

LOS INSECTOS DE LAS ISLAS JUAN FERNANDEZ

21. SPHAEROCERIDAE (Diptera)

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14 especies de Sphaeroceridae contiene el presente estudio, sin contar las dos especies de *Gyretria* Enderlein, no representadas en el material del Dr. Kuschel. De esas 14 especies seis son propias a Juan Fernández, tres son comunes a Chile continental, una es sudamericana, una es paleártica y tres son cosmopolitas. *Skottsbergia* Enderlein se considera sinónima de *Leptocera* Olivier s.s. y *Pterodrepana* Enderlein de *Phthiria* Enderlein. Al final se agrega una clave que comprende los géneros braquípteros y ápteros de Sphaeroceridae del globo.

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In Enderlein's account of the Sphaeroceridae of Juan Fernández (1938: 648) he records 5 specimens which he placed in four new genera and five new species. Dr. Kuschel's collection included 222 specimens which are here placed in three genera and fourteen species. One of Enderlein's genera is placed as a synonym of an earlier described genus, one as a synonym of another described in the 1940 paper. *Gyretria* Enderlein, 1940 with its two species has not been recognized in the present material, but the other three species are represented and are distinct.

The distribution of the fourteen species both on Juan Fernández and outside it is shown in Table 1. It leaves no doubt that, as far as the present family is concerned (not a very suitable family for zoogeographical deductions), the affinities of the fauna are with S. America. Six species are precinctive to the islands, four are cosmopolitan and four S. American, principally Chilean.

Santa Clara is a very small island, so it is not surprising that few species were obtained. The very small number from Masafuera may be due to its position 167 km. further from the mainland but I do not know if the same amount of collecting was done there.

L. brachystoma and also apparently, through to a less extent, *L. darwini* are associated with seaweed. *L. pectinifera* is often found in houses and will breed in carrion. *L. flavipes* has similar breeding habits but is less often found indoors; such species are easily carried by ships. The precinctive species, all but one of which are brachypterous and incapable of flight,

are found, so Dr. Kuschel tells me, in very wet moss in the forest. This is exactly the same habitat as supports nine and six brachypterous species on Mt. Elgon and Mt. Ruwenzori, respectively.

TABLE I

Distribution of Sphaeroceridae on Juan Fernández and of the same species elsewhere. A dash in the fourth column indicates that the species is not known elsewhere.

Species	Masa- tierra	Masa- fuera	Santa Clara	Elsewhere
<i>A. submaculatus</i>	+	—	—	Chile
<i>L. duplicata</i>	+	—	—	—
<i>L. ellipsipennis</i>	+	—	—	—
<i>L. cultellipennis</i>	+	—	—	—
<i>L. divergens</i>	+	—	+	Chile
<i>L. brachystoma</i>	+	+	—	Cosmopolitan
<i>L. pulchripes</i>	+	—	—	S. America
<i>L. pectinifera</i>	+	—	—	Cosmopolitan
<i>L. darwini</i>	+	+	—	Chile
<i>L. flavipes</i>	+	—	—	Palearctic
<i>L. mediospinosa</i>	+	—	—	Cosmopolitan
<i>P. venosa</i>	+	—	—	—
<i>P. selkirki</i>	+	—	—	—
<i>P. alexandri</i>	+	—	—	—

These Masatierran species fall into two groups; three species of *Leptocera* s. s. and three of *Phthitia*. One of the first three, *L. duplicata*, is fully winged and although easily distinguished is a quite ordinary member of the subgenus. The other two brachypterous species are extremely similar to it in everything except their reduced wings and halteres and all these are surely derived from a common ancestor. The three species of *Phthitia* are all brachypterous and cannot at the moment be derived from any particular section of *Leptocera* though their ancestor was almost certainly some fully winged member of that genus. Two of them are very closely allied to one another. They do not appear to occur in precisely the same localities and it would be very interesting to know their distribution more exactly and to understand how they are isolated from one another. Apart from being much broken up by mountains, the conditions in the forest might be expected to be rather uniform.

It is a curious fact that four of the five brachypterous species have long narrow wings, as does *Penola* of the Falkland Islands. Elsewhere, flightless Sphaeroceridae are either apterous or have short wings whose length and breadth are almost the same.

Archiborborus Duda, 1921

1. **Archiborborus submaculatus** Duda, 1921.

A. submaculatus Richards, 1931: 70, fig. 20 d, plate 1, fig. 4.

MASATIERRA: Grutas de los Patriotas, 19.2.51, ♂; Plazoleta del Yunque, 200 m., 20.2.51, ♂ 2 ♀, 9.1.52, ♂; no precise locality, 1952, ♂.

These specimens were compared with others in the British Museum collection which had earlier been compared with the type in the Dresden Museum. The species is otherwise known from Chile (Punta Arenas, Puerto Varas, Peulla, Ancud, Castro).

The wing and the male last abdominal sternite were illustrated in my 1931 paper but the sternite is in reality more deeply emarginate than shown in that figure or at least appears so in dry, unmounted specimens.

Leptocera Olivier, 1813

Subgenus **Leptocera** s. s.

2. **Leptocera duplicata** sp. n.

♂ ♀. Dark brown, with faint paler tomentum; frons apart from the areas on which bristles arise, dull, reddish-brown, velvety; postero-ventral part of thoracic pleuron, trochanters and femoro-tibial joint paler. Halteres (missing in the holotype) yellow. Wings strongly infusate and tending to be clouded along the veins, especially in the holotype. Length 3.0 mm.

Structurally very like *L. fontinalis* (Fallen) as described by Duda (1918: 70) but differing as follows: arista with slightly longer pubescence (though shorter than in *L. caenosa*) (Rdi.); two pairs of strong acrostichal bristles in front of the suture, separated by two or three longitudinal rows of microchaetes; four pairs of dorsocentral bristles, decreasing in size forwards; legs generally similar, but mid tibia with a pair of large bristles at 1/4 surmounted by a smaller pair, a strong dorsal and a little higher a strong anterodorsal at about 3/4, a strong posterodorsal at 2/3, and between these strong bristles a weak dorsal. Wings (fig. 1), more as in *L. caenosa* (Rdi.), R 4 + 5 less curved than in *L. fontinalis* (Fall.), but second and third costal sectors more nearly equal in length than in either of those species, R 2 + 3 distinctly sinuate, both M veins distinctly produced

beyond the cell. Abdomen with long bristles only at margin of each tergite, most evident on the fifth, male last sternite almost unmodified, genitalia small with short, not very dense bristles and one long pair on each side of ventral end of anal split, forceps not visible; female abdomen similar to *L. fontinalis* (Fall.).

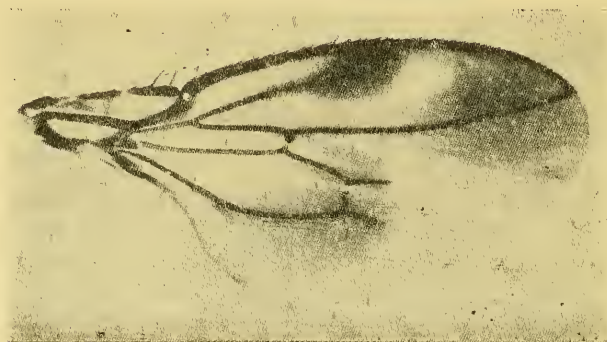


Fig. 1. Right wing, *Leptocera duplicata* Rich. ♂.

MASATIERRA, holotype Plazoleta del Yunque, 200 m., 17.3.51, ♂ (G. Kuschel); paratype same place, 9.1.52, ♂; allotype, Cerro Alto, 1.2.52, ♀. The paratype will be placed in the collection of the British Museum.

In Duda's key (1925: 15) this species runs down to couplet 48 but differs from the five species *L. oldenburgi* (Duda), *L. fontinalis* (Fall.), *L. kovácsi* (Duda), *L. caenosa* (Rdi.), and *L. aequilimbata* (Duda) under that number in having in front of the suture two pairs of very strong acrostichal bristles between which lie two or three microchaetes. It differs in the same character from the following allied species which are not in Duda's key: *L. neocurrinervis* Richards, 1931, *L. mendozana* Richards, 1931, *L. elgonensis* Richards, 1938, *L. decisetosa* (Vanschuytbroeck, 1950) (which also has ten scutellar bristles), *L. chumbii* (Vanschuytbroeck, 1950 A) (which also has a long haired arista), and *L. atra* (Vanschuytbroeck, 1951 nec Adams, 1903) (which also has ten scutellar bristles). The species is, in fact, much more closely related to the two brachypterous species which follow than to any of the preceding.

3. *Leptocera ellipsipennis* sp. n.

♂ ♀. Blackish-brown, paler tomentum very slight; frons, apart from the areas from which bristles arise, velvety black; posterior part of thoracic pleuron paler in some specimens; trochanters and femoro-tibial joint a little paler. Wings dark brown, halteres yellowish-brown. Length about 2,0 mm.

Structurally resembles *L. fontinalis* (Fall.) as described by Duda (1918: 70) except in the following particulars: arista shorter, hardly three

times as long as antenna, pubescence about the same (shorter than in *L. duplicata* Rich.), sometimes five pairs of dorsocentrals; leg bristles as in *L. duplicata* Rich.; wings short, not extending beyond the hind margin of the scutellum, broadening distally, somewhat pyriform (figs. 2 and 3)

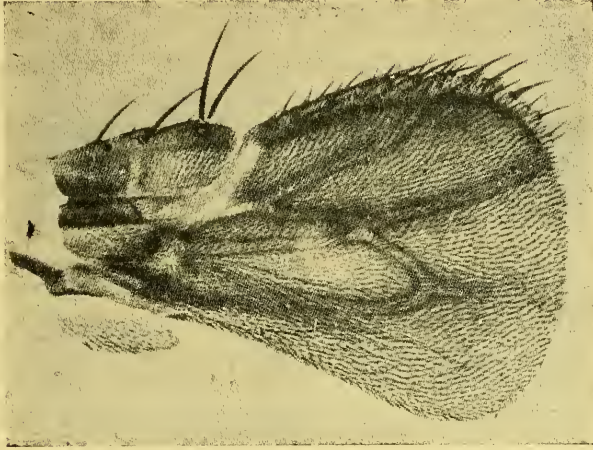


Fig. 2. Right wing, *Leptocera ellipsipennis* Rich. ♂.

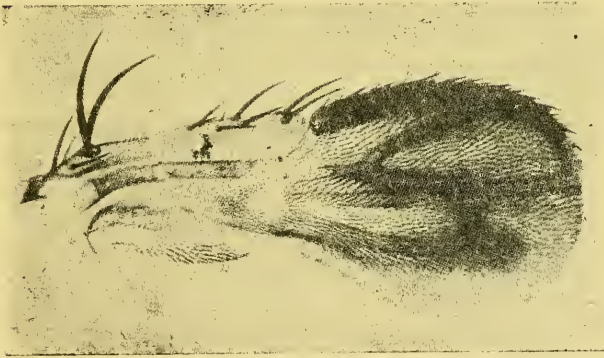


Fig. 3. Right wing, *Leptocera ellipsipennis* Rich. ♀.

in ♀ two and a half times as long as greatest width, first sector of costa with two very strong bristles near base and about ten shorter ones, rest of costa with fine bristles only, R 1 extending to middle of wing, basally fusing with M, Rs forking a short distance after leaving R 1, R 2 + 3 bisecting costa between end of R 1 and wing-tip, R 4 + 5 very slightly curving forwards, it and costa ending at same point at wing-tip, first sector of M more or less running into Rs so that the intermedian cross-

vein seems to join M 3 + 4 to Rs rather than to M 1 + 2, M 3 + 4 with a short piece beyond the crossvein, Cu very feebly indicated, alula very narrow, but clearly present; ♂ wing a little different from ♀ but it is probable that details differ in different specimens (though little can be seen except in microscopic mounts), first sector of costa with two strong bristles near its distal end, about four smaller more proximal bristles, R 1 ending well before the middle of wing, humeral cross-vein distinctly indicated, R 2 + 3 ending nearer wing-tip, R 4 + 5 more bent forwards, R 4 + 5 and M 1 + 2 joined by a very short cross-vein, M 1 + 2 and M 3 + 4 ending in a blunt point which is produced into a short vein (i.e., intermedian crossvein not separately traceable); halteres rudimentary, knob hardly differentiated from the short thick stalk; abdomen with long bristles, longer than the length of the intermediate tergites, two on each side of the posterior margin of I + II, and a row of about seven along hind margins of III — V, tergites also with moderately numerous microchaetes; male with sixth segment retracted, genitalia moderately large, anal split conspicuous, oval, margined by rather close bristles, short above, rather long ventrally, also one or two more lateral ventral bristles of moderate length, forceps not fully visible but not large; sternites with short bristles, last visible one not modified; female sixth tergite short with two moderate bristles on each side, seventh very short with a pair of bristles, directed downwards and tips usually crossing, cerci with very short pubescence only.

MASATIERRA: holotype Plazoleta del Yunque, 200 m., 9.1.52, ♂ (G. Kuschel). Allotype same place, 2.1.52, ♀. Paratypes, Masatierra, Yunque, 915 m., 10.2.52, ♂; Plazoleta del Yunque, 200 m., 20.2.51, ♀; no precise locality, 1952, ♂, ♀. The last two specimens will be placed in the collection of the British Museum.

4. *Leptocera cultellipennis* (Enderlein) comb. n.

Skottsbergia cultellipennis Enderlein, 1938: 650.

This species has all the characters of *Leptocera* Olivier s.s. except that the wings are very narrow, somewhat shortened, with reduced venation and that the halteres are quite rudimentary. Apart from the wings, it is closely similar to and clearly derived from *L. duplicata* Rich. It seems to differ very little from *L. ellipsipennis* Rich. except in the wings and halteres, but there are no transitions between them. The colour is often rather paler, and the male genitalia seem to be less densely bristled. Characteristically, the thorax is somewhat reddish-brown with the mesoscutum a little darker; there is a dark stripe near the top of the anepisternum and a conspicuous black circular spot just beneath the articulation of the wings.

The following is a description of a female wing (fig. 4): five or six times as long as greatest width, first sector of costa with one very strong bristle and about four small ones, rest of costa with fine bristles only, no long bristle at tip, hind margin with the finest microchaetes only, first sector of costa and R 1 both anteriorly convex and closely approximated, Rs indicated but very short, M indicated along the hind margin.

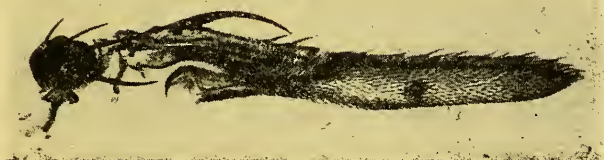


Fig. 4. Right wing, *Leptocera cultellipennis* (End.) ♀.

The male has not previously been described. It is extremely like the female, with similar wings and halteres; the latter are represented by a small membranous bag-like structure; the genitalia seem to resemble those of *L. ellipsipennis* Rich. with the bristles on each side of the anal split rather less dense, especially ventrally.

Described from MASATIERRA, 1 ♀; specimens examined: Masatierra: Bahía Cumberland, 19.2.51, pinned, 1 ♂ (headless) 6 ♀, 4.1.52, 1 ♀ pinned and 2 ♂ 1 ♀ (in alcohol, compared with type by Prof. W. Hennig); Picacho Central, 600 m., 4.3.52, 2 ♂ 1 ♀; Plazoleta del Yunque, 200 m., 9.2.52, 1 ♀, 9.1.52, in alcohol, 5 ♂ 5 ♀; no precise locality, 1952, ♂ 4 ♀.

Subgenus **Collinellula** Strand, 1926

5. *L. divergens* Duda, 1925: 44

Specimens examined: MASATIERRA: Bahía Cumberland, 24.2.51, 4 ♂ 3 ♀, 1.3.51, 14 ♂ 7 ♀, 5.3.51, 2 ♂, 1.1.52, 20 ♂ 10 ♀; Salsipuedes, 300 m., 5.3.51, 2 ♂ 2 ♀. SANTA CLARA: Corral, 6.1.52, ♂ ♀.

These specimens have been compared with some of Duda's paratypes in the collection of the British Museum. The species was described from Peru, Bolivia, Chile and Argentina.

Subgenus **Thoracochaeta** Duda, 1918

6. *L. brachystoma* (Stenhammar, 1854)

Specimens examined: MASATIERRA: Plazoleta del Yunque, 300 m., 17.3.51, ♂, 200 m., 9.1.52, ♀; Pangal (Playa), 4.1.52, 2 ♂. MASAFUERA: Quebrada de las Casas, 30.1.52, ♂; Varadero Playa, on seaweed on beach, 27.1.52, 4 ♂ 12 ♀.

The species is cosmopolitan and is found on sea beaches in many parts of the world, including Chile.

Subgenus **Chaetopodella** Duda, 1920

7. **L. pulchripes** Duda, 1925: 151, fig. 23.

The female agrees well with Duda's description. The male which Duda did not see agrees structurally with my description (1931: 80) of that sex in the var. *griseithorax* Rich. but is like the typical form in colour. In these males, as in the type of the variety, there are two long, rather stout bristles on the underside of each fore coxa. Wing, fig. 5.

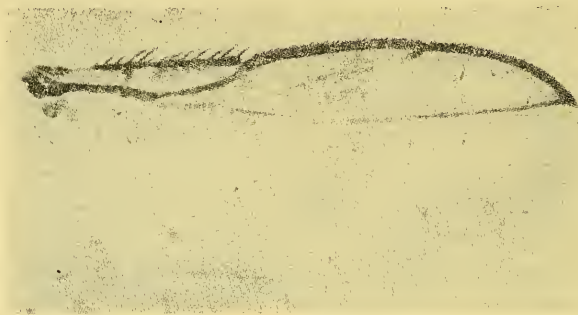


Fig. 5. Right wing, *Leptocera pulchripes* Duda ♂.

Specimens examined: MASATIERRA: Bahía Cumberland, 19.2.51, 2 ♂ 2 ♀, 1.1.52, 1 ♀; Plazoleta del Yunque, 200 m., 12.2.51, ♀, 22.2.51, 3 ♂ 1 ♀.

The species was described from Paraguay and recorded by me from Uruguay and Argentina.

Subgenus **Limosina** Macquart, 1835

8. **L. pectinifera** (Villeneuve, 1917)

Specimens examined: MASATIERRA: Quebrada La Laura, 1.3.51, ♂ ♀.

This is usually a domestic species and though most records are from Europe, it was recorded by me (1941: 323) from the Falkland Is.

9. **L. darwini** Richards, 1931: 80, fig. 12

The following specimens have been compared with the type in the British Museum. As in the type, though not mentioned in the original

description, there is an extra small bristle on each side of the base of the scutellum, as in *L. denticulata* (Duda) though that species has quite different venation. «*Limosina australis*» Brèthes (1920) of Chile is also stated to have six scutellar bristles but has vein R 4 + 5 curved. It is perhaps a *Leptocera* s.s. or *Collinellula* and Brèthes may well have overlooked an additional small bristle on each side of the base of the scutellum.

The female of *L. darwini* is here recorded for the first time. It is generally very like the male but the mid tibia has a mid ventral bristle; the cerci are rather long, each with two long almost straight hairs; none of the interfrontal bristles is enlarged.

Specimens examined: MASATIERRA: Bahía Cumberland, 25.2.51, ♀, 1.3.51, ♀, 1.1.52, 2 ♂; Plazoleta del Yunque, 200 m., 12.2.51, ♂ ♀; Quebrada La Laura, 1.3.51, 2 ♀; no precise locality, 1952, ♂. MASAFUEIRA: Las Chozas, 700 m., 14.1.52, ♂; La Correspondencia, 1.300 m., 20.1.52, ♂; Quebrada de Las Casas, 19.1.52, ♀; Inocentes Altos, 1.300 m., 22.1.52, 3 ♀; Inocentes Bajos, 1.000 m., 27.1.52, 11 ♂ 5 ♀; Varadero, Playa, on alga on beach, 27.1.52, ♀; no precise locality, 1952, 5 ♂ 6 ♀.

The species was previously recorded from Argentina and Chile.

10. *L. flavipes* (Meigen, 1830)

(=*Limosina minutissima* Zetterstedt, 1847 = *Limosina retracta* Rondani, 1880.

Specimens examined: MASATIERRA: Quebrada La Laura, 1.3.51, ♀ (headless) 3 ♂.

This species is usually associated with carrion and has previously only been recorded from Europe and N. Africa but many others in the same genus are cosmopolitan.

11. *L. mediospinosa* Duda, 1925

Specimens examined: MASATIERRA: Bahía Cumberland, 24.2.51, ♀, 1.3.51, ♂.

This species is cosmopolitan, at least in warmer countries and is known from the Australian and Ethiopian regions as well as from S. America. The specimens were compared with others in the collection of the British Museum.

***Phthitia* Enderlein, 1938: 650, figs. 7-9.**

Type of genus (by original designation) = *Phthitia venosa* Enderlein, 1938: 651.

Synonym. *Pterodrepana* Enderlein, 1938: 651, figs. 10 — 13. Syn. n.

Type of genus (by original designation) = *Pterodrepana selkirkii* Enderlein, 1938: 652.

The two brachypterous species dealt with earlier are easily placed in *Leptocera* s.s. and the halteres are present, though small. The three

species described below lack halteres though the wings are relatively well developed. Although it is very probable that they are an offshoot of *Leptocera* Oliv., they cannot be associated with any particular subgenus of it and it seems simpler to retain them in the separate genus in which Enderlein placed the first of them. The following are the essential characters of this genus.

Wings long and narrow, with traces of venation, halteres absent. Eyes large, circular. Ocelli normal. Three small interfrontal bristles; the middle one enlarged in both sexes, one ocellar, two outwardly and one posterior inwardly directed superior orbitals, one external vertical, one inner vertical, and one postvertical on each side. Mesoscutum somewhat narrower than head with eyes, one strong humeral, one postalar, three strong dorsocentrals (one of which is presutural), on each side. Scutellum fully semicircular with four strong bristles. One strong sternopleural. Mid tibia with a pair of very long bristles at one-third and another at three-quarters and sometimes some smaller ones as well, apico-ventral long. Abdomen of normal *Leptocera*-shape, sternites not broad, tergites with numerous long bristles, as well as rather infrequent microchaetes.

12. *Phthitia venosa* Enderlein, 1938: 651

This species was described from one female captured on Masatierra. Two more females from the same island seem to belong to the same species, the rather conspicuous bristle at the tip of the somewhat broad wing agreeing with Enderlein's fig. 8. The original description may be supplemented as follows:

♀. Greyish-brown, thorax browner, whole with a faint whitish tomentum; pteropleuron with a large round black spot. Wings moderately infusate. Length 1,5 mm. Mouth-cavity moderate, palpi small with one long end-bristle; vibrissa two-thirds as long as width of vertex, arising from oral margin, about 5 short bristles on margin (none of which is more than one-quarter as long as vibrissa); buccae dull, one-half as wide as third antennal segment in front, one and a half times as wide behind, oral margin not raised, forming almost a right-angle with the occipital margin; eyes large, circular; ocelli normal; face slightly shining, little excavated, «knob» not prominent, mouth-edge little produced; antennae divergent at about 80°, sockets separated by half the width of the third segment which bears short pubescence and is distinctly higher than long, arista three and a half times as long as antenna, with short pubescence; front and vertex dull, orbits, interfrontalia and ocellar triangle more shining, last-named abruptly narrowed, half as long as front, anterior superior orbital bristle half the length of second. Thorax not at all reduced, mesoscutum a little shining, six rows of well-spaced microchaetes between the presutural

dorsocentrals. Wing (fig. 6) not more than three and a half times as long as its greatest breadth, costa with rather strong bristles and a longer one at apex, hind margin with the finest microchaetes only, Rs joined to M by an anastomosis rather than a cross-vein, R 1 also connected basally with M, no trace of Cu. Fore femur moderately thickened, with about three posterodorsal and five wellspaced ventral bristles; fore tibiae without bristles; mid trochanter with no strong, upcurved bristle; mid tibia with



Fig. 6. Right wing, *Phthitia venosa* Duda ♀.

a pair of strong bristles at one-third, another at three-quarters (the more posterior one in each pair a little weaker) a small antero-ventral just above three-quarters and a strong apico-ventral; basitarsus long with very fine bristles beneath. Hind femur with a small apico-ventral, tibia without bristles or spur, basitarsus normally expanded, second segment about half as long again. Abdomen of normal *Leptocera*-type, tergites inflexed and concealing much of the sternites, I + II half as long again as tergites III and IV which are of equal length, V a little shorter, VI very short; surface moderately shining, the first four tergal plates (i.e., I — V) with about two transverse rows of well-spaced, rather large microchaetes and, just before the posterior margin, four or five macrochaetes which are about as long as the intermediate tergites; cerci retracted, with very short pubescence; sternites with short bristles.

Specimens examined: MASATIERRA: no precise locality, 1952, 2 ♀ (G. Kuschel).

This species agrees pretty well with Enderlein's description which seems to have been based on a paler specimen, perhaps immature or preserved in alcohol. The small antero-ventral bristle on the mid tibia seems to be rather nearer the apex than in Enderlein's fig. 9. The rather distinct bristle at the tip of the wing is represented in Enderlein's figure by two bristles. Enderlein described the species from a single female captured on Masatierra.

13. *Phthitia selkirki* (Enderlein) comb. n.

Pterodrepana selkirki Enderlein, 1938: 652

The only difference given by Enderlein between *Pterodrepana* and *Phthitia*, apart from the longer and narrower wings, was the presence in

the former of two dots, possibly representing bristle bases, at the tip of the scutellum. These dots are not present in any of the specimens I have examined though some of them were compared with the type by Prof. W. Hennig; I think that the dots must have been pieces of dirt or some abnormality in the type. The species was described from one female captured on Masatierra but the description of the comb-like bristles at the base of the mid femur agrees better with a male.

Study of Dr. Kuschel's material shows that there is a third species, closely allied to *P. selkirki*. It is quite distinct in the male but in the females the differences seem to be very slight. Enderlein's description as well as examination of specimens compared with his type by Prof. W. Hennig shows to which specimens the name *P. selkirki* (End.) should be applied.

♂ ♀. Pale yellow-brown; mesoscutum with indications of three broad longitudinal darker stripes, sometimes whole surface somewhat darkened; posterior edge of dorsal division of mesepisternum a little infusate; a large subcircular black spot just beneath the wings; wings yellowish-brown; abdomen brownish-black; surface not shining but tomentum only evident on the abdominal tergites. Length 1,5 — 2,0 mm.

♀ differs structurally from *P. venosa* End. as follows: third antennal segment more nearly circular; mesoscutum duller, with more numerous microchaetes, 9 — 10 rows between the presutural dorsocentrals; wings (fig. 7) similar in two sexes, much longer and narrower, at least seven

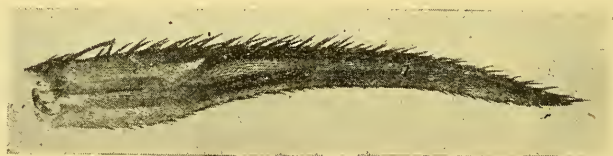


Fig. 7. Right wing, *Phthitia selkirki* (End.) ♀.

times as long as greatest width, whole costa with rather long bristles, tip without stronger bristle, hind margin also with occasional bristles longer than the fringing microchaetes, Rs a distinct vein, almost but not quite fusing with M which is unbranched, no trace of Cu; mid tibia above the large bristles at one-quarter with one or two small antero-dorsals and one small posterodorsal, above the large pair at three-quarters a small anterodorsal.

♂. Mid femur with a short basal antero-ventral row of about 8 small stout black spines and a similar somewhat longer postero-ventral row of about 13 spines one of which is more than twice as long as any of the others (fig. 9); mid tibia distinctly curved, with no antero-ventral bristle, inner surface with numerous short black granule-like bristles. Genitalia

greyish-white, small, pregenital tergite also small, anal split wide, almost circular, with short bristles on each side; sternites 3 — 5 dark and well-sclerotized, 3 and 4 with dense tufts of long obliquely posteriorly directed bristles, mostly arising near the hind margins of the segments; sternite 5 unmodified, without long bristles.

Specimens examined: MASATIERRA: Salsipuedes, 300 m., 5.3.51 ♂ ♀; Miradero de Selkirk, 300 m., 10.3.51, ♀; Bahía Cumberland, 10.2.51, fragment; Picacho Central, 600 m., 4.3.52, 2 ♂ 1 ♀; Cerro Alto, 600 m., 1.2.52, ♀; Plazoleta del Yunque, 200 m., 9.1.52, 7 ♂ 1 ♀ (in alcohol); no precise locality, 1952, 2 ♂ 3 ♀.

14. *Phthitia alexandri* sp. n.

♂ ♀. Brownish-black, dull; epistoma, buccae, mesopleuron, coxae and trochanters more or less reddish suffused, but not at all yellow; legs generally browner; black mesopleural spot present but not conspicuous; wings infusate, especially on distal two-thirds. Length 2,0—2,8 mm.

♀. Seems to differ from *P. selkirki* (End.) only as follows: microchaetes a little more numerous on the mesoscutum, 11 — 12 rows between the presutural dorsocentrals; wings (fig. 8) similar in the two sexes and gene-

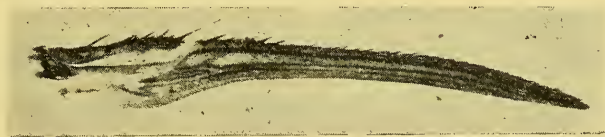


Fig. 8. Right wing, *Phthitia alexandri* Rich. ♀.

rally like those of *P. selkirki* but rather longer, at least eight times as long as greatest width, costal bristles less strong especially distally, hind margin with microchaetes only, Rs running into M and not into the costa, vein Cu present as a rudiment. In both species the mid femur has a strong apical anterior bristle at right angles to its surface; this is preceded in *P. selkirki* by 1 — 3, mean 2,5 smaller bristles; in the new species there are 3 — 4, mean 3,1 smaller bristles.

♂. Differing in the same characters as the ♀ but the preapical anterior bristles of the mid femur are 2 — 4, mean 2,6 in *P. selkirki* and 2 — 3, mean 2,7 in the new species. Mid femur less thickened, no basal antero-ventral row of short black spines, postero-ventral row more regular, more comb-like, graded in size with none very much longer than the others and the central ones the largest (fig. 10); mid tibia not bent, no antero-ventral bristle near centre but also no granule-like bristles along the antero-ventral surface. Abdominal sternites 3 — 4 with short rather sparse bristles, a comb-like group of long black procumbent bristles at end of sternite 5; genitalia not appreciably paler than abdomen, pregenital tergite rather large.

MASATIERRA: holotype, no precise locality, 1952, ♂; allotype, El Camote, 400 m., 5.2.52, ♀; paratypes, Alto Pangal, 600 m., 8.2.52, ♂; no precise locality, 1952, ♂ 2 ♀. A ♂ and ♀ paratype will be placed in the collection of the British Museum.

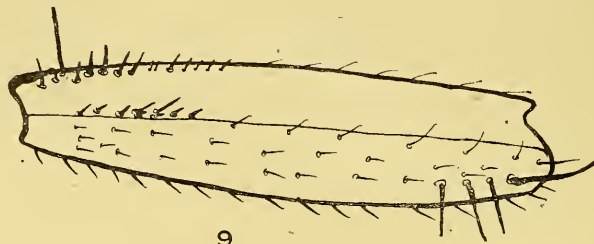


Fig. 9. Left mid femur, antero-ventral view, *Phthitia selkirki* (End.) ♂.

Fig. 10. Left mid femur, antero-ventral view, *Phthitia alexandri* Rich. ♂.

The species is named after Alexander Selkirk, the sailor prototype of Robinson Crusoe. The wing characters are difficult to see except in a microscopic preparation.

Enderlein (1938: 652, fig. 14 — 18) described a Sphaerocerid genus *Gyretria* for two new species of which he designated *G. binodatipes* End. as the type. I have found nothing which corresponds to these descriptions in Dr. Kuschel's material. I have a suspicion that *G. binodatipes* may really be the same as *Leptocera pulchripes* Duda but there are so many discrepancies that this guess is worth very little without examination of the types.

Key to the species of Sphaeroceridae known from Juan Fernández

1. Wings with the part of $M_3 + 4$ between the intermediate cross-vein and the wing-margin shorter than the cross-vein, wing spotted fuscous with veins partly white. No ocellar bristles

Archiborborus Duda
(*A. submaculatus* Duda)

- Wings with $M_3 + 4$ not nearly reaching the margin but the intermedian cross-vein much nearer the disk of the wing which is not dark and white variegated; or wings reduced. Ocellar bristles present 2
- 2. Scutellum with two long and two short bristles on each side. Mid basitarsus with a long ventral bristle, mid trochanter with a long upcurving bristle. In macropterous species R_{4+5} is curved forwards.....
Leptocera Olivier (part). 3.
- Scutellum with two long bristles (rarely another small anterior one) on each side. Mid trochanter with no long upcurving bristle. In macropterous species R_{4+5} is straight..... 6
- 3. Facial knob in side view, extending well in front of eyes. Most anterior dorsocentral bristle directed inwards. Macropterous species.....
 Subgenus *Collinellula* Strand
 (L. (C.) *divergens* Duda.
- Facial knob, in side view, not extending in front of eyes. Most anterior dorsocentral bristle directed backwards, like the others.....
 Subgenus *Leptocera* Olivier s.s. 4
- 4. Species fully winged. Halteres normal.....
 L. (L.) *duplicata* Richards
- Wings strongly, halteres somewhat, reduced..... 5
- 5. Wings oval, rather broader near apex than at base.....
 L. (L.) *ellipsipennis* Richards
- Wings narrow, pointed, broadest near base.....
 L. (L.) *cultellipennis* (Enderlein)
- 6. Wings and halteres fully developed.....
Leptocera Olivier (part.) 7
- Wings reduced, narrow, more or less pointed; halteres absent
Phthitia Enderlein 12
- 7. Mid basitarsus with a strong ventral bristle. Velvety-black, somewhat grey-marked species, tarsi partly white, face pale (especially in ♂). Wings whitish-hyaline.....
 Subgenus *Chaet podella* Duda
 (L. (C.) *pulchripes* Duda)
- Mid basitarsus without a ventral bristle. Species not velvety-black, tarsi not partly white..... 8
- 8. Several pairs of small presutural dorsocentrals which are directed somewhat inwards. Eyes rather small. Antennae inserted far apart and widely divergent.....
 Subgenus *Thoracochaeta* Duda
 (L. (T.) *brachystoma* (Stenhammar))
- Mesoscutum without these small anterior dorsocentrals. Eyes large. Antenna inserted nearer together and less divergent.

- ♂ mid femur at base and mid tibia at apex with a ventral comb of small bristles (except in *L. flavipes* (Mg.)).....
- Subgenus *Limosina* Macquart 9
9. Hind tibia with a strong dorsal bristle at about three-quarters. Costa not overpassing R_{4+5} , intermedian cross-vein far removed from $r-m$. Scutellum with four bristles.....
- L. (L.) pectinifera* Villeneuve
- Hind tibia without any bristles.....
- 10
10. Intermedian cross-vein closer than its own length to $r-m$, R_{4+5} ending well before wing-tip, somewhat overpassed by costa. Scutellum with a small basal bristle on each side, i.e. six in all.....
- L. (L.) darwini* Richards
- Intermedian cross-vein much further from $r-m$. Scutellum without the small extra basal bristle.....
- 11
11. R_{4+5} ending at wing-tip, not overpassed by costa. ♂ genitalia large, ♀ cerci with fine hairs.....
- L. (L.) mediospinosa* Duda
- R_{4+5} ending before the wing-tip, a little overpassed by the costa. ♂ mid legs simple, genitalia small with a pair of long ventral bristles, ♀ cerci with two stout bristles.....
- L. (L.) flavipes* (Meigen)
12. Mesoscutum with about six rows of microchaetes between the presutural dorsocentrals. Wings about three and a half times as long as greatest width with a distinct bristle at tip.
- P. venosa* Enderlein
- Mesoscutum with 9—12 rows of microchaetes between the presutural dorsocentrals. Wings six to eight times as long as greatest width.....
- 13
13. Smaller, mostly pale yellow-brown, except abdomen and sometimes mesoscutum. ♂ mid femur at base with antero- and postero-ventral combs of black spines of which one in the posterior row is much longer than the others.....
- P. selkirki* (Enderlein)
- Larger, darker brown species ♂ mid femur at base with only the postero-ventral comb of black spines amongst which one is specially long.....
- P. alexandri* Richards

Position of the brachypterous genera

In my paper on the brachypterous Sphaeroceridae of the Ruwenzori expedition I gave a key to the known genera in this condition (1951: 847). At that date, I had not examined the Juan Fernández species nor had I seen *Siphlopteryx* Enderlein which I have recently studied owing to the kindness of Prof. Dr. Peus of the Berlin University Museum. The key now needs serious revision since *Phthitia* lacks halteres and *Siphlopteryx*

lacks wings (for all practical purposes). Discovery of further Ethiopian species has necessitated other changes in the key which are being published in detail elsewhere. The complete key should run as follows:

Key to the genera and subgenera of brachypterous and apterous
Sphaeroceridae

1. Wings and halteres present as rudiments..... 2
- Either wings or halteres, or both, completely absent..... 10
2. Eyes strongly reduced. Wings not very short, with complete venation, M_{1+2} extending as a complete vein to margin, cross-vein i m near margin. Hind tibia with no apical ventral spur. Gave species..... 3
- Eyes normal..... 4
3. Ocelli absent. (Yugoslavia, *S. absoloni* Bezzi)..... *Speomyia* Bezzi
- Ocelli present. (Hungary, *P. hungarica* Duda)..... *Paraspeomyia* Duda
4. Ocelli and ocellar bristles absent. Scutellum very narrow with two upwardly-directed bristles. Hind tibia with a curved apical spur. (Antarctic, *A. truncipennis* Enderlein)..... *Antrops* Enderlein.
- Ocelli present. Scutellum with at least four bristles..... 5
5. Hind tibia with a curved apical ventral spur. Scutellum transverse with four erect and some smaller bristles. Wing venation very reduced, halteres small. Head behind eyes with numerous small bristles. (Europe *C. pedestris* Meigen).... *Copromyza* Fallen subg. *Apterina* Macquart
- Hind tibia with no apical ventral spur. Scutellum with four or more bristles which are not upright. Head behind eyes with one row of bristles..... *Leptocera* Olivier 6
6. Scutellum with eight bristles. Mid trochanter with a strong upwardly directed bristle. Five pairs of dorsocentral and two pairs of strong acrostichal bristles. (Juan Fernández, two species) Subg. *Leptocera* s.s.
- Scutellum with four bristles. Mid trochanter with no strong upwardly directed bristle. Not more than three pairs of dorso-centrals and no strong acrostichals..... 7
7. Wings developed as veinless pads, only half as long as scutellum. Halteres reduced to small knobs (N. America, two species)..... Subg. *Americaptilotus* Richards

- Wings extending beyond the scutellum with distinct venation of the *Leptocera*-type. (M 1 + 2 not reaching margin as a thick vein, cross-vein i m far removed from margin)..... 8
8. Cross-vein i m absent. (Two species Europe, three N. America)..... Subg. *Pteremis* Rondani
- Cross-vein i m present..... 9
9. Abdomen flattened and strongly punctured. (Europe, *L. cribrata* (Villeneuve))..... Subg. *Puncticorpus* Duda
- Abdomen normally convex, not punctured. (Large subgenus of which three European species are brachypterous)..... Subg. *Limosina* Macquart
10. Traces of wings present, halteres absent. Ocelli present, even if rather reduced..... 11
- Wings absent..... 13
11. Scutellum very narrow and transverse. Wings (♀) narrow, almost thread-like but reaching beyond scutellum. (Falkland Is., *P. eudyptidis* Richards)..... *Penola* Richards
- Scutellum approximately semicircular..... 12
12. Wings in ♀ usually minute lobes or, as in ♂ racket-shaped. Two pairs of strong dorsocentrals. (Ruwenzori, four species)..... *Aluligera* Richards
- Wings long, narrow, pointed. Three pairs of strong dorsocentrals. (Juan Fernández, three species)..... *Phthitia* Enderlein
13. Halteres present, though rudimentary. Top of head flattened with three lines of silvery tomentum, no superior orbital bristles. Eyes normal, ocelli absent. Scutellum not much reduced, but posterior margin nearly straight. Abdomen circular, sharp-edged, without long bristles, sternites broad. (New Zealand, *H. trilineata* (Hutton))..... *Howickia* Richards
- Halteres absent..... 14
14. Abdominal sternites narrow, normal..... 15
- Abdominal sternites very broad..... 18
15. One pair of weak prescutellar dorsocentrals. Scutellum strongly transverse with one moderate and one minute bristle. (Europe, *A. paradoxus* Mik)..... *Aptilotus* Mik.
- Two pairs of dorsocentrals more or less well developed. Scutellum semicircular with four long bristles..... 16

16. Two or three dorsocentrals behind the suture. Abdominal tergites without macrochaetes. Two superior orbitals. (St. Helena, *A. sanctae-helenae* Richards).....
Aubertinia Richards
- Two dorsocentrals, one in front of suture. Three superior orbitals..... 17
17. Abdominal tergites with a row of about twelve rather short macrochaetes (half as long as tergites). (Crozet Is., *S. antarctica* Enderlein).....
Siphlopteryx Enderlein
- Abdominal tergites with a row of four macrochaetes at least as long as tergites. (Mt. Elgon, three species).....
Paraptilotus Richards
18. Abdomen not circular and much less than two and a half times as broad as thorax. Mid tibial bristles distinct..... 19
- Abdomen circular or at least two and a half times as broad as thorax..... 21
19. One pair of dorsocentrals. No abdominal macrochaetes. (Mt. Ruwenzori, two species).....
Mesaptilotus Richards
- Two pairs of dorsocentrals. Abdominal tergites with macrochaetes (*) 20
20. Wings distinct in ♂, but often very reduced in ♀. (Mt. Ruwenzori, four species).....
Aluligera Richards
- Wings completely absent. (Kenya and Abyssinia, three species)
Binorbitalia Richards
21. Superior orbitals, vertical and ocellar bristles absent. Ocelli absent. (Mt. Elgon, six species).....
Ocellipsis Richards
- Ocellar bristles present..... 22
22. Ocelli absent, ocellar bristles divergent and backwardly directed. Head coadapted to thorax, third antennal segment conical. (Brazil, *A. borgmeieri* Duda).....
Aptilotella Duda
- Ocelli present, ocellar bristles forwardly directed. Head not coadapted to thorax, third antennal segment rounded..... 23
23. Interfrontal bristles in many rows. Scutellum transverse, laterally angular, bristles at least twice as long as scutellum. Abdomen somewhat stalked. (Kerguelen and Crozet Is., three species).....
Anatalanta Eaton

(*) As is indicated in a paper now in the press, it is convenient to maintain these genera for the present although the original definitions have broken down.

- Interfrontal bristles in one row. Scutellum transverse but margin rounded, bristles little longer than scutellum. Abdomen not stalked (Abyssinia, *L. scotti* Rich.).....

Lobeliomyia Richards

REFERENCES

- ADAMS, C. F., 1903, *Descriptions of new species*. Kansas University Sci. Bull., 2: 221-3.
- BRÈTHES, J., 1920, *Cueillette d'insectes au Rio Blanco*. III. *Diptères*. Rev. Chil. Hist. nat., 23 (1919): 40-4, 3 figs.
- DUDA, O., 1918, *Revision der europäischen Arten der Gattung LIMOSINA Macquart (Dipteren)*. Abh. k.k. zool.-bot. Ges. Wien, 10: 1-240, 8 pls.
- 1920, *Vorläufige Mitteilung zur Kenntnis der aussereuropäischen Arten der Gattung LEPTOCERA Olivier = LIMOSINA Macquart und BORBORUS Meigen (Dipteren)*. Zool. Jahrb. Syst., 43: 433-46, 3 figs.
- 1921, *FIEBRIGELLA und ARCHIBORBORUS, zwei neue südamerikanische Borboriden Gattungen (Dipteren)*. Tijdschr. Ent., 64: 119-46, 1 fig.
- 1925, *Die aussereuropäischen Arten der Gattung LEPTOCERA Olivier = LIMOSINA Macquart (Dipteren) mit Berücksichtigung der europäischen Arten*. Arch. Naturges., 90 A (1924), Hft. 11: 5-215, 4 pls.
- ENDERLEIN, G., 1938 (*), *Die Dipterenfauna der Juan Fernández—Inseln und der Oster—Insel. in Skottsberg, C., The natural history of Juan Fernández and Easter Island*, 3. Stockholm. (pp. 643-680, 49 figs.).
- MACQUART, J., 1835, *Histoire naturelle des insectes Diptères*. II. Paris.
- MEIGEN, J. W., 1830, *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*, 6. Hamm.
- OLIVIER, G. A., 1813, *Premier memoire sur quelques insectes qui attaquent les céréales*. Mem. Soc. central Agric. Dept. Seine et Oise, 16: 477-95, 12 figs.
- RICHARDS, O. W., 1931, *Sphaeroceridae (Borboridae)*. *Dipt. Patagonia and South Chile*, 6 fasc. 2: 62-84, 1 pl., 2 figs.
- 1938, *Diptera. Sphaeroceridae (Borboridae)*. In *Mission. sci. de l'Omo*, 4 fasc. 40: 381-405, 10 figs.
- 1951, *Brachypterous Sphaeroceridae*. Brit. Mus. (nat. Hist.) Ruwenzori Expedition 1934 — 5, 2 no. 8: 829-851, 10 figs.
- RONDANI, C., 1880, *Species Italiae ordinis Dipterorum*. (Muscaria Rond.). Stirps XXV. Copromyzinae Bull. Soc. ent. Ital., 12: 3-45.
- STENHAMMAR, C., 1854, *Skandinaviens Copromyzinae granskade och beskrifne*. K. Vet.—Akad. Handl. (1853): 257-442.
- STRAND, E., 1926, *Miscellanea nomenclatoria zoologica et palaeontologica*, I - II. Arch Naturges., 92 A Heft 8: 30-75.

(*) The Zoological Record (1941) gives 1940 as the date of publication of the names in this work. But the correct date is 1938 (see p. 680).

- VANSCHUYTBROECK, P., 1950, *Contribution à l'étude des Sphaeroceridae africains (Diptera Acalyptratae)*. (1.er note). Bull. Inst. Roy. Sci. nat. Belg., 26: 1-19.
- 1950 A., *Diptères Sphaeroceridae du musée du Congo belge*. Ann. Mus. Congo belge., Ser. 8, 5: 46 pp., 6 figs.
- 1951, *Contribution à l'étude des Sphaeroceridae africains (Diptera Acalyptratae)* (3re. note). Bull. Inst. Roy. Sci. nat. Belg. 27: 1-20, 4 figs.
- VILLENEUVE, J., 1917, *Espèces nouvelles de Diptères de la famille des Cypselidae (Borboridae)*. Bull. Soc. ent. France, 1917: 333-8.
- ZETTERSTEDT, J. W., 1847, *Diptera Scandinaviae*, 6. Lund.