

## Die Ausbeute der deutschen Chaco-Expedition 1925/26. — Orthoptera.

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(Mit 1 Tafel und 2 Textfiguren).

Through the kindness of Dr. Erwin Lindner we have received the Orthoptera here studied, which were collected on the German expedition to the Chaco regions of South America in 1925/26. This expedition, starting at Asuncion, Paraguay, struck directly across the northern border of the Chaco Central of Formosa, Argentina, to the Pilcomayo River, thence following its northern bank in the Chaco Boreal to Villa Montes, Bolivia. From there the route was north to Santa Cruz de la Sierra and thence east across Chiquitos, Bolivia, to Corumba, Brazil on the Paraguay River.

As very general collecting was done it was only possible to secure and preserve a few specimens of each species encountered. A series of one hundred and sixty one Orthoptera was secured, representing seventy three species. Five genera and five species are here described as new. The confusion centering about the genus *Paradichroplus* was so great that we were obliged to revise this and the related genera and have here given a key to distinguish them. Much material belonging to the Academy of Natural Sciences of Philadelphia and the Hebard Collection, from these regions, has enabled us to make decidedly more definite determinations and do considerably more revisionary work than would have otherwise been the case.

### Blattidae.

#### Pseudomopinae.

##### *Amazonina conspersa* (Brunner).

Mision Tacaagl , Formosa, Argentina, XI. 1925, 2 ♂, 1 ♀.

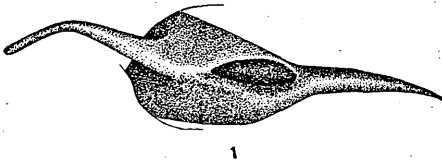
*Ischnoptera borellii* Giglio-Tos. Textfigure 1.

Fig. 1. *Ischnoptera borellii* (Giglio-Tos.). Mision Tacaagl , Formosa, Argentina. Caudal view of male genitalic process situated ventro-sinistrad of dextral cercus, (usually clearly visible only when subgenital plate has been removed). (Greatly enlarged).

three distinct species<sup>2)</sup>, superficially quite similar particularly as there is some individual color variation, but readily distinguished by concealed male genitalic characters (here figured for *borellii* and for *vilis*. Textfigure 2).

The males which we believe to represent *borellii* are characterized by the uniform almost black pronotum and femora and rich clear russet tegmina, the tibiae burnt siena and the tarsi only slightly darker.<sup>3)</sup>

We record here all material of *borellii* before us.

Argentina. Mision Tacaagl , Formosa, XI. 1925, 5 ♂. Gran Chaco, 1 ♂, [Hebard Cln.]. Florencia, Rio Tapenaga, Gran

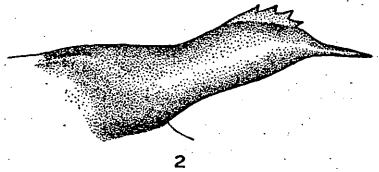


Fig. 2. *Ischnoptera vilis* (Saussure). Sapucay, Paraguay. (Legend as in Fig. 1).

<sup>1)</sup> Proc. Acad. Nat. Sci. Philadelphia, 1921, p. 265.

<sup>2)</sup> We are also satisfied that *vilis* is a valid species and not a synonym of *ignobilis* as we supposed. This species has the pronotum usually (but not always) with paler more ferruginous lateral portions. It occurs in Corrientes, Argentina and is apparently common at Sapucay, Paraguay.

The third and apparently commonest species we recorded as *ignobilis* occurs over all northern Argentina and we have three males labelled simply "Paraguay". It is smaller than the others with pronotum little or no darker than the tegmina and is apparently undescribed.

<sup>3)</sup> We believe *ignobilis*, described from a male from Argentina, to be a distinct but closely related species, distinguished by the larger size (length of body and tegmina 26; in our series of *borellii* here recorded 19 to 22 mm) and apparently uniformly pale, ferruginous, coloration. These differences did not appear sufficient to warrant recognizing *borellii* as distinct until we found that several closely related species exist. It is probable that *ignobilis* will be particularly distinguishable by genitalic features.

Chaco (E. R. Wagner), 1 ♂, [Hebard Cln.]. Icano, Chaco, Santiago del Estero (E. R. Wagner), 1 ♂, [Hebard Cln.]. Misiones, I. 1911, (P. Jörgensen), 1 ♂, [Acad. Nat. Sci. Phila.]. Córdoba, Córdoba, (F. Schultz), 1 ♂, [Hebard Cln.].

### Blattinae.

#### *Periplaneta americana* (Linnaeus).

San José, Formosa, Argentina, X. 1925, 1 ♀, 1 juv.

### Panchlorinae.

Rehn has recently cleared up the confusion in *Phortioeca* and the associated genera which was caused by Kirby's failure to recognize that a genotype for *Zetobora* had been selected as *signaticollis*, which is the genotype by monotypy of *Triponidium*, thus making the latter a synonym of *Zetobora*.<sup>4)</sup> This left the genus which includes *\*emarginata* Burmeister (with synonyms *perspicua* Walker and *cicatricosa* Burmeister), *limbata* Brunner, *rudis* Walker, *martinezi* Bolivar and *lata* Shelford (we have seen a Colombian specimen in the National Museum) without a name and Rehn has this year proposed *Lauxoblatta* for it, with *emarginata* Burmeister the genotype.

To *Phortioeca* are now known to belong *\*nimbata* (Burmeister) 1838, *\*peruana* Saussure 1862, *\*verrucosa* (Saussure) 1864, *\*maximiliani* (Saussure) 1868, *\*phoraspoides* (Walker) 1871 (with synonym *sublobata* Saussure and Zehntner), *\*apolinari* Hebard 1921 and *andeana* Rehn 1928.

Giglio-Tos' *Zetobora aberrans* is clearly not even a member of the Panchlorinae, as shown by the armed ventral margins of the median and caudal femora.

#### *Phortioeca verrucosa* (Saussure).

Provincia Sara, Bolivia, 450 meters, 1922, (J. Steinbach), 1 ♀; 500 meters, I. 20 to II. 5. 1922, (J. Steinbach), 1 large juv. ♀, [Hebard Cln.]. Jujuy, Jujuy, Argentina, IV. 1. 1911, (P. Jörgensen), 1 very large juv. ♀, [Acad. Nat. Sci. Phila.]. San José, Formosa, Argentina, X. 1925, 1 ♀.

This species is very similar to the Mexican *P. maximiliani* (Saussure), differing in the broader pronotum, slightly weaker

<sup>4)</sup> (An asterisk before the name indicates that we have material of the species in the Philadelphia Collections). To this genus belong *\*signaticollis* Burmeister, *monastica* Saussure, *transversa* Brunner, *impressa* Walker (we have studied the type in the British Museum) and *\*amplum* Hebard.

longitudinal tegminal venation and less uniformly dark ventral coloration.

Compared with *peruana* Saussure the present species differs in having the burnt sienna of the lateral portions of the pronotum confined to the cingulate caudal margin instead of being continued along the caudal margins half way to the humeral angles, while the mediastine field of the tegmina proximad is as broad as the costal field proximad instead of being slightly narrower than that dimension.

The adults here recorded measure: length of body 32.7 and 30.7, length of pronotum 9 and 9, width of pronotum 14.2 and 13.4, length of tegmen 28.2 and 27, width of tegmen 11.7 and 10.8 mm.

### Blaberinae.

#### *Blaberus fusiformis* Walker.<sup>5)</sup>

Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♀, 1 juv. ♂.

This specimen has the pronotal escutcheon solidly black. Not only is the cingulate caudal margin of the pronotum black, but the anal sulcus of the tegmina is conspicuously darkened. This is conspicuous in the males discussed below, but weak or absent in the other females. Length of body 47.7, length of pronotum 13.2, width of pronotum 20, length of tegmen 48.7, width of tegmen 19.5 mm.

The material which we determine as *fusiformis* belongs to the Brazilianus Group of the genus, to which we also refer *brasilianus* Saussure, *anisitsi* Brancsik and *scutatus* Saussure and Zehntner. It is larger than the others (considerably smaller than *parabolicus* Walker, a species also showing a more definitely tawny tinge than any of the present group). Close agreement is shown with the decidedly smaller *anisitsi* in the cingulation of the caudal margin of the pronotum being dark from shoulder to shoulder though the pronotal escutcheon does not expand caudad in any of the specimens before us. Three small pale marks in the black escutcheon are present in a female from Caiza, Bolivia and less definitely in a male from San Francisco,

<sup>5)</sup> The forms related to this species are poorly understood and the description of *fusiformis* is vague. If our specimens are correctly determined it is possible that *anisitsi* is a synonym, based on material showing decided depauperation.

Bolivia<sup>6)</sup> belonging to the Academy. The pronotal escutcheon is solidly black in a series from Provincia Sara and Santa Cruz de la Sierra, Bolivia, and Corumba, Matto Grosso, Brazil in the author's collection.

***Blaberus minor* Saussure.**

We are satisfied that Saussure's *fraterna* is a synonym. This is the common species of northern Argentina.

San José, Formosa, Argentina, X. 1925, 1 ♂, 1 ♀, 1 juv. ♂, 2 juv. ♀. Mission Tacaaglé, Formosa, Argentina, XI. 1925, 1 ♂.

**Mantidae.**

**Parathespiinae.**

***Musoniella argentina* (Saussure).**

Tapikiolé (La Urbana), Formosa, Argentina, XI. 1925 to I. 1926, 1 ♂.

***Eumusonia livida* (Serville).**

We believe that Giglio-Tos has described the green color phase of this species as *viridis* and so placed that name as a synonym. In 1920 Rehn stated that *viridis* was quite close and noted that both brown and green color phases are represented in our series from Sapucay, Paraguay. In the green and some of the brown specimens of that series the tegminal cross-veins are not darkened toward their intersection with the principal veins; that marking is weakly indicated in one brown male and decidedly in two brown males from Puerto Cantera, Paraguay and Misiones, Argentina in the Academy collection.

San José, Formosa, Argentina, X. 1925, 1 ♀, (brown with tegminal cross veins dark at intersections).

**Photininae.**

***Coptopteryx argentina* (Burmeister).**

Yunka viejo, Formosa, Argentina, I. and II. 1926, 2 ♂.

***Coptopteryx thoracica* Rehn.**

Tapikiolé (La Urbana), Formosa, Argentina, XII. 1925 to I. 1926, 2 ♂.

<sup>6)</sup> These specimens were recorded as the very distinct *atropos* Stoll by Giglio-Tos in 1897; a pair so recorded from San Lorenzo, Bolivia, in the Academy collection, we believe are instead referable to *anisitsi*. Certain it is that *atropos* does not occur anywhere in the regions under consideration.

***Brunneria longa* Giglio-Tos.**

San José, Formosa, Argentina, X. 1925, 1 ♂. Escondido, Rio Pilcomayo, Formosa, Argentina, III. 1926, 1 ♀. Villa Montes, Chuquisaca, Bolivia, V. 1926, 2 ♂.

These specimens agree closely with a series from Formosa, Argentina, and Provincia Sara and Santa Cruz de la Sierra, Bolivia, in the Philadelphia collections. All are very elongate, have a heavy dark suffusion between the bases of the cephalic limbs and the first and third discoidal spines of the cephalic femora are blackish with a distal brown annulus.

***Orthodorella ornata* Giglio-Tos.**

Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♂.

**Epaphroditinae.*****Decimia tessellata* (Charpentier).**

Giglio-Tos correctly placed *Plesiacanthops rehni* Chopard as a synonym in 1927.

San José, Formosa, Argentina, X. 1925, 1 ♂, 1 ♀. Fortin Esteros, Rio Pilcomayo, Chaco Boreal, VI. 1926, 1 ♂. Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♂.

These specimens agree closely with Giglio-Tos' measurements except one San José male which is larger. That specimen is, however, smaller than the smallest of our Paraguayan series, which range from that size to very much larger. The material here recorded is also more slender with head and pronotum of the female more decidedly tuberculate.

**Vatinae.*****Pseudoxyops diluta* (Stoll).**

Trinidad near Asunción, Paraguay, VIII. 1925, 1 ♀.

This specimen is slightly smaller than those measured by Giglio-Tos and the median and caudal femora are suffused with brownish and bi-annulate with green. We do not believe that the latter feature can be used as a specific character, as that author has done. The cephalic tibiae have nine and nine ventro-external spines (not counting the distal spur). Length of body 43.5, length of pronotum 14.6, length of metazona 10.8, length of tegmen 22.8, width of tegminal costal field 4.7, length of caudal femur 12.9 mm.

***Pseudoxyops boliviana* Giglio-Tos.**

Tapikiolé (La Urbana), Formosa, Argentina, XII. 1925 to I. 1926, 1 ♀.

The cephalic tibiae have eight and nine ventro-external spines (not counting the distal spur). Length of body 32.2, length of pronotum 11.7, length of metazona 8, length of tegmen 14.7, width of tegminal costal field 3, length of caudal femur 11.5 mm.

***Stagmatoptera hyaloptera* (Perty).**

Yunka viejo, Formosa, Argentina, I. and II. 1926, 2 ♀. Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♂.

***Hagiotata hofmanni* Saussure and Zehntner.**

Fortin Linares, Rio Pilcomayo, Chaco Boreal, Bolivia, IV. 1926, 1 ♀. Villa Montes, Chuquisaca, Bolivia, VI. 4. 1926, 1 ♂, [Hebard Cln.].

The superficial resemblance to *Pseudovates iheringi* Saussure and Zehntner is remarkable, considering how very widely distinct the present insect is in the sharply conical lateral ocellar processes and irregular foliaceous lateral lobes of the four abdominal tergites. The pronotal expansion is more abrupt and definite and the marginal teeth of the pronotum are slightly heavier. No one has previously noted that the median femora bear proximo-mesad on their extensor surfaces a very low but appreciable lobe and weak but noticeable swelling can be seen on the caudal femora at that point.

The contrast between the sexes is much the same as in *P. iheringi*. Here, however, the hyaline dorsal fields of the male tegmina have the two brown transverse bands and scattered brown flecks (particularly distad) considerably more prominent. The present female differs from the color figure of the type in the greater pronotal expansion (possibly due to inaccuracy in drawing that figure) and more somber coloration, the pale tegminal areas being dirty white with only a very faint trace of greenish. It is also a larger specimen<sup>7)</sup> but otherwise agrees fully with the original description.

Length of body ♂ 66, ♀ 64.5; length of pronotum ♂ 22.8, ♀ 25.7; length of metazona ♂ 18.4, ♀ 20; width of pronotal expansion ♂ 4.9, ♀ 5.8; length of tegmen 41.3, ♀ 41; width of

<sup>7)</sup> Even greater size variation is shown by the series of *P. iheringi* before us.

tegmina costal field ♂ 1.9, ♀ 1.9; length of caudal femur ♂ 12.4, ♀ 13.7 mm.

**Acrididae.**

**Acridiinae.**

**Tettigidae.**

***Micronotus caudatus* (Saussure).**

Mision Tacaaglé, Formosa, Argentina, XI. 1925, 3 ♂, 1 ♀.

**Metrodoraе.**

***Sclerotettix infuscatus* Bruner.**

Rio Pilcomayo, Bolivia, V. 1926, 1 ♀.

We are satisfied that this species and Bruner's closely related *minor* are not synonyms of species of *Micronotus*, as Hancock supposed in 1914. Though they represent a very distinct phylum from that of the genotype *Sclerotettix tibialis* Bruner, they all belong to the Metrodoraе and are widely distinct from *Micronotus* as shown by the narrow fastigium, definitely flaring rounded latero-caudal angles of the pronotal lateral lobes, very faintly indicated medio-longitudinal carina of the pronotum, equal first and third tarsal joints and other important features.

Compared with a male referred by us to *Crimisius patruus* Bolivar from Obidns, Brazil, in the author's collection, the present insect is readily distinguished by the much less retreating face, narrow interocular space, feebly but distinctly convex dorsum of the pronotum, more strongly lobate median femora with a decided pre-median concavity of the broad ventral lamella which does not exist in that insect and more definitely bilobate dorsal carina of the median tibiae (though very small in *S. infuscatus* they are merely suggested in *C. patruus*).

**Eumastacinae.**

***Eumastax boliviana*, new species.** Plate I, figure 1.

This insect is apparently very closely related to *E. vittata* Burr., differing mainly in the male subgenital plate which has its entire ventral surface evenly convex.

A series of three males and seven females which we believe represent *vittata* from Santa Cruz de la Sierra, Bolivia, differ from Burr's description in almost or wholly lacking a dark band dorsad on the pronotal lateral lobes. In addition the rounded latero-caudal angles of those lobes are definitely less



than rectangular and the medio-longitudinal carina of the male subgenital plate is distal, terminating before reaching a median point on the surface of that plate.

The specimen of the species here described shows the dorsal bands of the pronotal lateral lobes only weakly, their latero-caudal angles being exactly as in the Santa Cruz series of *vittata*.

Type: ♂; Buena Vista, Chuquisaca, Bolivia, August 1926. (Lindner). [Württembergische Naturaliensammlung, Stuttgart].

Size and form medium for this group of small and very slender species. Frontal costa with slender lateral carinae moderately decided and nearly parallel on face, terminating at the low triangular scutellum above the clypeus; lateral carinae of face equally prominent. Pronotal disk with a very weak but percurrent medio-longitudinal carina; caudal margin of disk weakly produced, very broadly obtuse-angulate with sides very feebly convex; lateral lobes with caudal margin vertical, ventro-caudal angle moderately broadly rounded, forming an angle of distinctly less than ninety degrees, due to the fact that the ventral margin is oblique-declivent caudad. Tegmina and wings fully developed, hyaline, extending briefly beyond apex of abdomen and reaching almost to bases of genicular areas of caudal femora. Apex of abdomen clavate. Supra-anal plate with produced, acute-angulate apex. Cercus moderately elongate, simple, cylindrical, weakly in-curved, tapering to near the rounded apex. Subgenital plate with surface quite evenly convex; dorsal margins convex, meeting so that in caudal aspect the plate appears U-emarginate, that area occupied by integument which appears to be chitinous. Limbs as characteristic of the genus.<sup>8)</sup>

Coloration. Occiput and genae and all but two proximal antennal joints blackish brown; the genae paling ventrad to dull greenish buff and traces of irregular postocular and median lines of that color; two proximal antennal joints cream color with apex of the second tinged with greenish. Face, including subocular areas beyond lateral carinae, clear apricot yellow. Mouthparts greenish becoming dull greenish buff laterad. Pronotum analine yellow (duller and darker than face) with lateral margins of disk and lateral lobes ventrad slightly paler, the

<sup>8)</sup> See Hebard; Trans. Amer. Ent. Soc., XLIX, p. 179 (1923), for description of caudal metatarsus.

latter tinged with brown dorsad with dorsal margin inconspicuously suffused with mummy brown (forming a weak band; heavier, described as „vitta nigra“ in the type of *vittata*). Pleura, abdomen and femora analine yellow, the abdomen with two faint longitudinal brownish bands on each side between which it is apricot yellow proximad, while the apex, including the eighth sternite and corresponding tergite, is wholly mummy brown. Caudal femora with carinae and apices black. Caudal tibiae with sides dark brown paling distad, with a very small vague trace of paling meso-proximad and margins and apices black. Tarsi greenish. Ventral surface analine yellow becoming greenish on abdomen.

Length of body (abdomen extruded) 15.8, length of pronotum 2.6, length of tegmen 12.8, distal (greatest) width of tegmen 1.8, length of caudal femur 11.2 mm.

### Proscopinae.

#### *Tetanorhynchus bihastatus* Rehn.

This insect belongs to the group of species in which the fastigium of the female is not distinctively differentiated from that of the male. A large series is before us from Santa Cruz de la Sierra and Provincia Sara, Bolivia, differing from the original series (from Corumba, Matto, Grosso, Brazil) in averaging larger and more robust, with mesonotum and metanotum not swollen, and surface more definitely impresso-punctate.

We have compared the type of *bihastatus* with that of *smithi* Rehn, both in the National Museum, and find the latter to represent a closely related but apparently distinct species. It is larger and distinctly heavier with mesonotum and metanotum distinctly swollen (not so in *bihastatus*) and the male subgenital plate is one and one-fifth the length of the preceding tergite (one and three-fifths that length in the male type of *bihastatus* and so decidedly longer). The type of *smithi* agrees more nearly with our Bolivian material of *bihastatus* in size, heaviness and more impresso-punctate surface. The species is therefore separated largely on the enlargement of the mesonotum and metanotum and the decidedly shorter male subgenital plate.

#### *Tetanorhynchus humilis* Giglio-Tos.

Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♂, 2 ♀.

The male agrees very closely with a paratypic male from Caiza, Bolivia, in the Academy of Natural Sciences collection, except in being slightly larger. These are distinctly more robust than a male in that collection from Misiones, Argentina.

***Tetanorhynchus sublaevis* Bruner.**

Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♂.

A large series from Santa Cruz de la Sierra, Bolivia, in the author's collection average larger and distinctly more robust than a pair of paratypes from Corumbá, Matto Grosso, Brazil in the collection of the Academy of Natural Sciences. The present male is larger than any of these. Length of body 82, length of vertex 5.6, length of pronotum 16.7, width of pronotum caudad 2.7, length of caudal femur 26, length of subgenital plate 5.5 mm.

Two males, one from Piequete, Sao Paulo, Brazil in the latter collection and one labelled simply „Brazil“ in the former collection agree fully with the originally described male. They are much smaller and more slender than the present specimen and have the fastigium distinctly though weakly decurved instead of feebly deflexed. So variable are the species of this genus that we are satisfied it would be unwise to consider the Bolivian insect a distinct species.

***Tetanorhynchus borellii* Giglio-Tos.**

Villa Montes, Chuquisaca, Bolivia, V. 1926, 1 ♀.

This specimen agrees fully with a female of a paratypic pair from Caiza, Bolivia, in the Academy of Natural Sciences collection.

***Tetanorhynchus insignis*, new species.** Plate I, figures 2 to 5.

This remarkable insect is nearest *borellii*, that species being quickly distinguishable by the less prominent eyes, much longer fastigium (greatly exceeding the remaining dorsal length of the head in the female) with its remarkable cruciform apical enlargement similar but less suddenly developed and caudal tibiae not at all or very faintly annulate with the teeth of their dorsal margins normal.

Type: ♀; Escondido, Rio Pilcomayo, Formosa, Argentina. March, 1926. (Lindner). [Württembergische Naturaliensammlung, Stuttgart].

Size large for the genus of large and very slender species. Fastigium longer than remaining dorsal portion of head, quadrate, medio-longitudinally weakly carinate laterad in proximal

portion, with lateral margins carinate particularly ventrad to distal two-fifths where all carinae become suddenly foliaceous, this expanded portion slightly longer than wide and cruciform when seen from in front. Eyes prominent, slightly more so than in *borellii*. Antennae extending to near median portion (or in a paratype to base) of enlarged apex of fastigium; first joint about half as long as eye. Pronotum and dorsal surface to near median portion of abdomen impresso-punctulate, the former with a small node on each side of cephalic margin of dorsum (obsolete in one paratype, stronger in one paratypic female<sup>9</sup>). Tegmina and wings absent. A definite suture is seen between pronotum and prosternum as in *borellii*.<sup>10</sup> Ovipositor jaws stout, as in *borellii*. Caudal femora feebly thickened, smooth, with a decided dorsal tooth at apices on each side. Caudal tibiae strongly quadriannulate, with dorsal margins heavily armed with broad triangular teeth (thirteen and seventeen internal, thirteen and thirteen external<sup>11</sup>), only the distal teeth being of the usual simple type; ventral margins armed distad with (four and four internal and six and four external) minute slender teeth.

Allotype: ♂; same data as type.

Very different from female, size very much smaller and form very much more slender. Fastigium about two-thirds length of remaining portion of head, gently decurved, quadrate, with lower margins carinate, evenly tapering to the acute apex (so differing surprisingly from this sex of *borellii*) which well surpasses the antennae. Eyes slightly more prominent than in female. Antennae with first joint slightly less than half as long as eye. Pronotum and median segment very weakly and very finely impresso-punctulate medio-longitudinally, the former without nodes latero-cephalad. Organs of flight absent. Supra-anal plate small, short and bluntly shield-shaped, more so than in *borellii*.

<sup>9</sup>) We believe, for this reason, that *Cephalocoema gigantea* Giglio-Tos is a synonym of that author's *Cephalocoema magna* (distinguished by the lesser size and attenuation and presence of such nodes).

<sup>10</sup>) This was supposed to separate certain genera, but has been found to have no value for that purpose. In consequence, the actual generic position of many species of this group should be carefully checked before recording material.

<sup>11</sup>) In female paratype thirteen and seventeen internal and twelve and thirteen external, and in other female twelve and fourteen internal and thirteen and fourteen external.

Cerci short, simple, cylindrical, as in that species. Subgenital plate acute-angulate produced to the finely bifid apex with a very strong medio-longitudinal carina as in *borellii*, but very much shorter, decidedly shorter instead of much longer than the bulbous preceding sternite. Limbs much as in female but spines of caudal tibiae normal (dorso-internal fourteen and fourteen, dorso-external fourteen and fourteen; ventro-internal four and four, ventro-external six and seven).

General coloration of female slate and gray, like bark. Thorax grayish mottled with slate in type, this weaker in other specimens. Abdomen slate dotted with darker and with black dots mesad at caudal margins particularly of proximal tergites, all tergites, with a broad distal suffusion of grayish (this weak in paratype). Eyes brown. Cephalic femora and tibiae brownish gray, each with three moderate annuli of brown. Caudal femora weakly mottled but caudal tibiae with four conspicuous slaty black annuli; the spines black, those in the annuli more foliaceous than elsewhere.

Male more brownish. Cephalic and median limbs light olivaceous with tibiae and tarsi showing two annuli of madder brown (deep pinkish), the apex (where a third annulus is present in females) weakly darkened. Caudal tibiae similarly colored with two annuli prominent and a third very weak.

The paratypic female agrees closely with the type in measurements. Those of the latter are here followed by those of the Samuhuate female. Length of body ♂ 66, ♀ 106 and 127; length of fastigium ♂ 4.2, ♀ 6.8 and 8.5; width of distal expansion of fastigium ♀ 3.6 and 3; length of pronotum ♂ 16.8, ♀ 22.3 and 26.8; least width of pronotum ♂ 1, ♀ 3.1 and 3; length of cephalic femur ♂ 10.8, ♀ 13 and 15; length of caudal femur ♂ 21.8, ♀ 28.7 and 33.7; greatest width of caudal femur ♂ 0.8, ♀ 1.8 and 1.9 mm.

The Samuhuate female is not only decidedly larger but has the fastigium more elongate with apex less expanded. Individual variation to equal or even greater degree is found in many species of the group, making the distinguishing of such a much harder task than would otherwise be the case.

Specimens Examined: 4; 1 male and 3 females.

Samuhuate, Chaco Boreal, Bolivia, IV. 24, 1926, 1 ♀.

Escondido, Rio Pilcomayo, Formosa, Argentina, III, 1926, 1 ♂, 1 ♀, type and allotype.

Fortin Esteros, Rio Pilcomayo, Chaco Boreal, Bolivia, III, 1926, 1 ♀, paratype.

***Cephalocoema costulata* Burmeister.**

San José, Formosa, Argentina, X, 1925, 2 ♂, 1 ♀.

***Cephalocoema lineata* Brunner.**

Yunka viejo, Formosa, Argentina, I and II, 1926, 1 juv. ♂, 1 juv. ♀.

These specimens show that in this stage (length 57 and 67 mm respectively) the medio-longitudinal carina is prominent from base of subgenital plate to base of production of vertex. We have a larger, possibly adult, male (length 83.5 mm) from Tucuman, Argentina, in which there is a black percurrent line without trace of median carina on pronotum and abdomen but there is a faint medio-longitudinal sulcation bounded by deep carinae, which specimen is close or referable to *lancia* Burmeister. That author clearly intended his female as type, taken at Challao near Mendoza, Mendoza, Argentina. It had seemed quite probable that Burmeister had overlooked the carina, used as a major feature for separating *lineata* from *lancia*, but the present evidence suggests that both may be valid species. Much material is needed to determine the degree of individual variation and number of species which belong to this group, including among the most remarkable of grasshoppers.

**Acridinae.**

***Eutryxalis gracilis* (Giglio-Tos).**

Escondido, Rio Pilcomayo, Formosa, Argentina, III, 1926, 1 ♂, (brown).

***Paratryxalis filatus* (Walker).**

San José, Chiquitos, Bolivia, IX, 1926, 1 ♀.

This specimen has the pronotal carinae cream color and is moderately longitudinally streaked. This color phase was described from Carcarana, Argentina, by Brunner in 1900 as *Eutryxalis minor* and we place that name in the present synonymy.

***Amblytropidia robusta* Bruner.**

Junka viejo, Formosa, Argentina, I and II, 1925, 1 ♂, 2 ♀.

***Dichromorpha australis* Bruner.**

Lapango, Formosa, Argentina, XII, 1926, 1 ♀. Junka viejo, Formosa, Argentina, I to II, 1925, 1 large juv. ♀, (brown).

The adult represents a beautiful color phase; green laterad, brown above with broad lateral bands of buff.

***Staurorhectus longicornis* Giglio-Tos.**

Junka viejo, Formosa, Argentina, I to II, 1925, 1 ♂, 1 ♀.

***Scyllina picta* (Bruner).**

Junka viejo, Formosa, Argentina, I to II, 1925, 1 ♀.

This is a large, dark and boldly marked specimen (length, to end of tegmina 47.7 mm). The pale tegminal band is light green. The caudal femora show the usual striking markings; their ventral surfaces are purple distad before the broad white annulus, this extending proximad along the median carina but the surface there otherwise pink. The caudal tibiae are orange proximad with a proximal black annulus, meso-proximad they are orange dorsad but elsewhere dark brown changing gradually to purple in all of distal third.

***Scyllina instabilis* Rehn.**

„La Germania“, Centr. Argentina, VII, 1925, 1 ♂.

The stocky build, regular tegminal maculations without a pale streak and solidly deep blue ventral surfaces of the caudal femora show this to be a very distinctive species. In the present specimen the caudal tibiae are buff with an orange tinge, becoming purplish pink in distal third.

**Oedipodinae.*****Trimerotropis pallidipennis* (Burmeister).**

Tres Pozos, Rio Pilcomayo, Chaco Boreal, IV, 1926, 1 ♀. Fortin Esteros, Rio Pilcomayo, Chaco Boreal, Bolivia IV, 1926, 1 ♀.

**Pauliniinae.*****Paulinia acuminata* (De Geer).**

Junka viejo, Formosa, Argentina, I and II, 1926, 1 ♂.

**Ommexechinae.*****Ommexecha macroptera* Blanchard.**

Upper Rio Pilcomayo, Bolivia, V, 1926, 1 ♀.

Not only are we convinced as to the identity of this specimen, but we also find that *O. giglio-tosi* Bolivar is a sy-

nonym. This is shown by clearly conspecific material; a pair from Caiza, Bolivia, paratypes of *giglio-tosi* in the Academy of Natural Sciences collection and a large series from Santa Cruz de la Sierra and Provincia Sara, Bolivia, in that of the author. It is of interest to note that Bruner reported it as *giglio-tosi* from the former locality in 1913 and as *macroptera* from the latter area in 1919.

Considerable variation occurs in size, degree of rugosity, production of the genicular spines of the caudal femora and intensity of the black markings on the inner faces of the latter. A green color phase occasionally occurs in this normally brown insect.

### **Cyrtacanthacrinae.**

#### ***Coryacris diversipes* Rehn.**

Fortin Esteros, Rio Pilcomayo, Chaco Boreal, Bolivia, IV, 1926, 1 ♂. Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♀.

This insect was synonymized by Bruner in 1911 under his *angustipennis*, but a paratype of that insect from Cuyaba, Matto Grosso, Brazil, in the Academy of Natural Sciences collection, shows weak distal tegminal maculation and we believe it to be distinct. Bruner's *conspersipennis* is a much larger insect with much stronger and more extensive tegminal maculation.

To the present species belong the Misiones, Argentina, specimens recorded as *angustipennis* by Rehn in 1915.

#### ***Elaeochlora viridicata* (Serville).**

Mision Tacaaglé, Formosa, Argentina, XI, 1925, 1 ♂, 1 ♀. Tapikiolé (La Urbana), Formosa, Argentina, I, 1926, 1 ♀. Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♀.

#### ***Prionolopha serrata* (Linnaeus).**

San José, Formosa, Argentina, X, 1925, 1 ♀.

#### ***Diedronotus laevipes* (Stål).**

Tapikiolé, Formosa, Argentina, I, 1926, 1 ♂, 2 ♀.

#### ***Chromacris miles* (Drury).**

Junka viejo, Formosa, Argentina, I and II, 1926, 2 ♀. Villa Montes, Chuquisaca, Bolivia, 2 ♂.

#### ***Zoniopoda cruentata* (Blanchard).**

Tapikiolé, Formosa, Argentina, I, 1926, 2 ♂, 3 ♀. Junka viejo, Formosa, Argentina, I and II, 1926, 1 ♂.



***Zoniopoda omnicolor* (Blanchard).**

Tapikiolé, Formosa, Argentina, I, 1926, 2 ♂, 1 ♀.

***Tropidacris latreillei* (Perty).**

Villa Montes, Chuquisaca, Bolivia, 1 very large juv. ♂, 1 very large juv. ♀.

***Leptysma obscura* (Thunberg).**

La Crescencia, Chiquitos, Bolivia, IX, 1926, 1 ♀.

***Leptysmina gracilis* Bruner.**

Junka viejo, Formosa, Argentina, I and II, 1925, 2 ♂, 2 ♀.

These males agree fully with topotypic males taken with the types at Corumba, Matto Grosso, Brazil, in the Academy of Natural Sciences collection. The latter were recorded as *L. rosea* Giglio-Tos by Rehn in 1909.

***Abracris obliqua* (Thunberg).**

San José, Chiquitos, Bolivia, IX, 1926, 1 ♀.

Rehn in 1916 synonymized *A. signatipes* Brunner, described from Sapucay, Paraguay, and recorded from Corumba, Matto Grosso, Brazil, by Bruner in 1911.

***Osmilia violacea* (Thunberg).**

San José, Chiquitos, Bolivia, IX, 1926, 1 ♀.

***Osmiliola aurita* Giglio-Tos.**

San José, Chiquitos, Bolivia, IX, 1926, 1 ♂.

***Schistocerca paranensis* (Burmeister).**

San José, Formosa, Argentina, X, 1925, 1 ♂ (migratory phase), 1 ♀ (sedentary phase). Mision Tacaaglé, Misiones, Argentina, XI, 1925, 1 ♂ (migratory phase). Junka viejo, Formosa, Argentina, I and II, 1926, 1 ♂, 1 ♀ (sedentary phase). Fortin Esteros, Rio Pilcomayo, Chaco Boreal, Bolivia, IV, 1926, 1 ♀ (sedentary phase).

***Trigonophymus exilis* (Giglio-Tos).**

Junka viejo, Formosa, Argentina, I and II, 1926, 1 ♂.

***Trigonophymus schulzi* Bruner.**

Junka viejo, Formosa, Argentina, I, 1926, 1 ♂, 1 ♀ (in coitu).

Though agreeing generally very closely with the male and in particular in the striking tricoloration of the caudal femora, the present female differs from that specimen in having the post-ocular dark bar broken by the brown general coloration, the tegmina uniform brown (instead of buffy dorsad, blackish

laterad) and with dark dorsal portion of external pagina of the caudal femora brown with weakly defined darker oblique bands (this area solidly blackish in the male). These are evidently sexual differences, but unusually decided for such.

***Leiotettix sanguineus* Bruner.**

Mision Tacaaglé, Formosa, Argentina, XI, 1925, 1 ♂, 1 ♀.

***Scotussa rubripes* Bruner.**

San José, Formosa, Argentina, X, 1925, 1 ♀.

A key to the South American species of *Melanoplis* which have been referred to *Paradichroplus* and their allies.

For many years a number of South American species were referred to *Paradichroplus*. In 1917<sup>12)</sup> we established that name as a synonym of the genus *Pedies*, and for some time we have realized that this left all the South American species except *andeanus* with no available generic name. All available material has now been assembled, which shows the presence in South America of four previously unrecognized genera related to *Pedies*.

A. Caudal femora normal.

B. Pronotum with disk distinctly delimited by contour from lateral lobes. (Caudal femora unarmed meso-dorsad at apex. Pronotum with disk decidedly medio-longitudinally carinate (this very weak and present only on metanotum in *andeanus*), its caudal margin truncata (or weakly obtuse-angulate produced in *variabilis*). Face retreating, fastigium projecting. Tegmina greatly reduced, lanceolate or represented by rounded pads. Mexico and Peru.

*Pedies* Saussure.

Genotype, by monotyp *virescens* Saussure.

(Includes *virescens* Saussure, \**mexicanus* (Bruner)<sup>13)</sup>, \*\*\**variabilis* (Scudder), \*\**andeanus* (Caudell).

BB. Pronotum with disk rounding evenly into lateral lobes. (Pronotum with disk lacking a medio-longitudinal carina except in males of some species<sup>14)</sup>, its caudal margin concave

<sup>12)</sup> Proc. Acad. Nat. Sci. Philadelphia, 1917, p. 253.

<sup>13)</sup> An asterisk before a specific name indicates that we have material of the species in the Philadelphia collections, two asterisks that we have paratypic material and three that we have the type.

<sup>14)</sup> And possibly in both sexes of *Pseudoscopus*

or broadly obtuse-angulate emarginate. Tegmina very greatly produced, represented by minute, very elongate („filiform“) pads.

C. Caudal femora unarmed meso-dorsad at apex.

D. Head not conspicuously larger than is usual. Face retreating. Male abdomen not thickened distad. Male cerci heavy, lamellate beyond base, directed suddenly dorsad. General appearance suggesting the North American genus *Aptenopedes*. Northern Argentina and Paraguay.

*Neopedies*, new genus.

Genotype, by monotypy, *\*\*brunneri* (Giglio-Tos).

DD. Head conspicuously larger than is usual. Face little retreating. Male abdomen thickened distad. Male cerci moderately heavy, directed dorso-caudad and distad curving inward. General appearance suggesting *Parascopas*. Northern Argentina.

*Pseudoscopas*, new genus.

Genotype, *\*\*\*nigrigena* (Rehn).

CC. Caudal femora armed with a minute spine meso-dorsad at apex. (Face little retreating. Male abdomen thickened distad; this, if pronounced, much more decided vertically than horizontally. Male cerci not lamellate, of various types.) Northern Argentina, Paraguay, southwestern Brazil and eastern Bolivia.

*Propedies*, new genus.

Genotype, *\*bipunctatus* (Giglio-Tos).

(Includes *\*bipunctatus* (Giglio-Tos), *\*bilobus* (Giglio-Tos), *\*fusiformis* (Giglio-Tos), *geniculatus* (Bruner), *sanguineus* (Bruner), *\*rubripes* (Bruner), *\*olivaceus* (Bruner).<sup>15)</sup>)

AA. Caudal femora with margins lamellate distad, otherwise as in *Propedies*.

*Apacris*, new genus.

Genotype, *\*aberrans* (Giglio-Tos).

From the descriptions we believe that Bruner's *subaquaticus* and *steinbachi* are synonyms of *Apacris aberrans*.

Giglio-Tos in 1898 erected the genus *Chlorus* to include his *Paradichroplus borellii* and *Pezotettix varicolor* Stål. That year Scudder referred *varicolor* to *Paradichroplus*, but in 1923 the author found that Colombian species to be a member of his *Chibchacris*. Neither *Chlorus* or *Chibchacris* belong to the group here under consideration.

<sup>15)</sup> Material representing at least four other undescribed species of this genus is before us.

***Propedies bilobus* (Giglio-Tos).**

Tapikiolé, Formosa, Argentina, I, 1926, 1 ♂, 1 ♀ (in coitu).  
Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♂, 1 ♀ (in coitu).

The males are olive green, the females brown and the latter show darker bands on the caudal femora very weakly. Here again is unusual sexual dissimilarity.

To this species *P. bolivianus* (Bruner)<sup>16)</sup> is nearest, having the male abdomen even more strikingly vertically thickened distad, the cerci much shorter and the furcula narrower and very strongly divergent.

**Tettigoniidae.**  
**Phaneropterinae.**

***Hyperophora peruviana* Brunner.**

San José, Formosa, Argentina, X, 1925, 3 ♂ (green). Tapikiolé, Formosa, Argentina, XII, 1925 and I, 1926, 2 ♂ (one green, one brown).

***Ligocatinus sordidum* Rehn.**

Villa Montes, Chuquisaca, Bolivia, V, 1, 1926, 1 ♀.

***Gymnocera argentina*, new species.** Plate I, figure 6.

This species is near *G. infuscata* (Brunner), differing in the dark markings of head, pronotum and limbs, bicolored antennae, cephalic femora no thicker than the median and dark metallic dorsal portion of abdomen.

The narrower tegmina which narrow very much more strongly at distal two-thirds and many features of coloration distinguish *argentina* from *G. elegans* Serville, to which species it may, however, be nearest in relationship.

Type: ♂; Loreto Experiment Station, Misiones, Argentina. (Dr. A. Ogloblin). [Academy of Natural Sciences of Philadelphia].

Of medium size and form (moderately robust) for the genus; tegmina not nitid. Head and pronotum much as in *elegans*, except that the lateral lobes of the latter are slightly narrower. Pronotum short, sellate (but like *elegans* and unlike *nitida* and *sphex*) with metazona deplanate, not weakly though distinctly concave. Antennae thickened gradually and weakly proximad, not plumose. Palpi with third joint considerably longer than fourth and fifth joint much longer than third.

<sup>16)</sup> A series from Santa Cruz de la Sierra and Provincia Sara, Bolivia, is in the author's collection.

Tegmina well surpassing apices of caudal femora; greatest width mesad, thence distinctly narrowing and then with margins parallel to the rather broadly rounded apex (which is nearer the costal margin); stridulating field narrower but otherwise very similar to that of *elegans*; median vein branching from discoidal vein just before median point (branching at that point in allotype). Wings well surpassing apices of tegmina. Genitalia much as in *elegans*. Supra-anal plate rounded shield-shaped, as long as broad; adjacent area of preceding tergite concave. Cerci elongate, simple, weakly incurved; rounded apex armed dorso-internally with a few very minute inconspicuous teeth. Subgenital plate moderately produced, narrowing to the apex which is concave between the lateral rounded ridges which terminate in small conical socketed styles. Limbs much as in *elegans*, the enlargement of the cephalic tibiae well but not abnormally developed (as it is in some species of the genus).

Allotype: ♀; Tapikiolé (La Urbana), Formosa, Argentina. December 1925 to January 1926. (Lindner). [Württembergische Naturaliensammlung, Stuttgart].

Quite similar to male, organs of flight slightly less ample. Ovipositor broadly curved.<sup>17)</sup> Subgenital plate small, triangular with bluntly rounded apex.

Head individually pinkish buff to cinnamon, genae and occiput suffused with blackish flecks and blotches. Antennae blackish chestnut brown proximad, then hazel becoming darker distad. Pronotum with ventral portion of lateral lobes individually pinkish buff to cinnamon, above this darker particularly mesad; disk moderately suffused, darker than ventral portion and lighter than dorsal portion of lateral lobes. Tegmina hazel, deepening through light chestnut brown to blackish chestnut brown distad; but there, unlike *elegans*, the venation is distinctly paler than the ground coloration. Wings tinged with hazel, with periphery broadly darker. Pleura, sides and ventral portion of abdomen individually pinkish buff to cinnamon; entire dorsal surface of the latter metallic, bluish-green black (three males), blue-black (one female). Limbs pinkish buff to cinnamon buff marked with blackish brown as follows; cephalic and median femora with lines and a series of dots and all of caudal sur-

<sup>17)</sup> In a large series before us of *elegans* the ovipositor is much shorter and is bent strongly dorsad

faces; tibiae with lines between carinae, becoming heavier distad and all of tarsi; caudal femora proximad with series of vertical streaks and dots and there dorsad in distal portion (sub-median taking whole of limb) with a large spot (this spot inconspicuous only in the type), distal portion beyond enlarged section solidly dark. In certain lights these dark markings of the limbs are faintly metallic (in *elegans* the much more extensive dark portions of the head, pronotum and limbs are nearly or fully as metallic as the abdomen dorsad).

	Length of body	Length of pro- notum	Length of tegmen	Median width of tegmen	Subapical width of tegmen	Length of caudal femur
♂						
Loreto, Misiones.	18	3.8	23	4.8	3.2	16
Misiones.	19	4	24.4	4.8	3.2	15.7
Cordoba, Cordoba.	18.8	4	24.2	4.6	3.2	14
♂						
Tapikiolé, Formosa.	19.7	4	23.3	4.7	3.2	15
<i>Gymnocera elegans</i> , typical (for comparison).						
♂						
Chacras de Coria, Mendoza.	18.6	5.3	27	6.6	5.6	16
♀						
Potrerrillos, Mendoza.	21.3	5.3	27.7	6.4	5.7	16.1

The ovipositor length of the present allotype is 7.8 mm.

The following additional material has been studied.

Misiones, Argentina, XII, 1910, (P. Jörgensen; „common“),

1 ♂, paratype, [Hebard Cln.].

Cordoba, Cordoba, Argentina, 1920, (E. Giacomelli), 1 ♂,  
[Acad. Nat. Sci. Phila.].

*Tomeophora breviostris* Bruner. Plate I, Figure 7 and 8.

Fortin Linares, Rio Pilcomayo, Chaco Boreal, Bolivia, IV,  
1926, 1 ♂.

Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♂.

The latter specimen is much the larger, but otherwise agrees closely with the other. Length of body 16.5 and 22.5, length of pronotum 4.2 and 4.5, length of tegmen 23 and 26.3, width of tegmen 8.3 and 9.1, length of caudal femur 12.5 and 14 mm.

This species shows very strong divergence toward *Viadana*. From *T. puguincolata* Brunner it differs in the more slender distal portion of the vertex with base more suddenly narrowed and its dorsal surface there more impressed, pronotum with medio-longitudinal carina present only caudad, tegmina much more coriaceous and much broader with veins of marginal field weak and not in the same alignment with the median vein and two discoidal sectors. The cerci are similar in these species; simple, elongate, incurved, with apices slightly thickened and terminating in a minute tooth.

***Pycnopalpa bicordata* Serville.**

Villa Lutecia, near San Ignacio, Misiones, Argentina, I to IV, (E. R. Wagner), 1 ♂, [Paris Mus.]. San José, Formosa, Argentine, X, 1925, 1 ♂.

This remarkable little species is now known from Vera Cruz, Mexico south to the above localities.

**Pseudophyllinae.**

***Lichenochrus hilaris* Brunner.**

Loreto Experiment Station, Misiones, Argentina, (Dr. A. Ogloblin), 2 ♂, [Acad. Nat. Sci. Phila.]. Icano, Santiago del Estero, Argentina, (E. R. Wagner), 2 ♂, 2 ♀, [Paris Mus.]. Palisa del Bracho, 26 km northeast of Icano, Santiago del Estero, Argentina, (E. R. Wagner), 2 ♂, 2 ♀, 1 large juv. ♀, [Paris Mus.]. Provincia Sara, Bolivia, 450 meters, 1922, (J. Steinbach), 1 ♂, 1 ♀, [Hebard Cln.]. Santa Cruz de la Sierra, Bolivia, Santa Cruz, Bolivia, VII, 31, 1926, 1 ♂, [Hebard Cln.]. Villa Montes, Chuquisaca, Bolivia, V, 15, 1926, 1 ♂, 1 ♀.

In this series the discoidal vein of the tegmina is green except in two males and one female where discoloration has apparently occurred. The face varies individually from buff through slate to blackish (the latter color phase in one Loreto specimen only), the lateral carinate margins of this area rarely more yellowish than the genae.

***Typophyllum abruptum* Brunner.** Plate I, Figure 9.

El Cairo, Santa Cruz, Bolivia, VIII, 1926, 1 ♂.

The sexes can be safely associated only when much more material has been assembled. The present male is, however, definitely nearest or the same species as the female described from Bolivia as *abruptum*. Length of body 15.8, length of pro-

notum 3.9, caudal width of pronotal disk 2.8, length of tegmen 12.7, greatest width of tegmen 8.6, length of caudal femur 11.8 mm.

A female apparently representing the same species, with organs of flight distorted and undeveloped is in the author's collection from Provincia Sara, Bolivia at 450 meters, taken in 1922, by J. Steinbach.

In these specimens the cephalic femur has three lobate teeth, these as figured by Vignon for *lacinosum*<sup>18)</sup>, but with a minute tooth preceding them. The median femora have two lobate teeth and two minute teeth, just as figured for *lacinosum*; but the caudal femora only have one (in the female two) triangular teeth, preceded by minute teeth, none as prominently lobate as figured for *lacinosum*. We are satisfied that individual variation will be found in the number and degree of lobation of such teeth, but believe that *lacinosum* is a distinct though closely related species, probably best distinguished from *abruptum* in females by the more elongate tegmina with costal margin not strongly undulate and ventro-caudal angle (apex) acute-angulate produced.

### Copiphorinae.

#### Eucaulopsis, new genus.

This genus is erected to include a single species, *E. truncata* here described, and differs from *Caulopsis* Redtenbacher in having the tegminal apices truncate and concave and the caudal femora with genicular areas unarmed.<sup>19)</sup>

These genera agree in the very slender form; the fastigium elongate and weakly convex dorsad and ventro-proximad lacking a tooth and in contact with the frontal costa; the pronotum unarmed; the prosternum armed with two very elongate spines; the meso- and meta-sternum unspined, with lobes rounded triangular, and the organs of flight fully developed.

The very slender form, small size and ventro-proximal characters of the fastigium readily distinguish them from *Neonocephalus* Karny.

<sup>18)</sup> Archiv. Mus. Nat. d'Hist. Nat., Paris, (6), V, p. 132, figs. 47a to c, (1930).

<sup>19)</sup> In this feature agreement with *Conocephaloides* Perkins an *Brachymetopa* Redtenbacher, Hawaiian genera, is shown.



***Eucaulopsis truncata*, new species.** Plate I, figures 10 and 11.

The markings of this unusual insect are inconspicuous but highly distinctive.

Type: ♂; San José, Formosa, Argentina. [Württembergische Naturaliensammlung, Stuttgart].

Size large for this group of small and very slender species. Fastigium elongate, of even width to middle, thence tapering gradually to the rounded apex, in lateral aspect seen to be feebly decurved; ventro-proximal angle not projecting beyond ventral margin with sides of vertex there pinched. Head and pronotum with very shallow and fine impressed punctulae indicated, the latter with disk rounding strongly into the lateral lobes. Tegmina with stridulating area comparatively large, stridulating vein weak, all but sinistro-caudal portion of this area opaque and filled with a network of veinlets. In lateral aspect the tegmina narrow very gradually in distal half, the dorsal margin being almost straight, the ventral margin very weakly convex there; apex with truncation concave, the disto-costal angle being slightly more produced than the disto-sutural. Wings with apices rounded, concealed when at rest. Supra-anal plate small, elongate trigonal; above it the preceding tergite is deeply V-emarginate, so that its lateral portions are subrectangulate produced with apices rounded. Cerci bent suddenly inward distad, bidentate, the dorsal tooth directed over but not across the ventral arm, at the apex of which is the ventral tooth. Subgenital plate distad tricarinate, apex very weakly obtuse-angulate emarginate; styles nearly four times as long as proximal width. Ventral femoral margins unarmed except for the following very small marginal teeth; median external 1 and 2 (allotype 1 and 0), caudal external 7 and 8 (allotype 7 and 8), caudal internal 5 and 5 (allotype 3 and 5).

Allotype: ♀; same data as type.

Very similar to male, size slightly larger. Ovipositor of medium length, its width slightly greatest meso-distad. Subgenital plate (from paratype, destroyed in allotype) medio-longitudinally carinate to distal margin; sides broadly concave and weakly convergent to the moderately concave apex, so that the latero-caudal angles are almost rectangulate.

Generally light straw color with dorsum of pronotum slightly darker, this stronger laterad, there forming a fine line, the male stridulating field darkened particularly laterad. Tegmina with very minute inconspicuous dots of brown. The thorax below the pronotum shows lateral flecks of blackish brown, this increasing on the meso- and meta-thorax to form there a broader continuous marking and extending on sides of abdomen as a series of dots and flecks. Meso- and meta-sternum with a medio-longitudinal suffusion in the more intensive male.

The measurements of a paratypic female, from Formosa, Argentina, taken January 25, 1919, by P. Jörgensen, and belonging to the Academy of Natural Sciences of Philadelphia, follow those of the allotype.

Length of body ♂ 30, ♀ 32.8 and 28.3; length of fastigium (from cephalic margin of eye to apex) ♂ 3.6, ♀ 4 and 3.8; length of pronotum ♂ 7.8, ♀ 7 and 6.4; caudal width of pronotal disk ♂ 3.8, ♀ 3.7 and 3.3; length of tegmen ♂ 32.8, ♀ 37.3 and 37.6; width of tegmen ♂ 4.7, ♀ 4.8 and 4.9; width of tegmen at apex ♂ 2, ♀ 2.3 and 2.2; length of caudal femur ♂ 14.8, ♀ 17.2 and 14.6, length of ovipositor 16.3 and 15.6 mm.

***Neoconocephalus* sp.**

Tapikiolé, Formosa, Argentina, XII, 1925 to I, 1926, 1 juv. ♀.

This specimen agrees with *parvus* in shape of fastigium and general coloration but is apparently representative of a decidedly larger species with more heavily armed ventral margins of the caudal femora.

It agrees with *brachypterus* in shape of fastigium and elongate ovipositor but the limbs are shorter and the color very different (no dark markings) unless merely a green immaculate phase is represented.

Length of fastigium (from basal tooth to apex) 1, length of caudal femur 20, length of ovipositor 32.4 mm.

**Gryllidae.**

**Gryllinae.**

***Gryllus assimilis* Fabricius.**

San José, Formosa, Argentina, X, 1925, 1 ♀, 2 juv. ♀. Tapikiolé, Formosa, Argentina, XII, 1925 to I, 1926, 1 ♂, 1 ♀. Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♀. San José, Chiquitos, Bolivia, IX, 1926, 1 ♀.

***Miogryllus verticalis* (Serville).**

Mision Tacaagl , Formosa, Argentina, XI, 1925, 1 ♂,  
(macropterous).

**Nemobiinae.*****Nemobius brasiliensis* (Walker).**

Tapikiol , Formosa, Argentina, XII, 1925 to I, 1926, 3 ♀.

***Nemobius longipennis* Saussure.**

Mision Tacaagl , Formosa, Argentina, XI, 1925, 1 ♀.

***Hemigryllus ortonii* (Scudder).**

Villa Montes, Chuquisaca, Bolivia, V, 1926, 1 ♀.

**Phalangopsinae.*****Palpigera borellii* (Giglio-Tos).**

Rio Tucubaca, Bolivia, X, 1926. 1 large juv. ♂.

**Trigonidiinae.*****Cranistus bolivianus*, new species. Plate I, figure 12.**

The general coloration of this species agrees closely with that of *canotus* (Saussure<sup>20</sup>) but wide difference is found in the antennae yellowish and not conspicuously thickened proximad, becoming dark distad without a pale annulus; the pronotum blackish along its cephalic margin and narrow ventral margins of lateral lobes not opaque yellowish; the two larger of the more translucent areas of the male tegmina homologous but considerably less extensive; the pronotum less elongate and not parallel-sided; the size smaller, the form decidedly less elongate and the limbs very much shorter.

We believe that *setosus* Burmeister,<sup>21</sup>) described from females from Buenos Aires, Argentina, is congeneric and quite probably nearest *bolivianus*, as it too has simple and non-annulate antennae. That species has head, pronotum and tegmina all reddish brown.

Burmeister's *Phylloscirtus collurides*<sup>22</sup>) is not *Cranistus collurides* St l but another distinct species of *Cranistus*, distinguished by the blackish head with occiput and pronotum reddish, the pronotum distinctly longer than wide, the male with conspi-

<sup>20</sup>) Material of *canotus* from Jujuy; Cosquin, Sierra de Cordoba, and Buenos Aires is in the Philadelphia collections.

<sup>21</sup>) Abh. Ges. Halle, XV, p. 18, pl. I, fig. 18 (1880).

<sup>22</sup>) Abh. Ges. Halle, XV, p. 16, pl. I, figs. 11 and 12 (1880).

cuous markings on the dorsal fields of the tegmina. For that species, known from both sexes from Buenos Aires, Argentina, we propose the name *burmeisteri*.

Type: ♂; Las Taperas (Ipitás), Chiquitos, Bolivia, October 17, 1926. (Lindner). [Württembergische Naturaliensammlung, Stuttgart].

Size small, form robust for this genus of slender species. Head decidedly horizontal; eye horizontal, oval, not narrower caudad as in *canotus*. Antennae simple, not thickened and strongly hirsute proximad as in *canotus*. Palpi with last joint flattened, expanding to apex and width there about three-fifths length; not as much expanded as in *canotus*, where greatest width is meso-distad. Tegmina much shorter than in *canotus*, but likewise surpassing end of abdomen and with similar venation. Wings absent (briefly to considerably surpassing tegmina in our material of *canotus*). Cerci small. Large auditory foramen present on both faces of cephalic tibiae. Caudal femora with three pairs of small spines.

Coloration is apparently very important in distinguishing the species of this genus. Head, palpi and cephalic margin of pronotum shining black. Eyes dark brown. Antennae with first joint blackish then buffy, succeeding joints buffy becoming dark brown in all but proximal portion of antennae. Pronotum rich reddish brown, the narrow outwardly curved ventral marginal portions of the lateral lobes more transparent. Tegmina shining black becoming light reddish brown latero-proximad, with two almost colorless areas in dorsal field. Abdomen and base of cerci black, the latter buffy distad. Limbs light reddish brown.

Length of body 7, total length including tegmina 7.4, length of pronotum 1.5, cephalic width of pronotum 1.16, caudal width of pronotum 1.42, length of tegmen 4.4, total dorsal width of tegmina 2.7, length of caudal femur 3.1 mm.

***Phylloscyrtus amoenus* Burmeister.**

Lapango, Formosa, Argentina, XI, 1925, 1 ♂, 1 ♀.

**Gryllotalpinae.**

***Scapteriscus tetradactylus* (Perty).**

Fortin Ballivian, Rio Pilcomayo, Chaco Boreal, Bolivia, IV, 12, 1926, 1 ♀.

***Scapteriscus vicinus* Scudder.**

San José, Formosa, Argentina, IX, 1925, 1 ♂, 1 ♀. San José, Chiquitos, Bolivia, IX, 1926, 1 ♀.

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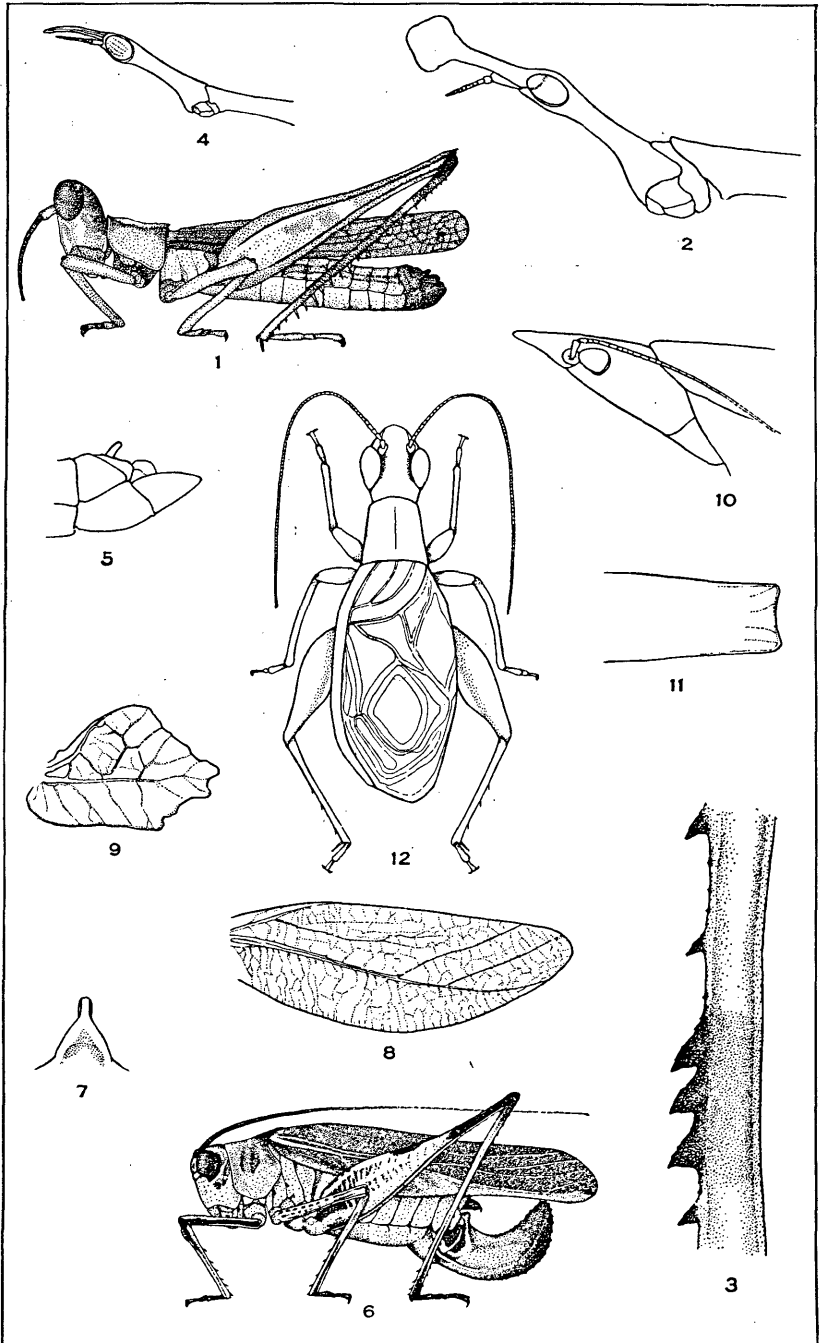


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**Plate I.**

- Fig. 1. *Eumastax boliviana* new species. Lateral view of male. Type. Buena Vista, Chuquisaca, Bolivia. (x 3).
- Fig. 2. *Tetanorhynchus insignis* new species. Lateral outline of female head. Type. Escondido, Formosa, Argentina. (x 2).
- Fig. 3. *Tetanorhynchus insignis* new species. Lateral view of part of female caudal tibia, showing section with heaviest armament. Type. Escondido, Formosa, Argentina. (x 7).
- Fig. 4. *Tetanorhynchus insignis* new species. Lateral outline of male head. Allotype. Escondido, Formosa, Argentina. (x 2).
- Fig. 5. *Tetanorhynchus insignis* new species. Lateral outline of apex of male abdomen. Allotype. Escondido, Formosa, Argentina. (x 3).
- Fig. 6. *Gymnocera argentina* new species. Lateral view of female. Type. Loreto Experiment Station, Misiones, Argentina.
- Fig. 7. *Tomeophora brevirostris* Bruner. Dorsal view of male vertex. Fortin Linares, Rio Pilcomayo, Chaco Boreal. (x 10).
- Fig. 8. *Tomeophora brevirostris* Bruner. Lateral view of male tegmen. Fortin Linares, Rio Pilcomayo, Chaco Boreal. (x 2).
- Fig. 9. *Typophyllum abruptum* Bruner. El Cairo, Santa Cruz, Bolivia. Lateral view of male tegmen. (x 2).
- Fig. 10. *Eucaulopsis truncata* new species. Lateral outline of male head. Type. San José, Formosa, Argentina. (x 3).
- Fig. 11. *Eucaulopsis truncata* new species. Lateral view of apex of male tegmen. Type. San José, Formosa, Argentina. (x 3).
- Fig. 12. *Cranistus bolivianus* new species. Dorsal outline of male. Type. Las Taperas (Ipitás), Chiquitos, Bolivia. (x 5).
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Orthoptera.



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