

appearing as a mere thickening (as is sometimes the case in species of *Oliarus*); second joint of the antennæ ringed; keels of the pronotum and scutellum very distinct, whitish; tegmina transparent, with two irregular bands across them (when closed), and sometimes other markings, and with the apical portion more or less distinctly dark internally, the veins with large dark granulations throughout; legs whitish, very neatly and regularly ringed with black.

Male with the anal tube moderately large, produced behind into a strong, sharp, curved hook; styles long, robust, almost straight, gradually dilated towards the apex, with the apices truncate.

Female with the anal tube rather long and the anal style distinct, and with a very long and strongly curved ovipositor.

Long. cum tegm. $4-4\frac{1}{2}$ millim.; lat. ad hum. $1-1\frac{1}{2}$ millim. (σ φ .)

Hab. MEXICO, Orizaba (*F. D. Godman and H. H. Smith*), Omilteme, Amula, and Chilpancingo in Guerrero, Fortin in Vera Cruz (*H. H. Smith*); GUATEMALA, San Gerónimo, San Joaquin, and Chiacam in Vera Paz, San Isidro (*Champion*).

We have also a female specimen from Juarez, N. Mexico (*Cockerell*), which closely resembles this species, but the keels of the pronotum are not so strongly angled; it is, however, in poor condition. The example figured with the wings extended is from Amula.

2. *Goniolcium testaceum*, sp. n. (Tab. XIII. figg. 9, 9 a.)

Præcedente major, carinæ frontalis bifurcatione magis distinctâ, et colore uniformi testaceo, carinisque lateralibus scutelli rectoribus distinguendus.

Mas minor, tubâ anali magnâ, processu longo acuto; stylis robustis, carinatis, antice subtruncatis utrinque plus minusve distincte productis.

Of a uniform testaceous colour, with the frontal keels lighter; the forehead is rather longer than in the preceding species, and the bifurcation of the central keel more distinct; the keels are not so strong, and those on the scutellum are straighter; the granulations of the tegmina are strong, but are less evident than in the preceding species, because of their light colour.

Male smaller, with the anal tube large, and with a sharp process behind; styles robust, keeled on the outer edge, and with the apex truncate, the truncate part being produced on each side, and on the inner side terminating in a small hook.

Long. cum tegm. 5-6 millim.; lat. ad hum. $1\frac{1}{2}$ -2 millim. (σ .)

Hab. GUATEMALA, Senahu in Vera Paz, Cerro Zunil (*Champion*).

One male and three females. The last segment of the single male obtained is not perfect, and one style is wanting, but the shape of the other is quite plain under a compound microscope, although the parts are somewhat confused.

LIBURNIA *.

Liburnia, Stål, Hemipt. Afr. iv. p. 179 (1866).

Liburnia is here regarded as including several of Fieber's genera—*Megamelus*, *Kelisia*, *Stenocranus*, &c., which appear to depend upon the relative length and breadth of

* I am much obliged to Mr. J. Edwards, of Colesborne, Cheltenham, for looking over our material of this and the preceding genus. Mr. Edwards has paid great attention to the British species of *Liburnia*, of which there are a very considerable number.

the forehead, or of the first and second joints of the antennæ. It is characterized by having the single central keel of the forehead forked just before the vertex, the furcation being sometimes very distinct, and at others very small or reduced almost to a mere minute triangular thickening. The chief characters of the majority of the species lie in the formation of the male organs and especially of the styles. They are very minute and fragile insects, and we have a considerable number of species in our collection which I have not described, owing to the fact that no males are known. The genus may be divided into groups by the form of the side-keels of the pronotum, which either reach or do not reach the basal margin: considerable care, however, and the use of a high magnifying-power are necessary in determining this character in some cases, although it is very evident in others.

I. *Lateral carinæ of the pronotum not reaching the basal margin.*

1. **Liburnia atrior**, sp. n. (Tab. XIII. figg. 10, 10 a, ♀; 11, ♂.)

Niger, pernitida, vertice parvo, oculis magnis albidis, fronte latitudine sesqui longiori, distincte carinatâ, clypeo antennisque læte flavis; pronoto brevi, carinis lateralibus marginem basalem haud attingentibus; scutello modico, tricarinato; tegminibus brevibus, venis crassis, leviter asperatis; abdomine fere lævi; corpore subtus antice et pedibus læte testaceis.

Mas minor, tubâ anali magnâ lateribus antice productis; stylis rectis, apicibus dilatatis, subfurcatis.

Femina major, stylo anali magno; ovipositore prælongo, robusto.

Very black and shining; vertex small; eyes large, whitish; forehead about one and a half times as long as broad, distinctly carinate, with the fork before the vertex strongly marked; clypeus and antennæ clear yellow; scutellum not very large, tricarinate; tegmina short and broad, with strong veins, which are slightly asperate; abdomen very shiny, almost smooth; underside in front and the legs clear yellow.

Male smaller, with the anal tube large, with the sides rounded and produced in front, and the anal style large, rounded, and projecting; styles straight or nearly so, stalked, with subtriangular dilated apices, which are broadly bifurcate.

Female larger, with the anal tube and style large; ovipositor long and robust.

Long. $2\frac{1}{2}$ –3 millim.; lat. $1\frac{1}{4}$ millim. (♂ ♀: brachypterous form only.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Several specimens.

2. **Liburnia basifuscata**, sp. n. (Tab. XIII. figg. 12, 12 a, b, ♂.)

Niger, capite modico, fronte latitudine fere triplo longiori, carinis testaceis; pronoto præbrevis, carinis lateralibus basim haud attingentibus; scutello magno, tricarinato, pronoto triplo longiori; tegminibus vitreis ad basim fusco-brunneis, venis subtilibus, fuscis; abdomine piceo; pedibus piceo-testaceis.

Mas pygofero magno postice infra producto, tubâ anali magnâ, processu infra longo acuto; stylis longis, tenuibus, apicibus paullo dilatatis.

Femina tubâ anali styloque sat magnis, segmento ultimo ventrali quadratim emarginato, laminis utrinque (nebenplatten) curvatis, testaceis.

Fuscous-black, with the head moderately large; forehead long, with testaceous keels; pronotum very short, with the side-keels turning off before the base and not reaching it; scutellum large, dull, tricarinate, three times as long as the pronotum; tegmina vitreous, with fine fuscous veins, and with the base fuscous-brown; abdomen piceous; legs pitchy-testaceous.

Male with the pygofer large, and somewhat produced behind, if viewed from the side, denticulate on its lower portion; anal tube and style large, with a long sharp process behind; styles long and rather slender, slightly dilated at the apex, enclosing an oval space.

Female with the anal tube and style conspicuous, and with the last ventral segment subquadrately emarginate, and the side-plates curved and testaceous.

Long. cum tegm. $3\frac{1}{2}$ millim.; lat. ad hum. $1\frac{1}{4}$ millim. (σ φ .)

Hab. MEXICO, Chilpancingo and Omilteme in Guerrero (*H. H. Smith*).

3. *Liburnia teapæ*, sp. n. (Tab. XIII. figg. 13, 13 *a*, *b*, σ .)

Parva, partibus anticis nigris; tegminibus nigris, nitidis, margine exteriori apicem versus vitreo-albido; capite brevi, fronte latitudine fere duplo longiori, carinâ centrali validâ, antennis sat longis, late flavis; pronoto brevi, carinis lateralibus haud basim attingentibus; scutello pronoto triplo longiori, distincte tricarinato; tegminibus venis granulatis; pedibus flavescentibus.

Mas pygofero testaceo, tubâ anali magnâ, stylo anali fusco; stylis latis robustis, apicibus late dilatatis, furcatis.

A very small species, with the front-parts black, more or less shining, the tegmina black, with the veins granuloæ, and the exterior margin towards the apex vitreous; forehead about twice as long as broad, with a strong central carina; antennæ rather long, yellow; pronotum short, with the side-keels not reaching the base; scutellum about three times as long as the pronotum; abdomen piceous; legs yellow.

Male with the pygofer broader below than above, with the anal tube large and the anal style large and fuscous; styles broad, approximate, stalked, with a dilated head which is broadly furcate.

Long. cum tegm. $2\frac{1}{2}$ millim.; lat. ad hum. 1 millim. (σ φ .)

Hab. MEXICO, Teapa in Tabasco and Vera Cruz (*H. H. Smith*).

Several males and one imperfect female.

4. *Liburnia albolineosa*, sp. n. (Tab. XIII. figg. 14, 14 *a*, *b*, σ .)

Præcedenti quod formam pygoferi stylorumque maris maxime affinis, sed fronte angustiori latitudine triplo longiori, perdistincte tricarinatâ, carinis albidis, et vittâ latâ albidâ longitudinali a vertice usque ad media tegmina extensâ, facile distinguenda.

A very pretty species, black, with a clear white band running from the front to the middle of the tegmina, including the vertex and the central part of the pronotum and scutellum, and half the suture of the tegmina; the male characters are just as in the preceding species, except that the stalks of the styles are a little longer; this, however, is due probably to their being rather more adpressed in some specimens than in others; in the female the ovipositor is very large and strongly curved, and the side-plates are curved at the apex; the forehead is very long and narrow, with three distinct white keels.

Long. $2\frac{1}{2}$ –3 millim.; lat. 1 millim. (σ φ .)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Several males and one female.

5. *Liburnia marginicornis*, sp. n. (Tab. XIII. figg. 15, 15 *a*, φ .)

Testacea, pronoto apiceque abdominis supra et infra obscuriori; capite perbrevis, vertice ante oculos vix distincte producto, perbrevis, transversus; fronte angustâ, latitudine fere triplo longiori; antennis sat longis testaceis, nigro, anguste sed distincte marginatis; pronoto brevi, carinis lateralibus haud basim attingentibus; scutello magno, nitido, convexo, tricarinato, castaneo, maculâ fuscâ utrinque pone medium; tegminibus longis, flavo-pellucidis, ad medium indistincte notatis; pedibus flavescentibus.

Femina segmentis abdominis fortiter emarginatis; ovipositore permagno, acuto.

Of a light testaceous colour, with the pronotum and the upper and under surface of the apex of the abdomen darker; head and vertex very short, the latter transverse, truncate in front; forehead narrow; antennae rather long, with the second joint three times as long as the first, flat, testaceous, clearly margined with black; pronotum short, with the lateral keel not reaching the base; scutellum large, shining, convex, tricarinate, castaneous, with a spot behind the middle and the apex fuscous; tegmina long, transparent yellowish, with obscure darker markings about the middle—these are very faint, the apparently stronger markings being covered by the dark apex of the abdomen underlying the transparent tegmina; legs yellowish.

Female with the segments of the abdomen strongly emarginate, and the ovipositor long and sharp.

Long. cum tegm. $4\frac{1}{2}$ –5 millim.; lat. ad hum. $1\frac{1}{4}$ – $1\frac{1}{2}$ millim. (♀.)

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

II. *Lateral carinae of the pronotum reaching the basal margin.*

6. *Liburnia apicimacula*, sp. n. (Tab. XIII. figg. 16, 16 a, ♀.)

Concinna, rufo- vel flavo-testacea; capite modico, cum oculis subtriangulari, vertice ante oculos vix producto; fronte convexa, nitida, antice nigra, deinde albidâ, clypeo rufescente, carinis baud distinctis; pronoto sat longo, carinis basim attingentibus; scutello pronoto vix longiori, fere brevi, carinis indistinctis; tegminibus subpellucidis, testaceis, vittis duabus vitreo-albidis; abdomine supra rufo-testaceo, apice dilutiori, maculâ utrinque rotundatâ nigra ad extremum; pedibus testaceis.

Femina pygofero magno testaceo; ovipositore valido, nigro.

Reddish- or yellowish-testaceous, with the head moderately large, and the eyes large and rounded, forming with the vertex a subtriangular outline; forehead convex, with the keels not distinct, with a large, stout, shining spot taking up the basal part, the apical part whitish-testaceous; clypeus rufescent; pronotum rather long, with all the keels reaching the base; scutellum scarcely longer than the pronotum, freely tricarinate; tegmina semitransparent, testaceous, with two whitish vitreous bands; abdomen rufo-testaceous above, with the apex lighter, and at its extreme end two large round black spots; legs testaceous.

Female with the pygofer large, testaceous, and the ovipositor strong, black.

Long. 3 millim.; lat. ad hum. 1 millim. (♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

This is a very conspicuous little species, allied to the British *L. scotti*; there is no male specimen in our collections, but the insect is very distinct.

7. *Liburnia sagata*, sp. n. (Tab. XIII. figg. 17, 17 a, b, ♂.)

Nigra, sat nitida, albido variegata; vertice ante oculos distincte producto; fronte latitudine duplo longiori, carinis albidis conspicuis, furcâ ad verticem distinctâ; pronoto sat longo, albido, lateribus nigrescentibus, carinis tribus basim attingentibus; scutello pronoto haud longiori, maculâ utrinque nigro pronoto fere occulto; tegminibus brevibus, nigris, margine postico albido; abdomine apicem versus angustato, nigro, apice et antice albido-testaceo; pedibus albidis, ad partem fuscatis.

Mas pygofero et tubâ anali sat parvis; stylis longis, tubam analem amplectentibus, robustis, pæne a basi clavatis, ad apicem extremum angustatis; callo albido utrinque pone basim stylorum.

Black and somewhat shiny, variegated with whitish; vertex produced before the eyes; forehead about twice as long as broad, with conspicuous white keels and the fork near the vertex distinct; pronotum comparatively long, white in the centre and dark at the sides, with the side-keels reaching the base; scutellum about as long as the pronotum, tricarinate, white, with a dark spot on each side at the base; tegmina black, with the hind margins edged with white, with strong veins; abdomen black, with the apex and part of the base whitish-testaceous; legs whitish, in part infuscate.

Male with the pygofer and the anal tube rather small, and the styles long and stout, almost encircling the anal tube, clavate and dilated a little from their base, and narrow at the extreme apex; behind their base on each side is a white callose spot.

Long. $2\frac{1}{2}$ millim.; lat. 1 millim. (σ : brachypterous form only.)

Hab. MEXICO, Vera Cruz (*H. H. Smith*).

8. *Liburnia paludata*, sp. n. (Tab. XIII. figg. 18, 18 *a*, *b*, σ .)

Nigra, antice plus minusve testacea, vertice angusto latitudine vix longiori; fronte latitudine fere triplo longiori, carinis albido-testaceis; pronoto longo, carinis tribus validis basim distincte attingentibus; scutello pronoto vix longiori, tricarinato; tegminibus brevibus, nigris, apicibus albidis; venis elevatis; abdomine laevi, nitido; pedibus testaceis; femoribus piceis.

Mas pygofero subtriangulari, tubâ anali permagnâ, stylo anali parvo; stylis sat latis fere in eodem plano jacentibus, ad apicem obtuse curvatis, nitidis.

Femina ovipositore modico.

Black, more or less testaceous in front, with the vertex narrow; forehead about three times as long as broad, with the central and side-keels whitish-testaceous; pronotum long, with three strong keels, all reaching the basal margin; scutellum scarcely longer than the pronotum, tricarinate; tegmina short, black, with the apex narrowly white, and with strong elevated veins; abdomen smooth and shining; legs testaceous, femora piceous.

Male with the pygofer subtriangular, if viewed from behind, with the anal tube very large and the anal style small; styles rather broad, lying almost in the same plane and forming nearly a straight line, obtusely curved minutely at the apex.

Female with a comparatively short ovipositor.

Long. 3 millim.; lat. ad hum. $1\frac{1}{2}$ millim. (σ φ : brachypterous form only.)

Hab. MEXICO, Chilpancingo (*H. H. Smith*); GUATEMALA, San Isidro (*Champion*).

In general appearance this insect closely resembles *L. sagata*, but differs in the shape of the head, and especially in the male characters.

The following two genera are of uncertain position: Walker places *Rhotala*, apparently, with the Delphacidæ, near *Bidis* and *Copicerus* (= *Jerala*), but although there are two or three large spurs at the apex of the posterior tibiæ, the characteristic large serrulate movable spur of the Delphacidæ is wanting, and the antennæ are not strongly developed as in that family: in some respects this genus is closely allied to *Helicoptera*, but it differs in the very much longer and larger pronotum and in the formation of the male and female organs. Most probably, however, *Rhotala* must be classed with the Cixiidæ.

The second genus, *Syntames*, seems to be allied to the Ricaniinæ, but it is without the characteristic transverse crenation of the costa, and must perhaps be referred to the Cixiidæ: the male organs, however, are not like those of the latter family.

RHOTALA.

Rhotala, Walker, Journ. Linn. Soc., Zool. i. p. 152 (1857).

In this genus the first joint of the antennæ is very short, about as broad as long, and the second is almost as stout and twice the length of the first, the terminal seta being much longer than the two preceding joints; the head is small, very much narrower than the pronotum, which is very large and almost as long as the scutellum; the pronotum is strongly tricarinate; the tegmina overlap, as in *Helicoptera*,