

Sphaeroceridae (Diptera) in the Collection of the Hungarian Natural History Museum I. *Archiborborus* Duda, 1921

By

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In the last ten years many Hungarian zoological collecting expeditions worked in different countries of the world and collected rich materials of animals. So, I have to mention by name GY. TOPÁL (Argentina, 1960-61; India, 1967), J. BALOGH et al. (Congo, 1963-64; South America, 1965-66; 1966-67), J. BALOGH (Australia, New Guinea, 1965, 1968, 1969), S. ENDRÓDY-YOUNGA (Ghana, 1965-72), Z. KASZAB, (Mongolia, 1963-68), H. STEINMANN-S. MAHUNKA-J. PAPP-S. HORVATOVICH (North Korea, 1971-72). Among the collected insects there were numerous flies, the majority are preserved in alcohol, their number is between one and two millions (probably closer to the second value). Recently the sphaerocerids were selected from that huge material and ordered into genera early in this year. The material in alcohol was estimated to amount to 15.000 specimens, the very rich Hungarian and Palaearctic collections prepared on minutia pins represent a further addition, and we have an exotic collection which though contains only some hundreds of sphaerocerids, it is very rich in types (most of them determined by O. DUDA).

In this paper I propose to commence the publication of all these materials by genera. It will be followed by the material in our collection of the genera of Sphaerocerinae and those of the genus *Coproica* ROND. With the exception of some genera I do not propose to work at monography level, first of all because the species of most problematic genera are insufficiently represented in our collection; however, an attempt will be made in the course of these works to solve many of the existing morphological and taxonomical problems, the old type-material will be studied (for lectotype designation, etc.) and the new species described.

In the present paper the genus *Archiborborus* DUDA, 1921, is discussed. Its species are rather well-known, mainly on the basis of DUDA'S (1921) and RICHARDS' (1961) works. The species of the genus occur only in South America. There they replace not only the species of *Copromyza* FALL., which are absent in

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South America, but its species fill many of the niches in which *Limosina* species or species of other genera live in the Old World (see below).

In our collection there are 188 specimens belonging to seven species and one of the species is new to science. The species are discussed in alphabetical order and those, which are not in our collection, are listed with remarks.

Archiborborus (Procopromyza) argentinensis sp. n.

Body shining black, wings not reduced.

Head longer than high, mouth edge in profile hardly protruding. Eyes big, longitudinally ovale. Hind parts of head black, fore part of frons, cheeks, facial plate and fore parts of genae yellow with a slightly grey tint, tending gradually to black on genae. Chaetotaxy of head: preocellars and postocellars robust, long, outer and inner verticals also strong (though on the type-specimen only the base of the former ones are present); 1 pair of short bristles in post-vertical position, but several similar bristles on upper part of occiput, gradually transitional a well-ordered postocular row of comparatively long but thin bristles on each side, interfrontal and inner orbital rows consisting of many yet thin and short bristles; 2 long upper orbitals. Between frontal triangle and orbitalia not sharply defined but well discernible recesses; vibrissa long and thick, genal bristle also strong. Antennae ochreous yellow, second joint with 2 long proclinate inner, 1 long upcurving upper, and several short bristles; third joint with short, arista with long pubescence.

Thoracic chaetotaxy: 1 humeral, 1 long anterior and 1 short posterior notopleural, 1 presutural, 2 supraalar, 1 postalar, 3 dorsocentral and 2 scutellar pairs of bristles, 1 robust sternopleural. Acrostichal microchaetae (as far as discernible on holotype) arranged in 4 rows. Femora and tibiae black, but distal end of femora, both ends of tibiae and all tarsal joints yellow. mt_1 of male with a small black apical tooth. Apical third of anterior side of mid femora with a row of 4 spine-like bristles, basal half of ventral side with long setiform hairs, apical third of posteroventral side with somewhat thicker, long bristles. Chaetotaxy of mid tibia: 5 ciliform, thin but long perpendicular setae on dorsal ridge, 1 thick bristle each below middle, at distal fourth and at distal eighth on anterodorsal side (and base of a bristle at upper third?), preapical wreath of bristles, 1 strong bristle at apical third of anteroventral side, 1 robust bristle also at apical fourth of posteroventral side. Hind femora with some long dorsal bristles, ventrally with only 1 bristle at apical third. Hind tibia without anteroventral bristle, dorsal side with longer setiform hairs, very long dorsal preapical, and 1 subventral and lateroapical spiniform black bristle each at apex. Wing measurements of holotype: approximately 1.90×0.69 mm, wing slightly bent downward, thus not precisely measurable. One long incurving bristle on costa near alar base, costal section mg_1 with long bristles, mg_2 with only short setiform bristles. Pattern on wing similar to those of related species, but vein r_{4+5} not white on white-spot areas, and cross-veins also not white merely much paler brown than veins on dark-spot areas. Halteres pale, yellowish brown.

Pregnital sternite of male (Fig. 1.) rather peculiar as lateral edges bent inwards thus lateral lobes bent outwards. Lateral lobes pointed, middle of sternite hardly emarginated. Inner genitalia not studied.

Body length of holotype: 2.55 mm.

H o l o t y p e ♂: S[outh] Arg[entina], Rio Negro, El Bolsón, [forehill of Mt. Piltriquitron, 350 m], 24. IV. 61, GY. TOPÁL, No. 413.

A. (Procopromyza) argentinensis sp. n. appears to stand nearest *chilensis* RICH., but its wings are much more distinctly spotted, the male pregenital sternite although medially as slightly emarginate as that of *chilensis*, has a completely different form (cf. RICHARDS 1931, Fig. 20, f).



Fig. 1. Pregenital sternite of *Archiborborus (Procopromyza) argentinensis* sp. n. Holotype ♂

A. (Procopromyza) calceatus DUDA, 1921

In its description DUDA indicated its holotype and the types of the species *setosus* DUDA, 1921, incorrectly as belonging to the Vienna Museum. Later (DUDA, 1932) he corrected this statement for *setosus* („möglicherweise gehören sie dem Museum in Budapest“). Actually, the holotype of *calceatus* also was in our collection at all times.

The holotype female is in rather good condition, although its wings are transversely broken and its apical scutellars are absent. Its abdomen is strongly contracted and bends downward. Measurement taken also along the abdomen, the specimen is 4.5 mm instead of 4.0 mm, as given in its description. (It should be noticed here that almost all of DUDA's measurement data are slightly less than the factual values.)

RICHARDS (1961) had not the possibility to study this species as the deposition of the type was unknown, so he was not able to fit it in his key; but he deduced rightly from the description that it runs to the couplet 10 in his key. Now his key can be completed as follows:

- 10 Bigger species, 4.5 mm. Mid tibia with 4 strong anterodorsal and 1 anteroventral bristles. Frons in front and between ocellar triangle and orbits reddish:
- A. calceatus** DUDA
- Smaller species, 1.75 – 2.5 mm. Mid tibia with 2 anterodorsals and either 1 ventral or 1 anteroventral and posteroventral bristle each. Frons shining or dull black: 10a
- 10a Mid tibia with 1 ventral bristle. Ocellar triangle, orbits and dorsum of thorax shining black: **A. edwardsi** RICHARDS
- Mid tibia with 1 anteroventral and 1 posteroventral bristle. Head and dorsum of thorax dull brownish-black:

A. hirtus (BIGOT)

A. (Procopromyza) chilensis RICHARDS, 1931

South Argentina: 2 ♂: Rio Negro, El Bolsón, valley of Rio Azul, 350 m, 7. IX. 1961, *Libocedrus-Lomatia* forest with scattered *Nothofagus arctica*, sifted litter of mire and radal, GY. TOPÁL, No. 8; 1 ♀: Rio Negro, El Bolsón, valley of Rio Azul, 300 m, 22. IX. 1861, sifted litter and moss on bark of pitra from *Nothofagus dombey-Myrceugenia exsupca* marsh-forest, GY. TOPÁL, No. 50.

The specimens in our collection agree well with description, although the male pregenital sternite are less slightly emarginate than that of the drawing in the description (RICHARDS, 1931, Fig. 20, f). Additional localities, referring to the species are: Argentina (Neuquén), Chile (Llanquihue, Bío-Bío).

A. (Archiborborus) hirtipes (MACQUART, 1843)

South Argentina: (specimens on minutia pins) 3 ♂, 1 ♀: Chubut, Cholila, [Lago Mosquito, 620 m], 30. IV. 61, [singled under dry cattle dung on pasture near lake], GY. TOPÁL, No. 429; (specimens in alcohol) 2 ♂: Rio Negro, El Bolsón, Pampa Azcona, 350 m, 3. XI. 1961, sifted litter of *Myrceugenia exsupca* marsh-forest, GY. TOPÁL, No. 18; 1 ♀: Rio Negro, El Bolsón, along Arroyo Negro 350 m, 6. II. 1961, sifted litter of *Myrceugenia exsupca*, GY. TOPÁL, No. 51.

In the Argentine it was collected only at Buenos Aires except for the above data. Other known localities: Uruguay (Montevideo), Falkland I., Chile (Arauca, Magallanes, Chiloe I.).

A. (Procopromyza) orbitalis DUDA, 1921

Chile: 3 ♂, 1 ♀ (in alcohol): Laguna la Cotacotani, 4780 m, 26. XI. 1965, Berlese samples from lakeshore: lakeshore hard plant (I. LOKSA), No. 192.

Subsequently to the discovery of the type-specimens, the species was found first in our material. New to Chile. Without a study of the specimens of var. *latifrons* DUDA, 1921, it seems not impossible on the base of its description that it is a distinct species (cf. DUDA, 1921; RICHARDS, 1961).

A. (Procopromyza) setosus DUDA, 1921

As mentioned above, its type-specimens are in our collection. The male is now designated as lectotype. The specimens are somewhat fractured: the hind femora, tibiae and tarsi, and the joints 2–5 of mid right tarsus are missing on the lectotype male, its wings are adherent to each other, the base of the right wing is fractured, the thoracic bristles partly missing; the left mid and hind femora, tibiae and tarsi and the hind right tarsus are entirely missing on the paralectotype female, the right half of its scutellum is broken.

The important characters in its separation from the related species are:

Body length of lectotype male approx. 3.5 mm (its abdomen curved entirely down, thus difficult to measure), wing length 3.25 mm, wing width 1.43 mm. Body length of paralectotype female 3.8 mm, wing length 3.22 mm, wing width 1.45 mm.

Facial plate and antennae reddish brown, genal bristle weak, shorter than one-third of vibrissa. Frontal triangle, orbitalia and predominant part of me-

sonotum shining black, but there are also pruinose parts on mesonotum. Acrostichals in 2 well-ordered rows. A pruinose band on hind edge of mesopleura along its whole height. mt_1 of male distally with an apical ventral small black tooth. Armature of mid tibia: 1 weaker bristle at 16/51, 1 very robust bristle each at 20/51, 28/51, 35/51, 44/51 on anterodorsal side, 1 strong bristle each at 14/51, 19/51, 23/51, 29/51, 37/51, 41/51, 43/51 on posterodorsal side, preapical wreath of bristles, 1 robust anteroventral below distal third, 1 posteroventral at apical 4/5. Hind tibia with a 0.3 mm long dorsal preapical bristle, 1 moderately strong anteroventral bristle slightly above distal third, one row each of long thin bristles and bristle-like setae in whole length of anterodorsal and posterodorsal sides, among them 3 anterodorsals and 2 posterodorsals thicker, thus regardable as bristles. One straight anterodorsal preapical, 1 straight anterior apical and 1 curved anteroventral apical black spine at apex of tibia. Whole wing unicolorous light brown, veins brown but darker on base of wing. Very long setae on abdominal tergites of male laterally, genital arch similarly with long setae, sternites with perpendicular, evenly distributed, very thin but not short setae. Pregenital sternite of male large, its biggest length at middle, convex, medio-distally with a fringe of long dense bristle-like setae. Female abdomen less setaceous, long, thin cerci with 2 long hairs each and some short hairs.

Label data of lectotype: Bolivia, Cillutincara, *Archiborborus setosus* ♂. n. sp. (DUDA's handwriting), det. O. DUDA; label data of paralectotype: Bolivia, Cillutincara, *Archiborborus setosus* ♀. n. sp. [DUDA's handwriting], det. O. DUDA.

As its mesonotum is shining and has only 2 rows of acrostichal microchaetae, its wings are not spotted, the male pregenital sternite is similar mostly to that of *orbitalis*, perhaps it is nearer related to the species *orbitalis* DUDA, 1921, than to *maculipennis* DUDA, 1921 (cf. RICHARDS, 1961).

A. (Procopromyza) submaculatus DUDA, 1921

Specimens on minutia pins: South Argentina: 1 ♂: Rio Negro, El Bolsón, [Pampa Azcona, 350 m], 5. II. 61, [netted in grasses on daisy-field at 18 o'clock] GY. TOPÁL, No. 255; 1 ♂, 1 ♀: Rio Negro, El Bolsón, [foot of Mt. Piltriquitron, 350 m], 14. VI. 61, [singled from under stones near spring], GY. TOPÁL, No. 463; 1 ♀: Rio Negro, El Bolsón, [foot of Mt. Piltriquitron], 350 m, 21. IV. 61 [singled under bark of live *Maytenus boaria* trees], GY. TOPÁL, No. 494; 1 ♀: Rio Negro, El Bolsón [foot of Mt. Piltriquitron, 350 m], 29. IX. 61, [beaten, from blossoming *Berberis buxifolia* bushes], GY. TOPÁL, No. 581; 1 ♀: Rio Negro, El Bolsón, [Pampa Azcona, 350 m], 6. XI. 61, [netted in hydrophilous vegetation in marsh], GY. TOPÁL, No. 701.

Specimens in alcohol: Chile: 5 ♂, 7 ♀: Concón (Provincia Valparaiso), 5 km from Concón on road leading to Quintero, 10. X. 1965, Berlese-samples from sand dunes, decaying fruit branch of *Puja* lying on ground (I. LOKSA), No. 46; 1 ♀: Curacavi (Provincia Santiago), Los Cerillos, 72 km W from Santiago de Chile, 15. I. 1966, 10 soil traps with ethyleneglycol in hillside ditch (I. LOKSA), No. 305. South Argentina: Rio Negro, El Bolsón: 4 ♂, 23 ♀: from trap in soil by Arroyo Negro, 350 m, 28. II. 1961, GY. TOPÁL, No. 25; 2 ♂: Pampa Azcona, 350 m, 1. XI. 1961, sifted from under cattle carcass (3 month old), GY. TOPÁL,

No. 38; 2 ♀: along Arroyo Negro, 350 m, 6. II. 1961, sifted litter of *Myrceugenia exsupca*, GY. TOPÁL, No. 51; 42 ♂, 78 ♀: Pampa Azcona, 350 m, 7., 12. II., 11. III. 1961, from trap in soil at Arroyo Negro, GY. TOPÁL, Ns. 195, 196, 198.

It is much the most abundant species in our material. New for Argentina. The specimens belonging indoubtedly to the same species display considerable differences in body length. The smallest measured specimen are only 2.1 mm, the biggest one is 4.1 mm. Likewise, as RICHARDS (1961) has observed, there are specimens of very different wing size. Female specimens are found in this material, together with specimens possessing normal wings, which have wings not reaching the hind edge of tergite 5, and there are male specimens with wings just overreaching the end of the abdomen, although their wing of normal size is so long that the apical third of the wing is behind the end of the abdomen.

Other described species of the genus: *A. (Procopromyza) annulatus* RICHARDS, 1963, *A. (Procopromyza) chaetosus* RICHARDS, 1961, *A. (Procopromyza) edwardsi* RICHARDS, 1931, *A. (Procopromyza) femoralis* (BLANCHARD in GAY, 1852), *A. (Procopromyza) hirtus* (BIGOT, 1888), *A. (Procopromyza) koenigi* DUDA in HOLDHAUS, 1932, *A. (Procopromyza) maculipennis* DUDA, 1921, *A. (Archiborborus) maximus* RICHARDS, 1961, *A. (Huapia) microphthalma* RICHARDS, 1931, *A. (probably Procopromyza) nitidicollis* (BECKER, 1919), *A. (Procopromyza) orbitalis* var. *latifrons* DUDA, 1921, *A. (Procopromyza) quadrinotus* (BIGOT, 1888), *A. (Procopromyza) simplicimanus* RICHARDS, 1931, *A. (Procopromyza) varipes* (BIGOT, 1888) (= *albicans* RICHARDS, 1931).

I regard the valid name of the last species *varipes* (BIGOT) (*Borborus varipes* BIGOT, 1888). RICHARDS (1931) studied the types of this species, but as there was a name *Borborus varipes* MEIGEN, 1830, at that time, he considered the former name preoccupied, and described *albicans* sp. n. on the basis of other specimens, clearly indicating that he applied it to the same species. His course was hardly correct, because the name *Borborus varipes* BIGOT, 1888, referred to a species which did not belong to the same genus as the species named *Borborus varipes* MEIGEN, 1830, so the first one is not homonymous with the second one. Thus the name of *albicans* RICHARDS, 1931, enters into synonymy with *varipes* (BIGOT, 1888), and as RICHARDS designated *albicans* sp. n. as the type-species of the subgenus *Procopromyza*, the valid name of the type-species of this subgenus is *varipes* (BIGOT, 1888).

ZUSAMMENFASSUNG

Sphaeroceriden (Diptera) in der Sammlung des Ungarischen Naturwissenschaftlichen Museums
I. Archiborborus Duda, 1921

Der Verfasser beschreibt 7 *Archiborborus*-Arten, von denen eine, *A. (Procopromyza) argentinensis* sp. n. für die Wissenschaft neu ist. Diese steht *A. chilensis* RICH. am nächsten, weicht jedoch durch die stark gefleckten Flügel und die Form des Prägenitalsternits des Männchen von der Schwesterart gut ab.

REFERENCES

1. ANDRÁSSY, I., BALOGH, J., LOKSA, I., MAHUNKA, S. & ZICSI, A. (1967): *The scientific results of the Hungarian soil zoological expedition to Chile, Argentina and Brasil I. Report on the collectings.* — *Folia Ent. Hung.*, 20: 247–296.

2. BECKER, TH. (1919): *Diptères brachycères*. — Mission Arc Méridien Équatorial en Amérique du Sud, 1899—1906, 10/2: 162—215.
3. BIGOT, J. M. F. (1888): *Diptères*. — Mission Sci. au Cap Horn 1882—3, Zoologie, 6: 1—45.
4. DUDA, O. (1921): *Fiebrigella and Archiborborus, zwei neue südamerikanische Borboridengattungen (Dipteren)*. — Tijdschr. Ent., 64: 119—146.
5. GAY, C. (1852): *Historia física y política de Chile*. Zoologie, 7. — Paris.
6. HOLDHAUS, K. (1932): *Über die Insektenfauna der Insel Süd-Georgien*. — Zool. Jahrb., Abt. Syst., 63: 163—182.
7. RICHARDS, O. W. (1931): *Sphaeroceridae (Borboridae)* — In: *Diptera of Patagonia and South Chile*, 6: 62—84.
8. RICHARDS, O. W. (1961): *Diptera (Sphaeroceridae) from South Chile*. — Proc. R. Ent. Soc. Lond., 30: 57—84.
9. RICHARDS, O. W. (1963): *Sphaerocerid flies from South and Central America in the collection of the California Academy of Sciences (Diptera)*. — Pan-Pac. Ent., 39: 231—246.
10. RICHARDS, O. W. (1967): *Family Sphaeroceridae (Borboridae)*. — In: *Catalogue of the Diptera of the Americas south of the United States*, 72: 1—28.
11. WALKER, F. (1849): *List of the specimens of Dipterous insects in the collection of the British Museum*. — 4: 469—1172, London.