained one and one-fifth times in the greatest length, apex broadly rounded obtuse: sutural margins narrowly overlapping. Interspace between the mesosternal lobes transverse, its width subequal to that of one of the lobes, interspace regularly enlarging caudad, meso-caudal angle of lobes obtusely rounded; interspace between metasternal lobes moderately transverse.

Ovipositor jaws moderately elongate, subcompressed, dorsal valves with dorso-external margins moderately denticulate.

Cephalic and median femora almost uninflated.

General color of head, pronotum and pleura brussels brown (allotype) to mummy brown (type).

Head in female unicolorous; in male with the occiput and postocular region washed with fuscous, the ventral section of the genae, face and (weakly) the mouth-parts washed with carmine (type) to garnet brown (paratype); eyes buckthorn brown to bay; antennae (lacking in male) washed with hay's russet.

Tegmina of male with costal half blackish brown, occasionally (type) weakened to raw umber in portions of the marginal field; sutural half of male tegmina deep chrome to mustard yellow, the two sections sharply divided: tegmina of female uniformly of the general color.

Abdomen of both sexes with the proximal section shining blackish brown laterad; dorsum of abdomen of the general color in the male, with paired Naples yellow dots indicated on the second, third, fourth and fifth segments with greater or less distinction; distal portion of abdomen of male largely brownish olive dorsad; of the female of the general color: venter of abdomen of male

bay, paling to burnt sienna; venter of thorax and abdomen of female in general sepia; venter of thorax of male ranging from the ventral color of abdomen of that sex to blue black.

Limbs of male blue black, the dorsal surface of the caudal femora washed with the general color, external face of caudal femora with a sharply defined, longitudinal, ventro-proximal dash of deep chrome. Cephalic and median limbs of female of the general color, blue black on the caudal faces; caudal limbs of the female as in the male, except that the solid blue black and dorsal paler area are broken up by stipplings of light on dark and vice versa, the pagina pattern outlined with the general color and the genicular portion of femora and tibiae much more punctulate, yellow bar on external pagina of femora apricot yellow.

Measurements (in millimeters)

	Length of body	Length of pronotum	Greatest width of pronotum	Length of tegmen	Greatest width of tegmen	Length of caudal femur
♂, <i>type</i>	18.5 ⁷	4.8	3.1	4.1	2.4	12.3
♂, <i>paratype</i>	19.8 ⁷	4.5	3.2	4.2	2.6	11.8
♀, <i>allotype</i>	23.7 ⁸	6.2	4.9	5.5	4.8	16

In addition to the type and allotype we have a male paratype, bearing the same data as the type. This specimen was taken in coitu with the allotype, and would have been selected as the type but it was considerably more imperfect than the detached male, which was so indicated. These specimens show no important differences other than those which have been mentioned. In the male paratype one caudal tibia shows ten instead of the more usual nine spines.

We take pleasure in dedicating the species to the well-known South American entomologist C. Schrottky, who kindly sent us the material here described.

TETTIGONIIDAE

Paraphidnia lankesteri new species (Pl. XVIII, figs. 20, 21, 22 and 23.)

Allied to *P. verrucosa* (Brunner),⁹ from Brazil, but differing in the more recurved spiniform character of the process springing from the dorsum of the fastigium, in the more elongate pronotum,

⁷ The abdomen of the type is slightly more reflexed than in the male paratype.

⁸ Abdomen distorted.

⁹ Monogr. der Phaneropt., p. 153, (1878).

the four distinct spines on the dorsum of the same, in the deeply sculptured lateral lobes of the pronotum and in the proportionately more elongate caudal limbs.

Type.—♂; Cachi, Costa Rica. Elevation, 3500 feet. January, 1914. (C. H. Lankester.) [Academy of Natural Sciences of Philadelphia, Type no. 5348.]

Size medium: form of the usual bizarre type found in this genus, subcompressed: surface in general rugulose, the abdomen smoother than elsewhere, tegmina and exposed portion of wings lichenose-verrucose.

Head well seated in the pronotum, short, broad, deep, subdeplanate cephalad, greatest depth (including mandibles) slightly greater than the greatest width across eyes; when seen from the side occiput gently arcuate: fastigium elongate, elevated, directed cephalo-dorsad, broad proximad, much compressed mesad and distad, in lateral view narrowing distad, the distal fourth decurved at an obtuse angle, apex bluntly rounded; fastigium of vertex separated from the fastigium of the face by an area containing dorsad the paired, moderately bulbous, dorsal ocelli, and ventrad a pair of brief, finger-like, attingent processes; fastigium of face broad, blunt, rounded, containing the large, moderately convex ocellus: face faintly transverse, distinctly wrinkled with small transverse wrinkles, in profile strongly sinuate and bullate ventrad: clypeus with its surface developed into a pair of rounded tubercles: genae with a distinctly elevated, but rounded, tubercle briefly dorsad of the ventro-caudal angle, cephalad of this the genae are subexcavate, infra-ocular groove markedly sinuate: eyes strongly prominent and globose when seen from the dorsum, in basal outline ovato-circular, the axis ventro-cephalic to dorso-caudal in direction, the greatest depth of the eye faintly greater than the depth of the infra-ocular portion of the genae: antennae slightly surpassing the apex of the abdomen; proximal and second joints each with a decided digitiform knob on the internal face, that on the second joint the larger; joints each thickened and enlarged distad, this tendency subobsolete toward the apex of the antennae, in addition we find four areas, regularly placed, where from two to four segments are considerably enlarged on the dorsal and lateral surfaces, and covered to a greater or lesser extent with short, stiff bristles, which are absent from the ventral surface.

Pronotum deeply sculptured and quadrispinose selliform: disk subequal in proportions; cephalic margin broadly obtuse-angulate emarginate, the margin moderately convex laterad; caudal margin more deeply and more nearly V-emarginate, this dividing the margin into two subarcuate lobes, the margin cingulate; at cephalic third the disk bears a very deeply impressed, trough-like, transverse impression, which as deeply severs the lateral angles of the disk, another similar but very much more shallow one is indicated, but broken mesad, at the caudal third: lateral angles with a low, compressed tubercle at the cephalic margin, a far larger, conical, acute, obliquely divergent, spiniform tubercle is placed between the first and second transverse impressions and caudad of the latter a shorter, more longitudinal and blunter, but generally

similar, tubercle is placed; median carina represented by small, paired, attinent folds at several points, obsolete cephalad and caudad: lateral lobes with greatest dorsal length subequal to greatest depth, the latter being between the median spine of the lateral angle and the ventro-caudal angle of the margin of the lobe, the lobe much shallower cephalad; cephalic margin of the lobes with a weak obtuse-angulate emargination cephalad, the margin convex ventrad of this, ventro-cephalic angle broadly rounded, ventral margin sinuate, particularly over the cephalic coxa, ventro-caudal angle broadly rounded rectangulate, caudal margin very gently arcuate, moderately oblique, humeral sinus acute, deep, slightly curved; surface of lateral lobes folded and bullate, with the sulci deeply incised, the intervening areas inflated and welt-like, a distinct median spine and a large, elongate reniform, bullation caudad of the same especially indicated. Tegmina nearly twice as long as the body, far surpassing the apex of the caudal femora, coriaceous-reticulate in texture, the surface lichenose-verrucose, the transverse nervures and distad the longitudinal veins appreciably thickened and elevated; greatest width of the costal and discoidal fields contained over five times in the greatest length of the tegmina, the distal section appreciably upcurved, the apex rectangulate costad; costal margin arcuate proximad and distad, straight mesad; sutural margin very gently concave in the distal portion of its length: median vein diverging at proximal third, furcate: stridulating field moderately longitudinal, its greatest width contained faintly more than twice in the length of the field, free margin arcuate, with a slight obtuse-angulation at the apex of the stridulating vein, the latter short, slightly oblique, thickened. Exposed portion of wings about twice as long as the pronotal disk, apical margin oblique truncate, apex sutural and acute; surface of exposed portion of wings similar to tegmina, covered portion of wings membranous. Prosternum transverse, cephalic margin strongly transverse: mesosternum with the lobes wing-like, much narrowed along the median line, cephalic margin obtuse-angulate concave, caudal margin concave, lateral margins of lobes oblique, subarcuate: mesosternal foveolae well separated, in a common depression which is transverse and in form resembles half a sharp oval bisected longitudinally: metasternum inverted broad trigonal, the cephalic margin straight, lateral margins oblique, strongly converging caudad, faintly arcuate, the lobes very narrow and moderately reflexed: metasternal foveolae contiguous in a common opening, which is quadrate in proportions, in general form trapezoidal.

Abdomen short, plump; medio-dorsal line with a series of rounded, node-like, recurved tubercles, which are well developed on the middle segments and become obsolete on the penultimate segment; lateral aspect of abdomen with a series of strumose, rounded tubercles developed along a line which is slightly dorsad of the middle of the segment, these obsolete distad, also a line of low, indistinct swellings ventrad of the more decided series, free margins of segments sinuate laterad in the vicinity of these bullations; ventro-lateral sections of dorsal tergites rugulose, rather sharply contrasted with the generally smoother dorsal surface; disto-dorsal abdominal segment subarcuate emarginate mesad,

the bottom of the emargination slightly truncated: supra-anal plate moderately transverse, shield-shaped, apex very narrowly acuminate: cerci complex, with a moderately inflated, semi-bulbous base, which bears numerous long hairs placed in sensory pits or craters, this portion short and narrowing regularly; distal section shining, consisting of two parts, one an outer, compressed, lamellate, arcuate, obtuse-angulate (in profile) section, this tapering in width and ending in an acute spine; the other an inner, compressed, elongate, lamellate portion, which is bifid, the extreme tip unguiculate, terminating in a spine, the branch placed ventrad of the main extremity, recurved, slightly curled and armed with four marginal denticulations; the two arms of the distal section of the cercus in contact and apparently immovably so: subgenital plate longitudinal, narrow in proximal two-thirds, slightly widening in distal third, distal margin nearly semicircularly arcuate-emarginate, ventral surface of plate with a low, medio-longitudinal carina and thickened lateral rods, which form the foundations for the attachment of the short, simple, but articulate, styles.

Limbs with surface carinate and substrumose. Cephalic femora short, the dorso-cephalic face with four low, but distinct, rugulose strumositities, of which the two proximal extend to the ventral margin of the femur; ventro-cephalic margin with two spines distad, which are distinctly inflated proximad; ventro-caudal margin unarmed; genicular lobes spined: cephalic tibiae appreciably longer than the femora, with the tympani exposed, large; dorso-cephalic margin with several distinct tubercles. Median femora slightly longer than the cephalic femora; ventro-cephalic margin with three lamellate spines, the distal the larger; ventro-caudal margin unarmed; genicular lobes spiniferous; cephalic face with three groups of low, rugulose strumositities: median tibiae distinctly longer than the femora, ventral margins distinctly spined, dorsal margins with three pairs of recurved spiniform lobes, and in addition two extra similar ones on the dorso-caudal margin. Caudal femora about two and one-fourth times as long as the tegmina, slender, subcompressed, rugulose; ventro-external margin with four lamellate spines, the distal much larger than the others and truly lamellate; internal margin with three spines, the distal relatively large and sublamellate, but distinctly smaller than the external one, the other two spines minute; genicular lobes spiniferous: caudal tibiae distinctly surpassing the femora in length, dorso-external margin with thirteen to fourteen spines of similar character of variable size; ventral margins with nine to ten pairs of short, addressed spines.

General body color bister, touched and pointed with fuscous, and also russety on the occiput and dorsum of the pronotum, the limbs mottled and brokenly annulate with dull antimony yellow, which is often further contrasted by blackish fuscous pencillings. Eyes saccardo's umber; antennae numerously but obscurely annulate russet and yellowish, the nodes darkened and with the bristles on them blackish fuscous. Abdomen with its dorsal surface much darkened with fuscous, the median lobules russety, spine-like portion of cerci black-tipped, styles greenish. Annulate type of coloration apparent only on the median and caudal femora, and there the pale color is between the strumositities, which are much pencilled with blackish fuscous. Tegmina of a

dead-leaf and lichenose type of formation and coloration; proximad being mottled mars brown and buckthorn brown, with numerous veins and nervures pencilled with blackish fuscous; distad more prout's brown, light ochraceous-buff and white, with a distal lichenose patch of pale cendre green. Proximad there is almost no pattern, merely a blending of the tones, the stridulating field having a mere intimation of a jade green wash; distad the pattern is bold and blotchy, large and in general with the parts sharply defined from one another, the blackish fuscous lining of many points deepening the general contrast. Exposed portion of wings similar to apical section of the tegmina.

Length of body, 18.3 mm.; length of pronotal disk, 4.4; greatest (caudal) width of pronotal disk, 4.2; length of tegmen, 34; length of wing distad of tegmen (closed), 8.5; length of caudal femur, 15.

The type of this most interesting species is unique. We take great pleasure in dedicating this very striking form to our friend Mr. C. H. Lankester, who collected the type and kindly placed it in our hands for study.

Chloroscirtus discocercus new species (Pl. XIX, figs. 1, 2, 3 and 4.)

A very striking new species which can be readily distinguished from the genotype, *C. forceps* Saussure and Zehntner, with specimens of which it has been compared, by the relatively larger tegmina, which also have the distal section proportionately broader, by the coarser tegminal areolation, the more deeply V-emarginate disto-dorsal abdominal segment of the male, which segment has the lateral projections of the plate developed into lamellate processes, by the male cerci bearing on the ventral surface, at the same point as the large tooth found in *C. forceps*, a semicircular lamellate structure, by the male subgenital plate being more produced and narrower than in *forceps*, with the median emargination of the same much less extensive and the lateral sections surrounding this less arcuate and tapering in width distad to the styles.

Type.—♂; Cachi, Costa Rica. Elevation, 3500 feet. (C. H. Lankester.) [Academy of Natural Sciences of Philadelphia, Type no. 5349.]

Size rather large: form as usual in the genus—that of a typical, relatively elongate phaneropterid: surface somewhat shining.

Head with occiput moderately declivent to the fastigium, faintly convex, when seen from the dorsum regularly narrowing to the antennal scrobes; fastigium when seen from the dorsum broad at base, regularly narrowing to its middle, thence narrow and subequal distad to the narrowly rounded apex,

with a distinct medio-longitudinal sulcus, the latter becoming obsolete proximad, the margins somewhat inflated; lateral ocelli large, occupying the lateral faces of the broader proximal section of the fastigium, when seen from the side the apex of the fastigium of the vertex is acuminate, falling slightly short of the apex of the fastigium of the face, not touching the same; fastigium of the face acute, apex very narrowly rounded; median ocellus subelliptical: face moderately inflated transversely when seen from the dorsum, but weakly arcuate when seen in profile; infra-ocular impression elongate, well indicated: eyes but little prominent when seen from the dorsum, axis of eye extending from dorso-caudad to ventro-cephalad, outline of base of eye subovate, moderately exerted cephalad; greatest length of eye (along axis) slightly greater than the greatest length of the infra-ocular impression: antennae distinctly surpassing the extremities of the tegmina, filiform.

Pronotum with dorsum plane, lateral angles of same distinct, continuous, nearly straight, faintly diverging caudad, lateral lobes vertical: dorsum of pronotum with greatest caudal width contained one and two-fifths times in the greatest length; cephalic margin of disk broadly but not decidedly arcuate-emarginate; caudal margin of disk strongly and regularly arcuate; surface of disk weakly ruguloso-punctulate, a delicate but distinct median carina present caudad, a distinct transverse impression present briefly caudad of the middle: lateral lobes slightly deeper than the greatest dorsal width; cephalic margin of the lobes straight except for a short obliquity dorsad, ventro-cephalic angle rounded obtuse-angulate, ventral margin oblique, arcuato-truncate, ventro-caudal angle broadly rounded, caudal margin moderately arcuate, somewhat flattened mesad, humeral sinus deep, moderately acute, bottom of sinus rounded. Tegmina elongate, sublanceolate, subequal in width, greatest width contained nearly five times in the greatest length, in general form faintly sigmoid: costal margin regularly but gently arcuate; sutural margin faintly sigmoid; distal extremity narrowly rounded: marginal field broad, at proximal fourth nearly equal to one-half the width of the entire tegmen, coarsely and openly reticulate; discoidal field similarly but more finely reticulate: median vein diverging at two-fifths of the distance from the base, bifurcate slightly before the middle; ulnar vein straight except for a brief arcuation where it joins the sutural margin; transverse nervures regularly and strongly indicated: stridulating field entirely net-reticulate proximad of the stridulating vein, similar but with a more pronounced longitudinal tendency distad of the same; stridulating vein strongly arcuate, slightly oblique, broad, flattened. Wings projecting distad of the closed tegmina a distance but slightly less than the length of the pronotal disk, acute: expanded wings with the greatest width of one of the wings contained two and one-quarter times in the greatest length of the same. Mesosternum weakly concave cephalad, mesosternal lobes subparallel laterad, caudal margin of segment rectangulate emarginate, the lobes thus acute and strongly and abruptly deflexed from the general sternal plane: metasternum with cephalic margin subtruncate, latero-cephalic angles rounded subtuberculate, lobes arcuate laterad and regularly converging, sharply and abruptly deflexed.

Disto-dorsal abdominal segment produced, strongly arcuate in transverse section, the distal margin deeply divided by a V-emargination into two subvertical, compressed lamellate lobes, which in general narrow distad, are arcuate ventrad with the apex rotundato-rectangulate, the dorso-internal margin of the lobes slightly thickened and sinuate, a distinct impression mesad on the main dorsal section of the segment: supra-anal plate relatively small, elongate, linguiform: cerci elongate, slender, tapering, arcuate, the convexity ventrad, gently inbowed, the extremity slightly thickened, subdepressed, the apex internal in position, acute, chitinous and with two separate, small, recurved teeth on the ventral surface; at the base of this distal thickening on the ventral surface is placed transversely a lamellate disk-like structure, which has its periphery approximately semicircular, but which is only basally attached externally, internally the peripheral margin being carried by the acute, curved, free portion of the lamellation; surface of the lamellation with concentric radiating lines: subgenital plate greatly produced, surpassing the apices of the cerci, from a moderately wide base it narrows, then expands gently, and again narrows distad, the lateral margins sigmoid and formed by the paired thickened rods which extend from the relatively broad base to the styles; distal extremity very narrowly and deeply emarginate, thus causing the disto-lateral portions of the plate to be elongate lobiform; ventral surface of the emargination with a strongly pronounced but delicate medio-longitudinal carina; styles relatively short, narrowly rounded at their distal extremity, faintly arcuate in form, dorso-internal surface deeply concave, ventro-external surface correspondingly convex.

Cephalic femora about five-sixths as long as the disk of the pronotum; cephalic tibiae distinctly surpassing the femora in length, tympani apert on both faces: median femora equal in length to the combined length of the head and pronotum; median tibiae faintly surpassing the femora in length. Caudal femora relatively robust at the base, tapering to the relatively slender distal third; genicular lobes slightly acute, non-spinose; external face of the femora with a weak herring-bone impressed pattern; both ventral margins sparsely spined distad; caudal tibiae surpassing the caudal femora by nearly one-half the dorsal length of the pronotal disk, dorsal surface moderately flattened, ventral section narrowed.

General color between honey yellow and olive ocher, the face nearly as pale as cartridge buff. This shade is probably not the original color, especially on the tegmina, which probably were deep chrysolite green, as a considerable section along the sutural margin and at the apex is of that shade. The limbs are glass green with a brownish tinge. The eyes are mars brown. Pronotum with the lateral angles of the disk chamois color.

Length of body (to apex of disto-dorsal abdominal segment), 21.4 mm.; length of pronotum, 6; greatest (caudal) width of pronotal disk, 4.3; length of tegmen, 37.8; greatest width of tegmen, 8; length of caudal femur, 20.4; length of subgenital plate (exclusive of styles), 6.5.

The type of this remarkable species is unique.

Anaulacomera alfaroi new species (Pl. XVIII, figs. 24, 25 and 26.)

Apparently related to *A. maculata* Brunner and *lanceolata* Brunner, both from Bogotá, Colombia, and *A. securifera* Brunner, from central Peru. From all three of these the present species differs in the peculiar form of the male cerci, while from *maculata* it also can be separated by its smaller size and the form of the male anal segment and of the subgenital plate of the same sex; from *lanceolata* by the subequal lateral lobes of the pronotum and the rounded distal margin of the lateral sections of the male subgenital plate; from *securifera* by the more rectangulate, though rounded, insertion of the lateral lobes of the pronotum, the spines on the ventral femoral margins, the form of the male supra-anal plate and the form of the distal margin of the subgenital plate of the same sex.

Type.—♂; Orotina, Costa Rica. October 11, 1915. (Anastasio Alfaro.) [Academy of Natural Sciences of Philadelphia, Type no. 5350.]

Size small: form moderately compressed and elongate: surface dull, of limbs more shining, tegmina semitransparent in the areolets.

Head short, transverse, greatest depth of head equal to one and one-third times the greatest width across the eyes: occiput in profile weakly arcuate, gently declivent; fastigium relatively narrow, strongly compressed mesad, slightly broadened distad, the apex when seen from the dorsum truncate, dorsal surface with a distinct but short medio-longitudinal sulcus; facial fastigium not in contact with the fastigium of the vertex, strongly acute in general form, the immediate apex narrowly rounded: facial line very faintly arcuate when seen from the side: palpi very slender and elongate, third joint faintly more than one and one-half times as long as the fourth; fifth joint twice as long as the third, unusually slender, with the extremity moderately but distinctly inflated and thickened: eyes very prominent, subglobose, basal outline of eye nearly circular, greatest depth of eye contained slightly more than one and one-half times in the greatest depth of the infra-ocular portion of the genae: antennae considerably surpassing the tegmina in length.

Pronotum narrow, moderately elongate, the disk subequal, its greatest width (measured caudad) contained faintly more than one and one-half times in the greatest length of the same, deplanate, rounding into the lateral lobes, an angle very faintly intimated cephalad; cephalic margin of disk very broadly obtuse-angulate emarginate, caudal margin of disk broadly arcuate; surface of disk with a finely impressed medio-longitudinal line, also a well indicated, bisigmoid, median, transverse, impressed figure: lateral lobes with greatest depth and greatest dorsal length subequal; cephalic margin of lobes sigmoid, ventrocephalic angle rounded obtuse, ventral margin short, oblique, nearly straight,

ventro-caudal angle very broadly rounded, caudal margin obtuse, gently arcuate, dorsad strongly arcuate to the bottom of the subrectangulate humeral sinus, the dorsal bordering margin of which is gently concave. Tegmina moderately elongate, their greatest width contained slightly more than five times in their greatest length, sublanceolate, the costal and sutural margins in large part subparallel; costal margin very briefly arcuate proximad, distad arcuate to the well-rounded apex, sutural margin rounding to a lesser degree to the apex: neuration areolate, the areolets larger in the marginal field and distad in the discoidal field than proximad in the discoidal field; median vein diverging shortly proximad of the middle of the tegmen, furcate at its middle; ulnar vein reaching the sutural margin at about two-thirds the length of the margin itself; transverse nervures rather regularly placed and forming distinct areas of areolets. Wings, in repose, projecting distad of the apices of the tegmina a distance subequal to the length of the pronotal disk: greatest width of one of the wings contained two and one-third times in the length of the same. Prosternum unarmed.

Disto-dorsal abdominal segment broad, transverse, the distal portion moderately depressed, faintly recurved at the periphery, when seen from the dorsum the margin is broadly arcuate, the arcuation slightly flattened mesad, a medio-longitudinal impression indicated, this deep and pronounced on distal two-fifths, with an appreciable pit at the proximal end of the deep portion, lateral sections of margin of plate considerably arcuate-emarginate over the cercal bases: supra-anal plate prominent, produced caudad of the disto-dorsal abdominal segment a distance equal to two-thirds the length of the latter, the projecting portion developed into a pair of decided, rounded lobes, divided by a deep, rounded, V-shaped emargination, the lateral portions of the paired lobes moderately arcuate expanded and distinctly bent ventrad, median portion of plate depressed proximad; dorsal surface of plate rather thickly covered with short, adpressed, proximad directed bristles, ventral surface with short, regularly placed, recurved and adpressed teeth: cerci in lateral view very broad at base, the ventral margin nearly straight, dorsal margin strongly and regularly descending to the middle of the cercus, proximad the dorsal surface of the cercus bears an obliquely transverse, ledge-like carina, the proximal half of the cercus with numerous long sensory bristles placed in pits or craters; distal section of cercus obliquely depressed, sublamellate, appreciably curled dorso-laterad, the form of the apex rounded acute, the depressed, sublamellate section of the cercus with adpressed teeth like those of the ventral surface of the supra-anal plate: subgenital plate moderately elongate, produced distad in a subquadrate projection, lateral margins of distal three-fifths appreciably but not strongly narrowing distad, distal margin subtruncate with a shallow, median, obtuse-angulation, disto-lateral angles narrowly rounded rectangulate; no styles present.

Limbs slender. Cephalic femora slightly longer than the disk of the pronotum; cephalic tibiae about one and one-half times as long as the cephalic femora, tympanum apert on both faces, the tympanal region appreciably inflated,

portion distad of this proportionately very slender. Median femora about one and one-half times as long as the pronotal disk, appreciably more slender than the cephalic femora; median tibiae slender, tapering, appreciably surpassing the median femora in length. Caudal femora slightly shorter than the body, moderately inflated in proximal half, very slender distad; internal genicular lobes briefly spiniferous, external genicular lobes unspined; ventro-external margin with five to eight spines, ventro-internal margin with one to two spines; caudal tibiae very slender, faintly tapering, subcompressed proximad, surpassing the caudal femora by nearly the length of the pronotal disk.

General color of the head and pronotum light chalcedony yellow, becoming amber yellow on the pleura and abdomen, the apex of the latter veronese green, the dorsum of the pronotum washed with mustard yellow. Tegmina clear hyaline with the venation and reticulation course green, numerous areolets distad washed with bice green; stridulating field touched with buckthorn brown. Exposed portion of the wings colored similarly to the distal section of the tegmina. Eyes russet touched with chestnut-brown cephalad. Limbs of the general color, tibiae tinted with biscay green to forest green, the latter heavily so distad. Cephalic and caudal femora and disk of pronotum with numerous minute black points of liver brown.

Length of body, 15 mm.; length of pronotum, 3.8; greatest (caudal) width of pronotal disk, 2.3; length of tegmen, 22.8; greatest width of tegmen, 4.2; length of caudal femur, 13.5.

The type of this interesting species is unique. We take great pleasure in dedicating this striking species to Prof. Anastasio Alfaro, Director of the Museo Nacional, San José, Costa Rica, who collected and forwarded to us for study the type of this species, and also numerous other Orthoptera.

Pycnopalpa aurigera new species (Pl. XIX, figs. 5 and 6; pl. XX, fig. 3.)

Closely allied to *P. rubiginosa* (Bruner) [*Topana rubiginosa* Bruner],¹⁰ from Chapada, Matto Grosso, Brazil, having the general form of the pronotal structure quite similar, but differing in the fastigium of the vertex being less strongly bicarinate and less distinctly sulcate, in the broader head, the more elongate eye, the less inflated distal palpal joint, the straighter lateral margins of the pronotal disk, in the much less extensive lateral lobes of the same, the proportionately broader marginal field of the tegmina, the distal half of the whole of which is more broadly angulate, in the more acute exposed section of the wings and in the proportionately shorter limbs.

Type.—♀; Chanchamayo, Peru. [Academy of Natural Sciences of Philadelphia, Type no. 5352.]

¹⁰ Ann. Carneg. Mus., ix, p. 330, (1915).

Size small: form and surface as usual in this aberrant genus.

Head moderately transverse when seen from the dorsum, the greatest width across the eyes much greater than the medio-longitudinal length of the head, greatest depth of head about one and one-third times the greatest width across the eyes: occiput strongly declivent, weakly arcuate, outlined dorsad by a low, rounded carina, which forms a nearly rectangulate border margining the eyes and antennal scrobes dorsad, the two arms of the border joining at the interfastigial suture; fastigium of the vertex rather low, but weakly elevated and gently arcuate in profile, narrowing and compressed distad, a slight medio-longitudinal sulcus indicated dorsad; fastigium of the face not in contact with that of the vertex, broad, semi-globose, not elevated; face with surface moderately cribroso-punctulate, genae smooth; palpi with fourth joint two-thirds as long as third joint, distinctly sigmoid, weakly expanding distad, fifth joint faintly longer than third and fourth joints combined, slender at base, moderately thickened distad, slightly arcuate proximad, extremity rounded: eyes rather prominent when seen from the dorsum, slightly flattened semi-globose; basal outline of eye ovate, narrowed ventrad, depth of eye faintly greater than that of the infra-ocular portion of the genae: antennae incomplete, beyond the enlarged proximal and second joints filiform, brittle.

Pronotum in general sellate, the dorsum deplanate, in profile the dorsum of the pronotum is low cephalad, slightly ascending mesad and deplanate caudad, lateral angles of same pronounced, lateral lobes vertical: dorsum of pronotum with greatest caudal width contained one and one-third times in the greatest length of the same, all margins of same cingulate, the surface velutinous; cephalic margin of disk arcuato-subtruncate, caudal margin broadly arcuate rotundate, lateral margins, though sinuous, diverging caudad, passing without interruption into the caudal, and by a rounded angle into the cephalic, margins, narrowly severed briefly caudad of the latero-cephalic angle; surface of the disk with a faint, imperfectly and incompletely indicated median sulcus, a median V-shaped figure, which is more distinctly indicated than the median sulcus, being placed distinctly cephalad of the longitudinal center of the disk: lateral lobes appreciably longitudinal; greatest depth of the lobes slightly caudad of the middle, the cephalic depth equal to three-fifths of the greatest depth; cephalic margin arcuate-emarginate dorsad and straight mesad and ventrad, ventro-cephalic angle narrowly rounded rectangulate, ventral margin slightly oblique and weakly sinuate cephalad, broadly and evenly arcuate from the middle of the ventral margin to the humeral sinus, the latter narrowly rounded rectangulate; surface of the lateral lobes with a distinct impressed area dorso-caudad. Tegmina of the character found in the other species of the genus, with a proximo-costal and a medio-sutural desiccated area, and scattered similar spots; in length about one and two-thirds times as long as the body with the ovipositor, in general form elongate elliptical-ovate, its greatest width, which is at five-eighths the length from the base, contained slightly more than two and one-half times in its greatest length: costal margin in proximal half oblique (to the tegminal axis), straight, this broadly rounding to the distal section, which is oblique subtruncate toward the apex, gently rounding

distad to the latter, which is rounded slightly acute-angulate, disto-sutural margin oblique truncate, disto-sutural angle broadly rounded obtuse, sutural margin straight in greater part: marginal field equal to slightly less than one-third of the entire tegminal width, subequal in width proximad, attenuate in distal half of tegmen; discoidal field broad, its greatest width at distal fourth of tegmen: mediastine vein very short, poorly defined; median vein diverging at two-fifths the length of the tegmen from base of the same, bifurcate, the rami strongly sinuate; ulnar vein in general straight, weakly sinuate, multifracted distad, reaching the margin at the disto-sutural angle. Exposed portion of wings surpassing the tegmina by about one-fourth the greatest length of the latter, in form with the apex weakly acute, the sutural margin of the exposed portion of the closed wings straight oblique, the costal margin of same straight with a strong distal arc to the apex. Mesosternum and metasternum transverse, the former strongly so, both arcuate laterad with the lobes little reflexed.

Abdomen strongly compressed: supra-anal plate linguiform, the apex moderately acute, a distinct and broad medio-longitudinal sulcus present: cerci simple, styliform, base relatively incrassate, strongly tapering mesad, distal portion very slender, needle-like, acute, the whole cercus in general form slightly inbowed: ovipositor slightly shorter than the combined length of the head and pronotum, moderately arcuate, weakly bent proximad, greatest depth contained two and one-half times in the greatest length of the ovipositor, dorsal margin almost entirely and distal fifth of ventral margin serrulate, apex rounded, ventral valves with greater portion of surface obliquely and rather closely striatulate: subgenital plate small, trigonal, apex rounded, laterad with surface impressed.

Cephalic femora about three-fourths as long as the pronotal disk, ventro-internal margin with two pronounced spines distad; cephalic tibiae slightly surpassing the femora in length, tympani of inflated proximal section apert on both faces, slender thence, with the apex slightly enlarged: median femora slender, in length nearly twice that of the cephalic femora, ventro-cephalic margin with one or two distinct distal spines; median tibiae slightly longer than the median femora, tapering distad from a relatively thickened proximal section, extremity faintly enlarged. Caudal femora one and five-eighths times as long as the tegmina, considerably inflated proximad and compressed, very slender in distal half, with genicular extremity somewhat enlarged; pattern of pagina of inflated portion evidenced by slightly irregular, simple, oblique and subimbricate lines; ventral margins with several subobsolete spines variably indicated distad: caudal tibiae slightly surpassing the femora in length.

Allotype.—♂; Chanchamayo, Peru. Elevation, 1000 meters. 1906. [Acad. Nat. Sci. Phila.]

Differing from the above description of the female in the following features. Pronotum with greatest caudal width of disk contained one and one-half times in the greatest length of the same, the lateral margins less diverging caudad than in the female, a weak transverse impression at caudal two-fifths of the

disk. Tegmina somewhat narrower than in the female, greatest width contained about three times in the greatest length of the same; costal margin more regularly arcuate, distal margin more oblique, disto-sutural angle broadly rounded; discoidal field with greatest width at distal third of tegmen; median vein diverging slightly more proximad than in the female. Disto-dorsal abdominal segment with the distal margin arcuato-emarginate, produced over each cercus into a short, rounded rectangulate projection, the median section of the segment with a longitudinal depression: supra-anal plate elongate, narrow, divided by a median incision into two forcep-like processes; cerci simple, tapering, gently inbowed, the base greatly thickened, tapering, the apex slender, acute, lancet-like, corneous: subgenital plate narrow, compressed, carinate mesad on ventral surface, the narrow distal margin subtruncate; styles free, very short, stout, acute.

General color of face, genae, lateral lobes of pronotum, pleura, abdomen, an oblique proximal section of the discoidal and all of the anal field of the tegmina, cephalic and median limbs and proximal two-fifths of the caudal femora, tawny-olive to snuff brown, in large part entirely minutely and closely punctulate with bone brown.

Dorsal surface of head antimony yellow, dorsal surface of pronotum pale ochraceous-orange. Tegmina in large part, and normally exposed portion of wings, mignonette green, becoming pale buckthorn brown toward the snuff brown section, which is quite solidly marked; costal margin of the tegmina with a narrow bone brown subscalariform pattern at two-thirds the length from the base, a similar edging on the costal margin of the normally exposed portion of the wings, an oblique, irregular, subreniform patch of bone brown situated near the sutural margin distad of the middle, several scattered patches or points of bone brown placed in the discoidal field distad of the large, subreniform patch.

Eyes cinnamon-brown, with a vertical sigmoid line of mummy brown across the middle; antennae cinnamon-buff with a number of well-spaced black annulations, which are relatively broad, between the proximal antennal joint and the proximal blackish-brown annulation are placed several very narrow annulations of the same color; palpi with the fourth and fifth joints lined ventrad with blackish.

Abdomen with dorsal surface clear chamois to honey yellow: male cerci prout's brown.

Cephalic and median tibiae with greater portion without punctulations, regions of the inflation of the cephalic tibiae occasionally heavily infusate. Caudal femora, with median distal portions of the caudal tibiae, chamois, the genicular region and a distal tibial boot, with other clouds and points on the tibiae, tawny-olive to fuscous, the latter in the depressions of the tibiae.

Measurements (in millimeters)

	Length of body	Length of pronotum	Greatest width of pronotal disk	Length of tegmen	Greatest width of tegmen
♂					
<i>P. rubiginosa</i> , Chapada, Brazil	9 ¹¹	3.6	3	20.2	7
<i>P. aurigera</i> , allotype	11.1 ¹¹	3.7	2.4	18.7	6
♀					
<i>P. aurigera</i> , type . . .	11.2 ¹²	3.5	2.9	19.6	7
		Length of cephalic femur	Length of median femur	Length of caudal femur	
♂					
<i>P. rubiginosa</i> , Chapada, Brazil		3.9	5		12
<i>P. aurigera</i> , allotype		3	4.1		10.6
♀					
<i>P. aurigera</i> , type		3.2	4.5		11.5

The type and allotype are the only individuals of the species which we have seen.

Microcentrum philammon¹³ new species (Pl. XIX, figs. 7, 8 and 9.)

Related to *M. angustatum*, *lanceolatum*, *myrtifolium* and *syntechnoides*, but quite distinct from all these species. From *angustatum* it differs in the somewhat larger size, in the non-sulcate fastigium of the vertex, in the tympanal area of the right tegmen being without a subhyaline, triangular field, in the ventrocephalic margin of the cephalic femora having spines distad, and in the styles of the subgenital plate of the male being longer than the incision of the plate, instead of short. From *lanceolatum* the new species differs in the narrower fastigium of the vertex, which is also non-sulcate, in the more compressed pronotum which also has narrower lateral lobes, in the more attenuate tegmina, in the more distinctly nodulose character of the proximal portion of the costal margin of the tegmina, in the shorter stridulating vein of the same, and in the disto-dorsal abdominal segment being non-emarginate mesad. When compared with *myrtifolium* the present insect differs in the more elongate, compressed pronotum, narrower and more elongate tegmina, more inflated caudal femora and more elongate cephalic and median limbs. From *syntechnoides* the new species differs in

¹¹ Abdomen shrivelled.

¹² Exclusive of ovipositor.

¹³ Philammon, son of Apollo and Chione, a celebrated singer.

the narrower fastigium of the vertex, in the more compressed pronotum which also has narrower lateral lobes, in the narrower stridulating field of the male tegmina, in the shorter stridulating vein, in the more robust caudal femora and tibiae, and in the more compressed subgenital plate of the male. One of the striking features of the species is the black patellar spot dorso-proximad on the caudal tibiae.

Type.—♂; Puntarenas, Costa Rica. November 2, 1915. (Anastasio Alfaro; at electric light.) [Academy of Natural Sciences of Philadelphia, Type no. 5356.]

Size large: form compressed and as usual in the genus: surface smooth, weakly glabrous, tegmina with a moderate sheen.

Head with its greatest width across eyes contained one and one-half times in the greatest depth of the head; occiput gently arcuate declivent cephalad; fastigium somewhat broader than the proximal antennal joint, faintly narrowed mesad at the cephalic border of the paired ocelli, non-sulcate dorsad, meeting the fastigium of the face in a straight suture; median ocellus rather small: palpi very slender; third joint slightly longer than the fourth, the latter faintly sigmoid and narrowed at base; fifth joint elongate, longer than the third and fourth together, weakly and regularly enlarging distad: eyes but little prominent when seen from the dorsum, in basal outline circular-ovate, faintly pointed ventro-cephalad, in depth very slightly greater than that of the infra-ocular sulcus: antennae surpassing the apices of the tegmina.

Pronotum with the dorsum very faintly arcuate longitudinally, greatest (caudal) width of pronotal disk contained one and one-third times in the greatest length of the same; cephalic margin of disk emarginato-truncate, caudal margin of disk broadly and strongly arcuate with a suspicion of angulation mesad, lateral portions of disk broadly rounding into the lateral lobes, more angulate, though appreciably rounded, caudad; disk with indications of a subobsolete median carina, mesad there is indicated a reversed bipinnate, lightly impressed, figure, the caudal outline of which is narrowly acute-angulate: lateral lobes deep, narrow, the greatest width contained one and one-half times in the greatest depth, narrowing appreciably caudad; cephalic margin faintly concave, ventro-cephalic angle rounded obtuse, ventral margin very short, oblique, ventro-caudal angle broadly arcuate, caudal margin slightly oblique arcuate ventrad, slightly flattened dorsad, humeral sinus acute with the angle narrowly rounded. Tegmina surpassing the apex of the abdomen by nearly the length of the body, of the type usually found in the genus, but narrower, the greatest width (which is at the proximal third) contained three and three-fifths in the greatest length of the tegmen; costal margin regularly arcuate in the proximal half, straight in distal half, rounding to the apex, which is narrow but rounded; sutural margin largely straight: marginal field broad in proximal three-fifths of the tegmen, its greatest width equal to two-fifths of the greatest tegminal width: costal margin with the callose nodes of the proximal half distinct, rather regularly placed and decreasing in size and prominence distad:

humeral trunk strong, sigmoid; median vein diverging faintly proximad of proximal third of the tegmen, bifurcate, its rami reaching sutural margin, the sutural ramus connected with the anal vein by a short nervure; anal vein biramose, the vein not straight: stridulating field relatively narrow and elongate, its greatest width contained more than three times in the greatest length of the same, the free margin subarcuate; stridulating vein short, thick, with the accompanying vein equally long and nearly as thick; stridulating field of right tegmen coriaceous, the triangular area non-hyaline. Wings with normally exposed portion slightly longer than the pronotal disk, very acute; greatest width of expanded wing contained two and one-third times in the greatest length of the wing. Prosternum unspined: mesosternal lobes parallel; external margin straight caudad, arcuate cephalad; caudal angle acute with the immediate angle rounded, the lobes ventro-lateral in trend: metasternal lobes broader than the mesosternal lobes; external margin strongly arcuate cephalad, straight converging caudad; caudal angle rectangulate, trend of lobes as on the mesosternum.

Disto-dorsal abdominal segment transparent, the lateral section deflexed and vertical; distal margin gently arcuate produced mesad: supra-anal plate elongate trigonal, strongly reflexed: cerci moderately arcuate, relatively slender, tapering, the distal extremity slightly enlarged and subcompressed, the extremity rounded ventrad, rounded acute-angulate dorsad, the external face of apex with an adpressed, claw-like spine, not surpassing the main apex: subgenital plate compressed, boat-shaped, with a distinct median carina, produced caudad into a pair of substyliform and styliferous processes, between which the distal margin is deeply semi-elliptical emarginate; styles but little longer than the processes bearing them, on internal face concave, external face convex, apices narrowly rounded.

Cephalic femora very slightly shorter than the length of the pronotal disk, ventro-cephalic margin with one to two small spines distad: cephalic tibiae appreciably surpassing the cephalic femora in length, with both faces of tympanum apert. Median femora slightly longer than the length of the head and pronotum combined, ventro-cephalic margin with three to five small spines. Caudal femora about three-fifths as long as the tegmina, moderately compressed, fairly robust proximad, external pattern weakly indicated and irregular; caudal genicular lobes bispinose; ventro-external margin with eight to eleven spines, ventro-internal margin with seven to eight spines: caudal tibiae surpassing the femora by about one-half the length of the pronotal disk, heavy, subcompressed, narrowing in distal fourth, strongly quadrate in section, margins strongly spined.

General color of dorsum of pronotum, tegmina and exposed portion of wings cource green. General color of head and lateral lobes of pronotum chalcedony yellow to lumiere green, of the pleura, sterna and abdomen wax yellow to amber yellow. Eyes speckled pale olive brown and chestnut brown. Antennae passing from the general color of the head proximad, through ferruginous and fuscous to blackish fuscous distad, proximad the segments are individually narrowly annulate with buffy. Tegmina with the costal thickened nodes

flesh-color to ochraceous-buff; stridulating field entirely of the general tegminal color. Cephalic and median femora lime green, passing to pale cource green on the tibiae. Caudal femora lime green, weakly washed with old gold, passing to pale cource green distad; caudal tibiae pale cource green, a decided patellar spot of shining black present at the very base of the extensor surface.

Length of body, 30 mm.; length of pronotum, 7.3; greatest (caudal) width of pronotal disk, 5.9; length of tegmen, 47; greatest width of tegmen, 12.8; length of caudal femur, 28.

The type of this interesting species is unique.

Chlorophylla inca new species (Pl. XIX, fig. 10; pl. XX, fig. 4.)

Related to *C. rufipes* Brunner,¹⁴ from Peru and Bolivia, but differing in the proportionately shorter and broader tegmina, which have the distal portion of the costal margin crenulate, in the shorter pronotum and in the femora being proportionately shorter.

Type.—♀; Chanchamayo, Peru. Elevation, 1000 meters. September, 1907. [Acad. Nat. Sci. Phila., Type no. 5355.]

Size medium: form strongly compressed, as usual in the genus: surface dull, of the pronotum scattered granulose.

Head with the greatest width across eyes contained one and one-half times in the greatest depth of head: fastigium narrow, subcompressed, slightly produced, sulcate dorsad, with apex bluntly rounded: face flattened, narrowly rounding laterad to the genae: palpi short; maxillary palpi with first joint very short, second joint slightly longer, third and fourth joints in length subequal to second, fifth joint about one and one-half times as long as the fourth joint and infundibuliform in outline; labial palpi with the distal joint moderately elongate, spoon-shaped: eyes not prominent, small, ovate circular in basal outline: antennae thick, robust, incomplete in type; margin of scrobes thickened and prominent in internal and ventral borders, with a distinct production dorsad and mesad; proximal joint large, simple, cylindrical; second and succeeding joints gradually tapering, finely, closely and briefly haired.

Pronotum sellate, the dorsum flat in transverse section, the medio-longitudinal section slightly but regularly concave, lateral angles of disk rounded rectangulate, continuous: dorsum of pronotum with its greatest caudal width subequal to its greatest length, the cephalic width of the disk but slightly more than one-half the greatest caudal width, the lateral margins of the disk parallel on cephalic third, regularly diverging on caudal two-thirds; cephalic margin subtruncate, with a series of small but distinct tubercles; caudal margin distinctly but shallowly bisarcuate, the median arcuation shallow and broadly obtuse; a faint medio-longitudinal line indicated on the disk caudad by a delicate carina, in the region of the principal transverse sulcus by a fine sulcus; principal transverse sulcus faintly arcuate, finely and deeply impressed, practically median in position, cephalic transverse sulcus distinctly

¹⁴ Monogr, der Pseudophyll., pp. 265, 266, pl. x, fig. 116, (1895).

and finely impressed, straight transverse, both sulci finely severing the lateral angles of the disk: lateral lobes with greatest depth contained one and one-half times in greatest dorsal length of same, the greatest bulk of the lobes cephalad of the middle of the lateral angles of the disk; cephalic margin of lobes concave dorsad, straight ventrad, ventro-cephalic angle rounded obtuse, ventral margin strongly and fairly regularly arcuate, ventro-caudal angle rounded obtuse, caudal margin strongly oblique concave, humeral sinus indicated merely by concavity of the whole caudal margin. Tegmina leaf-like, roughly diamond-shaped, broad, in length surpassing apices of caudal femora by a distance equal to the combined length of the head and pronotum, greatest width but slightly less than greatest length of tegmen, opaque; costal margin straight oblique in proximal three-fifths, then rounded obtuse and finally oblique crenato-truncate to the rounded obtuse apex; sutural margin with dorsal margin of closed tegmina ascending, weakly sigmoid to a broadly rounded obtuse angulation at half the length of tegmen and point of greatest width, thence obliquely weak arcuate: humeral trunk in large part straight, dividing the tegmen into two nearly equal parts, the component veins diverging at three-fifths the length of tegmen; mediastine vein distinct, in general subparalleling the costal margin; median vein diverging faintly proximad of two-fifths of the tegminal length, biramose; general venation details in figure: stridulating field relatively broad; stridulating vein heavy, arcuate, narrowing laterad, nearly transverse in position; free margin in general straight oblique distad of apex of stridulating vein. Wings falling distinctly short of the tegminal apices. Prosternum unarmed; mesosternal lobes taken together in general outline subquadrate, the lobes moderately spinose caudo-laterad, mesosternal foveolae in a single transverse orifice; metasternal lobes strongly transverse, each with a distinct conical spine, metasternal foveolae in a single transverse orifice.

Supra-anal plate moderately transverse, slightly arcuate in transverse section, the lateral margins moderately converging distad, the distal margins sinuato-subtruncate: cerci very short, but faintly surpassing the supra-anal plate, incrassate, conical in distal half: subgenital plate slightly transverse, flattened ventrad, lateral margins straight convergent, distad with two rounded obtuse-angulate projections of the margin, between which it is obtusely angulate emarginate.

Limbs of the type usual in this group, moderately incrassate. Cephalic femora with the length subequal to that of the head and pronotum combined, ventro-cephalic margin with one to three brief spines distad: cephalic tibiae distinctly longer than the femora, appreciably but not decidedly deplanate distad, tympani rimate on both faces. Median femora slightly longer than the cephalic femora, ventro-cephalic margin with two brief spines distad; median tibiae subequal to the femora in length, appreciably compressed and dilated proximad. Caudal femora about three-fifths as long as the tegmina, coarse, but little tapering, very faintly arcuate: caudal tibiae subequal to the femora in length, somewhat arcuate, heavy proximad and weakly tapering distad, subcompressed proximad, increasingly deplanate distad on dorsal surface, margins unspined.

General color of head, antennae, ventral surface, abdomen and limbs ochraceous-buff, of the tegmina mignonette green, passing to lime green in the vicinity of the distal half, the veins mesad and proximad pencilled with ochraceous-buff. Eyes tawny-olive. Pronotum ochraceous-buff, overlaid with weak wash patches of lime green and clear fluorite green.

Length of body, 18 mm. (body somewhat distorted); length of pronotal disk, 5.6; greatest (caudal) width of pronotal disk, 5.4; length of tegmen, 26.5; greatest width of tegmen, 23; length of caudal femur, 16.2.

The type of this species is unique.

Paralobaspis gorgon new species (Pl. XIX, figs. 11, 12 and 13.)

This striking new species is closely related to the genotype, *P. picta* Giglio-Tos,¹⁵ described from the Valley of Santiago, eastern Ecuador, agreeing in the general features of its structure and also in the general color pattern, but differing in its appreciably larger size, in the proportionately shorter pronotum, which also has the caudal margin of the disk broadly truncate, instead of moderately produced and rotundate as in *picta*, in the proportionately shorter caudal femora, in the ovipositor being but weakly falcate, in the subgenital plate being V-emarginate with decided lateral angles, instead of triangular and fissate as in *picta*, and in numerous details of the coloration. From *P. personata* Rehn, recently described¹⁶ from northeastern Brazil, the present species differs in numerous features, such as its very much greater size, far more elongate flight organs, straighter ovipositor, as well as general coloration.

Type.—♀; Bartica, British Guiana. November 30, 1912. (H. S. Parish.) [Academy of Natural Sciences of Philadelphia, Type no. 5286.]

Size large (for the genus): form moderately compressed: surface glabrous to polished, the latter on limbs, head and most of pronotum.

Head with occiput subhorizontal, faintly arcuate: fastigium moderately elevated, arcuate dorsad in profile, recurved spiniform distad, the paired ocelli large and the fastigium of the vertex connected with the face by a vertical, strongly carinate ridge; median ocellus large, shield-shaped: face retreating, slightly arcuate dorso-ventrad, transversely flattened ventrad: palpi with the third joint subequal in length to the fourth, gently arcuate; fourth palpal joint straight, as a whole more slender than the third; fifth palpal joint one and one-half times as long as the fourth, straight, slender proximad, moderately enlarging distad: eyes moderately prominent when seen from the

¹⁵ Boll. Mus. Zool. Anat. Comp. Torino, xiii, no. 311, p. 89, (1898).

¹⁶ Proc. Acad. Nat. Sci. Phila., 1918, p. 202.

dorsum, in size medium, in basal outline rounded subtrigonal: antennae far surpassing the tegminal apices, the proximal joint moderately enlarged, with a decided disto-internal tooth-like projection.

Pronotum obscurely cribroso-punctate, with the dorsal line nearly straight: dorsum with the greatest caudal width contained one and three-fifths times in the greatest dorsal length of the same, transversely the dorsum is convex, rounding into the lateral lobes; cephalic margin of disk truncate; caudal margin of disk truncate, well rounding laterad to the humeral sinus, margins narrowly cingulate; cephalic transverse sulcus distinctly impressed arcuate, sulci caudad of this little indicated on dorsum, a median figure, between a Y and a T in shape, moderately indicated: lateral lobes with their greatest depth, which is at caudal third, contained one and one-third times in the greatest dorsal length of the same; surface of the lobes rather deeply sculptured; cephalic margin of lobes moderately oblique and sinuato-truncate, ventro-cephalic angle broadly rounded; ventral margin oblique, weakly concave, ventro-caudal angle subrectangulate; caudal margin moderately arcuate, the humeral sinus shallow, concave. Tegmina surpassing the apices of the caudal femora by about the length of the caudal femora, elongate, narrowly sublanceolate, in general subequal in width, the greatest width contained nearly seven times in the greatest tegminal length: costal margin nearly straight, distal fourth moderately arcuate to the rather broadly rounded apex; sutural margin nearly straight: marginal field broad proximad, regularly narrowing distad: mediastine vein distinct, nearly straight, reaching the costal margin near the proximal third, with numerous subparallel rami on costal side; marginal field distad of the mediastine vein with numerous oblique cross-veins; humeral trunk slightly sigmoid; median vein diverging faintly distad of the proximal two-fifths of the tegmen, biramose on the sutural side; ulnar vein sinuate, close to humeral trunk in proximal third, thence extending subparallel to the sutural margin, with five oblique true rami toward the sutural margin. Wings reaching to the tegminal apices. Prosternum bispinose; mesosternal lobes in general form rectangulate with the angle produced and spiniform-lobate; metasternal lobes distinctly shorter, in general form more rectangulate with the caudal angle subspiniform.

Disto-dorsal abdominal segment strongly transverse, deeply divided distomesad by a V-shaped emargination, the bordering angles being rectangulate and moderately produced, the lateral sections of the distal margin of the segment moderately oblique and shallowly arcuate-emarginate: supra-anal plate small, broad trigonal: cerci relatively short, incrassate, tapering, very slender distad, slightly incurved: ovipositor elongate, very slightly longer than the caudal femora, straight proximad, gently falcate in distal half, the greatest depth contained nearly ten times in the length; apex acute, the dorsal valves faintly longer than the ventral pair, margins entire: subgenital plate somewhat produced, weakly narrowed distad, the lateral margins (when seen from the side) sinuate oblique declivent to the distal third, thence strongly arcuate-emarginate to the acute, diverging disto-lateral angles, distal margin broadly V-shaped, the arms of this weakly arcuate, in section the plate is subtectate distad, arcuate proximad.

Cephalic femora about one and one-fourth times as long as the pronotal disk, moderately inflated, tapering more decidedly distad, ventro-cephalic margin with three distal spines, cephalic genicular lobe spiniferous, caudal one subangulate but unarmed: cephalic tibiae slightly longer than the femora, ventral margins with six spines, tympani conchate. Median femora slightly longer than the cephalic femora, ventro-cephalic margins with four regularly placed spines, both genicular lobes spiniferous, that of the caudal lobe larger than that of the cephalic lobe: median tibiae faintly longer than the femora, ventral margins armed with eight (cephalic) or six (caudal) spines. Caudal femora equal to two and one-third times the length of the pronotal disk, ventral margin nearly straight, dorsal outline strongly inflated and bullate in proximal three-fifths, very slender distad, ventro-external margin with seven spines, unarmed proximad, ventro-internal margin unarmed, genicular lobes spiniferous, the two subequal in length: caudal tibiae subequal in length to the caudal femora, strongly spined on all margins, the ventral ones less strongly and continuously so than the dorsal ones.

General color of the dorsum and tegmina auburn to bay, the pleura and abdomen brussels brown to auburn.

Face, ventral surface of fastigium, cephalic portion of genae, two proximal antennal joints, almost the entire cephalic femora and tibiae, distal portion and entire ventral surface of median femora, large portion of median tibiae, ventral surface and distal third of caudal femora and a genicular annulus on the caudal tibiae, shining blackish. Eyes auburn, blotched with blackish; median ocellus grenadine; antennae zinc orange becoming tawny distad, more or less distinctly and closely multiannulate with blackish.

Pronotum with base color of lateral lobes the same as that of dorsum, an indistinct median dot of blackish and several pairs of spots of the same in the usual position of the lateral angles, the entire pronotum with a fine cribose pattern of ochraceous-orange. Tegmina with the base color of the marginal field largely fuscous, of the anal field weakly so, elsewhere of the general color; venation of the marginal and anal fields, and less decidedly or completely of the discoidal field, mustard yellow to cream color, the principal longitudinal veins becoming kaiser brown. Wings distinctly infumate.

Cephalic femora narrowly orange rufous proximad, the portion of the median femora which is not black being similarly colored, while the pale portion of the caudal femora is dull cadmium. Cephalic tibiae with the ventral margins largely, the distal extremity and the tarsi entirely, baryta yellow to pale orange-yellow: median tibiae similarly but less distinctly colored. Caudal tibiae ranging from amber yellow to light dull green-yellow, the dorsal surface largely fuscous, the bases of the spines and their vicinity largely fuscous; caudal tibiae baryta yellow.

Ovipositor sanford's brown, the dorsal section of the abdomen appreciably suffused with the same.

Length of body (exclusive of ovipositor), 29 mm.; length of pronotum, 6.9; greatest dorsal (caudal) width of pronotal disk, 4.1; length of tegmen, 40.5; greatest width of tegmen, 6; length of caudal femur, 17.9; length of ovipositor, 18.6.

The type is unique.

GRYLLIDAE

Endecous lizeri new species (Pl. XIX, figs. 14, 15, 16 and 17.)

We have referred this species to the present genus with some hesitation, as it shows certain features not fully in accord with the generic description, as the biseriately serrulate dorsal surface of the caudal metatarsi and the presence of four distal spurs on the median tibiae, but until we know more about *E. arachnopsis*, the genotype, it seems most advisable to place the new species here. From *arachnopsis* the present species differs, in addition to the above features, in the larger size, more elongate male tegmina, the speculum of the same with but a single cross-vein, and other details of the venation. The female is apterous.

Type.—♂; Boundary between Cordoba and San Luis Provinces, Argentina. (C. Lizer.) [Academy of Natural Sciences of Philadelphia, Type no. 5328.]

Size medium: form subfusiform, more attenuate caudad: surface of body largely covered with a generally adpressed coat of short hairs.

Head with greatest width across genae contained one and two-fifths times in the greatest depth of head, seen from dorsum or front the genae are distinctly though not strongly bullate; occiput seen from side narrowly arcuate caudad, thence strongly and obliquely declivent to the interantennal region; interantennal area moderately produced, roundly obtuse-angulate, when seen from the front with its greatest width distinctly greater than that of proximal antennal joint, narrowing slightly ventrad to the small median ocellus, thence ventrad slightly widening, less distinctly haired ventrad than dorsad; face transverse, with the infra-ocular sections appreciably concave: palpi very elongate, slender; third palpal joint straight, uniform in width, subequal to the fourth joint in length; fourth joint somewhat narrowed proximad; fifth joint about one and one-half times as long as the fourth joint, slender in proximal half, enlarging distad, with the distal extremity obliquely arcuato-truncate, the whole joint weakly arcuate when seen from the side: eyes relatively small, moderately prominent, basal outline acute subovate, the point ventrad, the dorsal section of outline rectangulate, the depth subequal to that of the infra-ocular portion of the genae: antennae incomplete, proximal joint large, appreciably depressed, particularly proximad, second and remaining joints small.

Pronotum transverse, the greatest length contained one and two-thirds times in the greatest width of the entire pronotum, the dorsum straight in longitudinal section and arcuate transversely, regularly rounding into the lateral lobes, which latter are subvertical dorsad and strongly flaring laterad ventro-laterad: cephalic margin of disk truncate, caudal margin subsinuato-truncate, both margins strongly cingulate; surface of disk mesad with a small transverse depression immediately caudad of the margin, thence caudad for three-fifths

of the length with a shallow sulcation, which is slightly deepened and broadened at the exact middle, the disk slightly cephalad of the middle with a pair of transversely disposed, elongate, subpyramidical, shallowly impressed areas: lateral lobes distinctly longer than deep, the margins narrowly but strongly cingulate, excepting ventro-caudad where they are broadly and sublamellate cingulate, the surface with the apices of the paired dorsal figures reaching as sulci to the dorsal portion of the lobes, the surface ventrad moderately undulate; cephalic margin truncate, ventro-cephalic angle broadly arcuate, ventral margin rounded obtuse-angulate, ventro-caudal angle very broadly and obliquely rounded obtuse, caudal margin short, subtruncate. Tegmina coriaceous, slightly longer than the combined length of the head and pronotum, reaching to the distal margin of the third abdominal segment, when seen from the dorsum subquadrate in form, dorsal field faintly longer than broad, lateral field vertical, lateral margins of the dorsal field moderately arcuate, distal margin of the field more distinctly arcuate than the lateral margins: lateral field with its greatest proximal depth equal to about one-quarter of the length of the field, uniform in depth in proximal fifth, thence distad regularly and directly narrowing to the apex of the field, venation of the field weak: veins of the humeral trunk strong, arcuate laterad when seen from the dorsum, two in number; stridulating vein arcuate, strongly transverse, sending two complete and one incomplete sinuate oblique veins to the largely straight median vein; axillary veins two in number, well separated, strongly oblique, the sutural of the two much the heavier; diagonal vein in general arcuate; post-axillary veins two in number, sigmoid, well separated; speculum trigonal, longer than wide at the base, which is distal, with one diagonal dividing vein; cells of apical area largely subquadrate, numerous. Wings probably absent, not at all evident under the tegmina.

Abdomen with the disto-dorsal segment produced into a linguiform structure, which resembles a supra-anal plate, and is regularly narrowing caudad, distad very broadly rounded, the surface impressed proximad, elevated distad, the lateral margins narrowly cingulate proximad, with a pair of supplementary semilunate carina: cerci extremely elongate, four-fifths as long as the body, tapering: exerted internal genitalia made up of two parts, the dorsal one distad composed of a pair of elongate horny valves, which are tectate in form, with a proximal short tooth and a more elongate projection, which is distinctly expanded distad; the ventral part of the internal genitalia developed into a more elevated recurved structure, which is strongly compressed, thickened along the caudal margin and projecting dorsad through the interspace between the extremities of the dorsal valves of the internal genitalia: subgenital plate boat-shaped, strongly hollowed out, lateral margins gently arcuate laterad, distad the margin is narrowly truncate with rudiments of styles.

Limbs elongate, slender, the cephalic and median particularly sub-arachniform. Cephalic femora faintly shorter than the combined length of the pronotum and tegmina: cephalic tibiae slightly longer than the femora, tympana indicated only on the cephalic face, and there by a small oval area; distal spurs two in number, one on each side, large. Median femora subequal to the

cephalic femora in length: median tibiae slightly longer than the femora; distal spurs four in number, the ventral pair the larger. Caudal femora three-fourths as long as the body, moderately bullate for three-fifths of their length, the greatest depth contained slightly less than four times in the length of the same, ventral margins unarmed, ventral sulcus broad, deplanate; genicular spines one on each side (spines destroyed but sockets evident); genicular lobes moderately elongate, rounded distad: caudal tibiae one and one-sixth times as long as the caudal femora, relatively slender, nearly straight, dorsal margins with four pairs of mobile spurs situated on the distal five-eighths of these margins, the spurs paired but with their bases not directly opposite, the spurs faintly falcate with the apices slightly hooked, all the pairs excepting the distal have the internal distinctly shorter than the external spur, distal pair small, subequal; between the spurs and proximad of the same the dorsal margins are regularly serrato-spinulose; external distal spurs three in number, decreasing in length ventrad, the dorsal one one-third as long as the metatarsus, the median one two-thirds the length of the dorsal one, the ventral one hardly one-half the length of the median one; distal spurs of the internal face of the tibiae three in number, decreasing in length ventrad, the dorsal spur equal to one-half the metatarsal length, median spur four-fifths as long as the dorsal spur, ventral spur short, but two-fifths as long as the median one: caudal tarsi elongate, equal to one-half the length of the caudal tibiae; metatarsi occupying two-thirds of the tarsal length, compressed, weakly arcuate dorsad, dorsal margins with seven to eight external and two to four internal spines, external distal spur straight, faintly longer than the second tarsal joint, internal distal spur half again as long as the external one; second tarsal joint short, compressed; third tarsal joint elongate, compressed, faintly arcuate; claws very elongate, slender, falcate.

Allotype.—♀; La Cumbre, Province of Cordoba, Argentina. (C. Lizer.) [Acad. Nat. Sci. Phila.]

Differing from the description of the male in the following features. Pronotum faintly less transverse than in the male, greatest length contained one and one-half times in the greatest width of the entire pronotum. Tegmina and wings absent. Ovipositor slightly shorter than the caudal femora, very slender, straight, subequal in depth except for slightly expanding proximad, distal valves not strongly differentiated from the shaft of the ovipositor valves, more compressed, when seen from the side acute lanceolate, no deeper than the shaft, external face multistriate: subgenital plate relatively shorter, compressed, subrostrate, median incision relatively deep, lateral sections of the margin gently arcuate. Cephalic femora slightly less than twice as long as the pronotal disk. Caudal femora equal in length to the body exclusive of the ovipositor: caudal metatarsi with one to no internal and four external spines.

General color liver brown to kaiser brown and warm buff, palest on the tibiae, the cephalic and median femora infusate to a variable degree with mummy brown distad. Eyes bister. Tegmina of male russet. Female with body discolored.

	<i>Measurements (in millimeters)</i>						
	Length of body	Length of pronotum	Greatest width of pronotum	Length of tegmen	Greatest width of tegmen	Length of caudal femur	Length of ovipositor
♂, <i>type</i>	17	3	4.7	5.7	4.7	13.5	—
♀, <i>allotype</i> . .	15.6 ¹⁷	4	5.5	—	—	15.8	13

The type and allotype are the only specimens of this species which we have seen. Both have suffered considerable damage in the loss of at least portions of their antennae, palpi, cerci and tarsi, while the female has the body much discolored. However, their other differential characters are very decided.

We take great pleasure in dedicating this species to our colleague Carlos Lizer, of Buenos Aires, from whom we received the material.

¹⁷ Exclusive of ovipositor.

EXPLANATION OF FIGURES

Plate XVIII

- Fig. 1.—*Eurycotis biolleyi* new species. Outline of tegmen of male (*type*). ($\times 5$)
- Fig. 2.—*Eurycotis biolleyi* new species. Supra-anal plate of male (*type*). ($\times 5$)
- Fig. 3.—*Eurycotis biolleyi* new species. Subgenital plate of male (*type*). ($\times 5$)
- Fig. 4.—*Eurycotis biolleyi* new species. Caudal tibia and tarsus of male (*type*). ($\times 3$)
- Fig. 5.—*Pogonogaster tristani* new genus and species. Lateral view of abdomen of female (*type*). ($\times 3$)
- Fig. 6.—*Pogonogaster tristani* new genus and species. Cephalic outline of head of female (*type*). ($\times 5$)
- Fig. 7.—*Diedronotus centralis* new species. Lateral view of head and pronotum of female (*type*). (Natural size.)
- Fig. 8.—*Diedronotus centralis* new species. Dorsal view of head and pronotum of female (*type*). (Natural size.)
- Fig. 9.—*Coscineuta matensis* new species. Dorsal view of pronotum of female (*type*). ($\times 2\frac{1}{2}$)
- Fig. 10.—*Coscineuta matensis* new species. Lateral view of ovipositor jaws of female (*type*). ($\times 4$)
- Fig. 11.—*Coscineuta matensis* new species. Dorsal view of ovipositor jaws of female (*type*). ($\times 4$)
- Fig. 12.—*Leiotettix mendocensis* new species. Lateral view of apex of abdomen of male (*type*). ($\times 5$)
- Fig. 13.—*Leiotettix mendocensis* new species. Dorsal view of apex of abdomen of male (*type*). ($\times 5$)
- Fig. 14.—*Leiotettix mendocensis* new species. Dorsal view of fastigium of male (*type*). ($\times 5$)
- Fig. 15.—*Dichroplus forcipatus* new species. Lateral view of apex of abdomen of male (*type*). ($\times 5$)
- Fig. 16.—*Dichroplus brasiliensis* Bruner. Lateral view of apex of abdomen of male. Petropolis, Brazil. ($\times 5$)
- Fig. 17.—*Eurotettix schrottkyi* new species. Lateral view of apex of abdomen of male (*type*). ($\times 5$)
- Fig. 18.—*Eurotettix schrottkyi* new species. Dorsal view of apex of abdomen of male (*type*). ($\times 5$)
- Fig. 19.—*Eurotettix schrottkyi* new species. Outline of left tegmen of male (*type*). ($\times 3$)
- Fig. 20.—*Paraphidnia lankesteri* new species. Lateral view of male (*type*). (Natural size.)
- Fig. 21.—*Paraphidnia lankesteri* new species. Dorsal view of pronotum of male (*type*). ($\times 3$)

- Fig. 22.—*Paraphidnia lankesteri* new species. Lateral view of fastigium of male (*type*). (Greatly enlarged.)
- Fig. 23.—*Paraphidnia lankesteri* new species. Cercus of male (*type*). (Greatly enlarged.)
- Fig. 24.—*Anaulacomera alfaroi* new species. Lateral view of apex of abdomen of male (*type*). (Greatly enlarged.)
- Fig. 25.—*Anaulacomera alfaroi* new species. Dorsal view of apex of abdomen of male (*type*). (Greatly enlarged.)
- Fig. 26.—*Anaulacomera alfaroi* new species. Ventral view of apex of abdomen of male (*type*). (Greatly enlarged.)

Plate XIX

- Fig. 1.—*Chloroscirtus discocercus* new species. Lateral view of apex of abdomen of male (*type*). (Greatly enlarged.)
- Fig. 2.—*Chloroscirtus discocercus* new species. Elevation of disk on cercus of male (*type*). Viewed from distal extremity. (Greatly enlarged.)
- Fig. 3.—*Chloroscirtus discocercus* new species. Dorsal view of disto-dorsal abdominal segment of male (*type*). ($\times 4$)
- Fig. 4.—*Chloroscirtus discocercus* new species. Ventral view of subgenital plate of male (*type*). (Greatly enlarged.)
- Fig. 5.—*Pycnopalpa aurigera* new species. Dorsal view of pronotum of female (*type*). ($\times 5$)
- Fig. 6.—*Pycnopalpa aurigera* new species. Palpus of female (*type*). (Greatly enlarged.)
- Fig. 7.—*Microcentrum philammon* new species. Interantennal region of male (*type*). (Greatly enlarged.)
- Fig. 8.—*Microcentrum philammon* new species. Stridulating field of tegmen of male (*type*). ($\times 2$)
- Fig. 9.—*Microcentrum philammon* new species. Subgenital plate of male (*type*). (Greatly enlarged.)
- Fig. 10.—*Chlorophylla inca* new species. Dorsal view of pronotal disk and stridulating field of tegmen of male (*type*). ($\times 1\frac{1}{2}$).
- Fig. 11.—*Paralobaspis gorgon* new species. Lateral view of female (*type*). (Slightly more than natural size.)
- Fig. 12.—*Paralobaspis gorgon* new species. Dorsal view of head and pronotum of female (*type*). ($\times 2$)
- Fig. 13.—*Paralobaspis gorgon* new species. Subgenital plate of female (*type*). (Greatly enlarged.)
- Fig. 14.—*Endecous lizeri* new species. Pronotum and tegmen of male (*type*) from dorsum. ($\times 2\frac{1}{2}$)
- Fig. 15.—*Endecous lizeri* new species. Dorsal surface of caudal metatarsus of male (*type*). (Greatly enlarged.)
- Fig. 16.—*Endecous lizeri* new species. Lateral view of apex of abdomen of male (*type*). (Greatly enlarged.)
- Fig. 17.—*Endecous lizeri* new species. Lateral view of ovipositor of female (*allotype*). ($\times 3$)

Plate XX

- Fig. 1.—*Pogonogaster tristani* new genus and species. Lateral view of pronotum and cephalic limb of female (*type*). ($\times 6$)
- Fig. 2.—*Coscineuta matensis* new species. Lateral view of head and pronotum of female (*type*). ($\times 3\frac{1}{2}$)
- Fig. 3.—*Pycnopalpa aurigera* new species. Lateral view of female (*type*). ($\times 3$)
- Fig. 4.—*Chlorophylla inca* new species. Lateral view of male (*type*). ($\times 2$)

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