

# Papéis Avulsos de Zoologia

## NEW NEOTROPICAL TABANIDAE. II. THREE PRIMITIVE UNDESCRIBED PANGONIINE-LIKE FLIES OF UNUSUAL INTEREST FROM CHILE

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### ABSTRACT

*Three undescribed primitive pangoniine Tabanidae from southern South America are described. All are females, the genitalic characters of males of which eventually will be needed to decide the definitive systematic assignment. New genera and species are: Archeomyotes angustipennis and Austromyans dasyops from Chile, and Fairchildimyia penai from Argentina.*

Members of the tribe Pangoniini were considered by Mackerras (1955) to be among the most primitive in the family Tabanidae, an opinion supported in part by genitalic studies. A characteristic in both sexes is that the ninth tergite is complete and not divided as it is in higher groups. In females, however, he showed the tenth tergite to be customarily divided as did Oldroyd (1962) in the only two representatives (rare) of the tribe in South Africa.

On this basis, it is assumed that the complete tenth tergite in one of the species described below, when considered with other characters, indicates that *A. angustipennis* is among the most primitive in the tribe, progenitors of which probably originated in South America. Of 18 species of the tribe in Australia, *Ectenopsis* represented "the most primitive tabanid known" to Mackerras. Yet the tenth tergite is divided in the female of this, and is figured (though not described) as undivided only in *Therevopangonia insolita* Mack. and in Chilean *Pseudomelpia horrens* End. which are otherwise quite dissimilar to our present Chilean species.

Other female genitalic features in these new species are conventional for this tribe of the subfamily Pangoniinae, as are other characters: normal wing venation with straight anal veins and spur veins at bases of vein R<sub>4</sub>, paired terminal spines on the 2 hind pairs of tibiae but none on the fore pair, and antennae with 2 basal segments and 5- to 8-annulate flagellums.

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*Archeomyotes angustipennis* has superficial resemblance to Coenomyidae and its apparently primitive wing with peculiar mottling and narrow anal area is reminiscent of that of a primitive Chilean crane fly, *Tanyderas pictus* Philippi. The compaction and reduction basally in the antennal flagellum represents a more specialized trend than that of the primitive subulate flagellum of the other new species, *Austromyans dasyops*.

Conversely, the distinctly hairy eyes of two of these generalized flies indicate what Mackerras (*op. cit.*) considers another trend toward specialization and are a customary feature of his higher tribe Scionini, which, however, usually lacks spur veins.

Types, in the Santiago Museum of Natural History, were studied through courtesy of Mr. Luis Peña of that institution. Only females are known unfortunately.

### **Archeomyotes, gen. n.**

Moderately large, generalized, coenomyid-like flies, monotypic. Head rather flat in front and small, eyes ostensibly bare, frons of female without a callus, vertex with 3 prominent ocelli, antennal flagellums subulate apically but the basal annuli fused, proboscis small, weak, labella fleshy, wing with normal venation plus a spur vein at base of vein  $R_4$ , peculiarly mottled, basicostas bare. Tergite IX completely sclerotized, undivided as in other Pangoniini, but exceptionally, tergite X is likewise complete and undivided; spermathecal ducts rather long, moderately sclerotized and unexpanded.

Type species, *Archeomyotes angustipennis*, sp. n. (transl.: a primitive fly with slender wings).

### **Archeomyotes angustipennis, sp. n.**

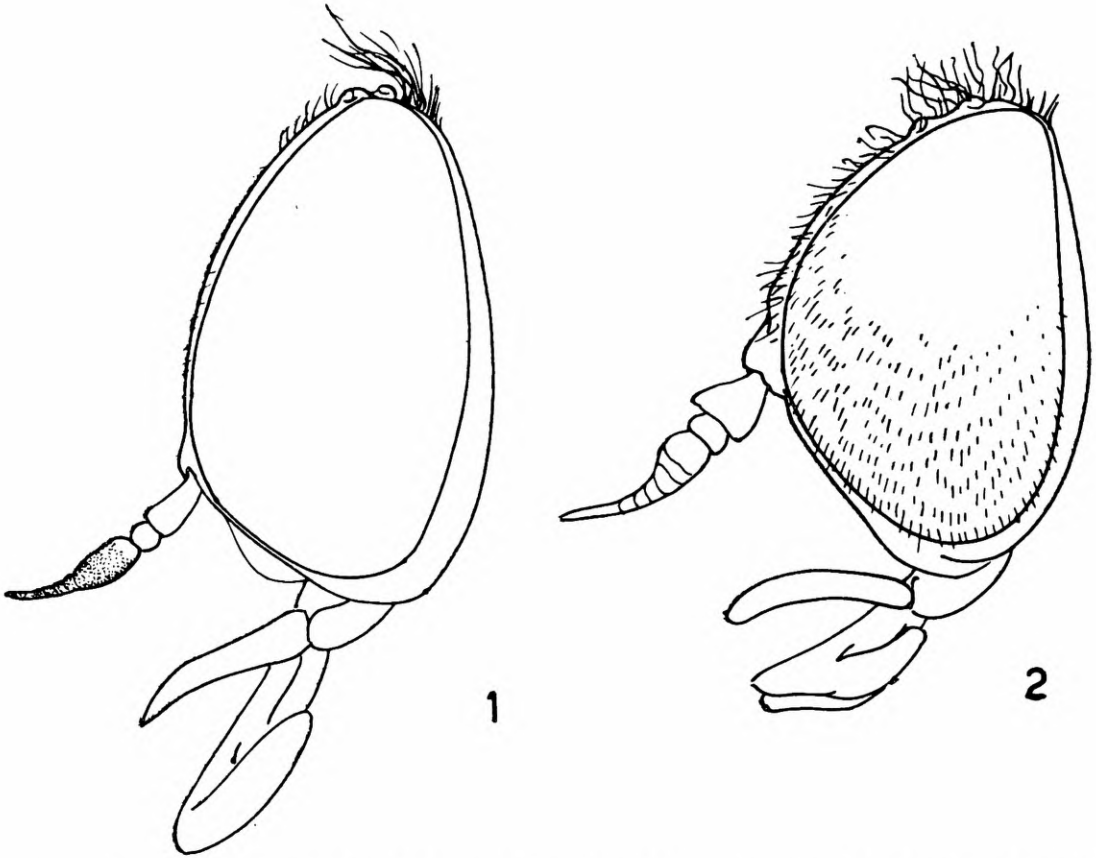
(Figs. 1 and 3)

A large brownish species, wings peculiarly mottled and elongated with reduced anal areas, head small, antennal flagellum with ovoid plate and 4 annuli, palp robust pointed, proboscis short and ocelli prominent.

Holotype female: Length, 17 mm. Eyes black ostensibly bare (a few microscopic hairs). Frons, subcallus, face and cheeks buff-gray pollinose. Frons slightly convergent (Fig. 3 a) with a median furrow, elevated ocellar tubercle with 3 prominent ocelli, pale yellow hairs below grading into longer black ones above and a prominent tuft of decurved black hairs at vertex. Frontal index — 1:2.6. Proboscis yellow-brown with large fleshy labella. Antennae as figured (Fig. 3 b), scape, pedicel and extreme bases of flagella light brown, remainder dark brown. Palpi (Fig. 3 c) buff-gray pollinose with long dark hairs and a peculiar, possibly sensorial hump on the distal third. Thorax brown, a thin dark median and 2 gray submedian notal lines which widen into 3 prominent spots before the scutellum; the latter gray laterally with a triangular blackish spot on the disc; the notum also margined with gray. Wings rather long and narrow, the anal areas reduced but cells  $R_4$  not produced as in related families, and a characteristic spur vein present; peculiarly mottled (Fig. 3 d); major veins (C,

R, R<sub>3</sub>, Cu) with unusually long, silvery setae. Basicosta stubby, without setae. Knobs of halteres pale yellow. Legs bright yellow with white hairs; paired terminal spines on mid- and hind-tibiae, none on fore pair.

Abdomen with tergite I buff-gray pollinose and predominantly silvery-gray pilose; remaining tergites pinkish-gray with pale pilosity, flanked on each side by broad, irregular, dark brown, mostly blackhaired stripes; a row of small median black spots from tergite I caudad. A notch mesally on hind border of tergite I, but no evidence of a longitudinal sulcus. Venter pinkish-gray pollinose, predominantly pale-haired; sternite I bare and shining orange.



Figs. 1 and 2. Head profiles of females of: 1. *Archeomyotes angustipennis*, gen. n., sp. n. 2. *Austromyans dasyops*, gen. n., sp. n.

Genitalia: Cerci (Fig. 3 f) blunt conical; tergites IX and X undivided, well sclerotized; hypoproct not pointed. Sternite VIII broad, with gonapophyses rounded and well separated (Fig. 3 e). Genital fork (Fig. 3 g) with base homogeneously sclerotized, caudal ends of spermathecal ducts long and slender, moderately sclerotized and unexpanded; proximal end of spermathecae and combs missing (in contrast see Fig. 4 f).

Chihualoco, Chile, 16.XII.52, Coll. G. Monsolve.

*A. angustipennis* differs from Nearctic *Apatolestes* by pointed, protruding cerci, no grooves on more slender, elongate palpi, pro-

boscis short with labella half as long, basicostas more pointed, triangular, wings pictured, more slender, anal area reduced, and a decumbent patch of long black hairs at vertex.

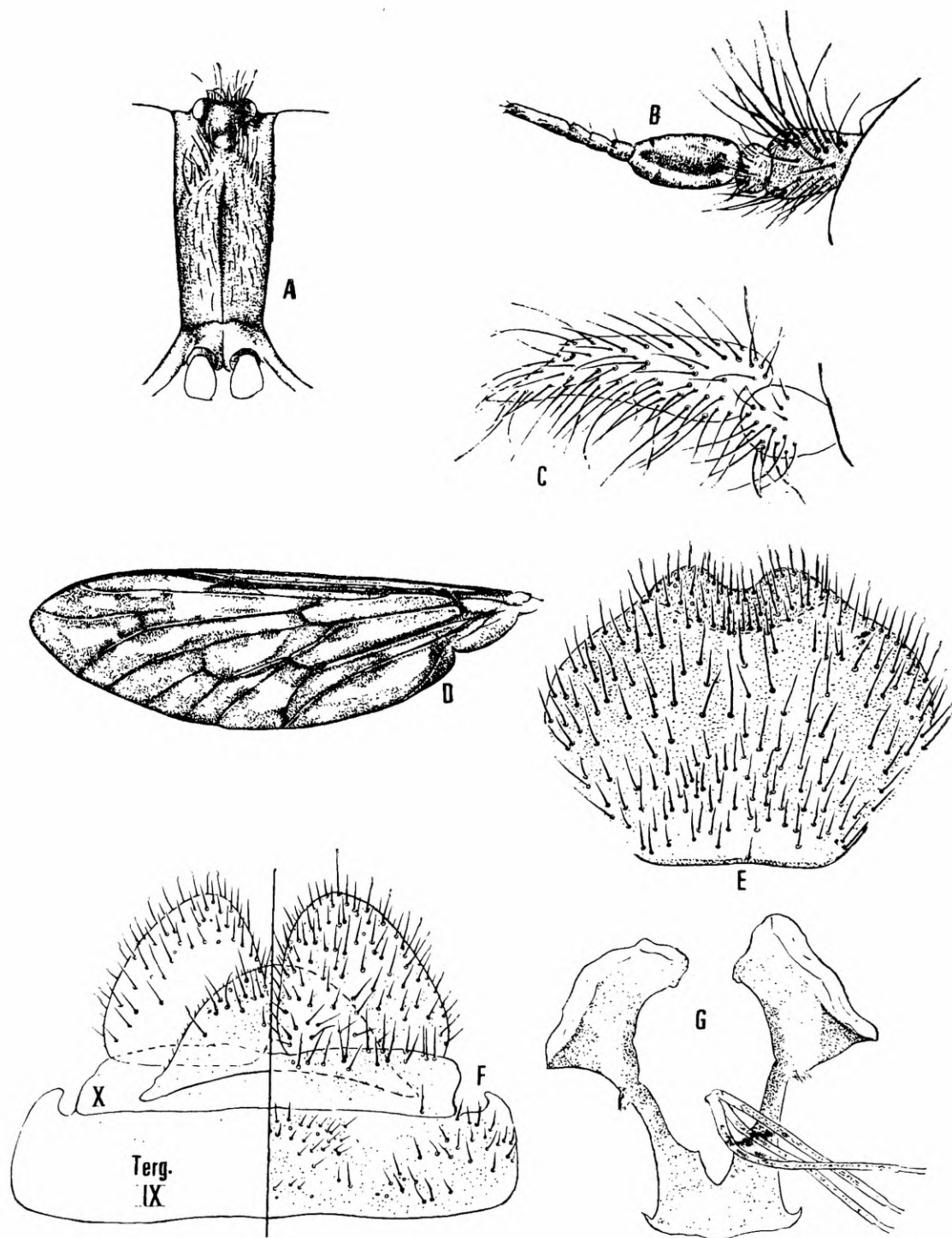


Fig 3. *Archeomyotes angustipennis*, gen n., sp. n., ♀. a. frons, b. antenna, c. palpus, d. wing, e., f., g. genitalia (incl. cerci, sternite VIII, and genital fork, see text).

**Austromyans, gen. n.**

A medium-sized, generalized, *Esenbeckia*-like species, but the eyes hairy, proboscis short and fleshy and equalled in length by the palpi. Wings fumose, venation normal, spur veins present. Basicostas and subcostal veins bare. Frons of female subshiny but without a distinctive callus, 3 prominent ocelli at vertex. Flagellum subulate, the basal segments not fused. Tergite I divided mesally by a deep sulcus. Not only tergite IX undivided, but X possibly as well though a membranous fold simulates division.

Type species, *Austromyans dasyops*, sp. n. (from Greek interpreted as southern fly with hairy eyes).

***Austromyans dasyops*, sp. n.**

(Figs. 2 and 4)

A medium-sized species, brownish-red including appendages, thorax gray, wings fumose, intensified along veins, basicostas bare, eyes hairy, antennal flagellum subulate with 8 annuli, ocelli large, and proboscis short with large brown fleshy labella.

Holotype female: Length 15 mm. Eyes black, unbanded, distinctly pale yellow hirsute. Frons buff-gray pollinose with no callosity but swollen below, and with brown and black hairs; prominent sooty-gray tubercle at vertex with 3 prominent ocelli (Fig. 4 a). Frontal index 1:2.7. Subcallus dull yellow pollinose. Face and cheeks yellowish-gray pollinose, predominantly pale yellow-haired above mixed with black hairs below. Antennae as figured (Fig. 4 b), scape and pedicel orange-yellow with gray pollinosity and black hairs; last annulus elongate and blackish distally. Palpi as figured (Fig. 4 c), reddish-gray with black hairs, and long whitish ones on the basal segment.

Notum gray pollinose with mixed brassy and brown hairs. Prealar tubercles, scutellum and pleura pinkish with gray pollinosity and pale yellow pile. Wings suffused with brown, venation normal, spur vein present. Legs yellow with yellow-gray hairs.

Abdomen reddish-brown dorsally with predominantly rufous hairs, paler below; an unusual, deep sulcus dividing tergite I mesally.

Genitalia: Cerci (Fig. 4 d) subquadrate, tergite IX complete, but X with a median membranous fold simulating division into two plates. Hypoproct pointed apically, little sclerotized and with short hairs. Sternite VIII broad, gonapophyses rounded with a strong V-shaped separation (Fig. 4 e). Genital fork (Fig. 4 f) with the centro-basal area unsclerotized and small combs; caudal ends of spermathecal ducts long, thicker than in *Archeomyotes*, moderately sclerotized and unexpanded; proximal end of spermathecae missing.

Cuesta El Melon, prov. de Santiago, Chile, 30.XII.63, Coll. Peña.

As called to my attention by Dr. G. B. Fairchild, this species has some interesting resemblance in the same tribe to the primitive South African *Stukenbergina callani* Oldroyd — reddish-brown color in combination with similar head characters including hairy eyes and slender palpi subequal to the short fleshy proboscis, but the basal annuli of the flagellum in *S. callani* are fused (as in *A. angus-*

*tipennis* above), cells  $R_5$  of the wings are closed and tergite X is conventionally divided in the genitalia. Possibly *Austromyans* could have derived from precursorial progenitors in common with a South African offshoot as suggested in Oldroyd's (*op. cit.*) hypothesis of Neotropical derivation. These primitive tabanid stocks in the Southern Hemisphere promote exciting phylogenetic speculation. It appears more than coincidental that Oldroyd's two South

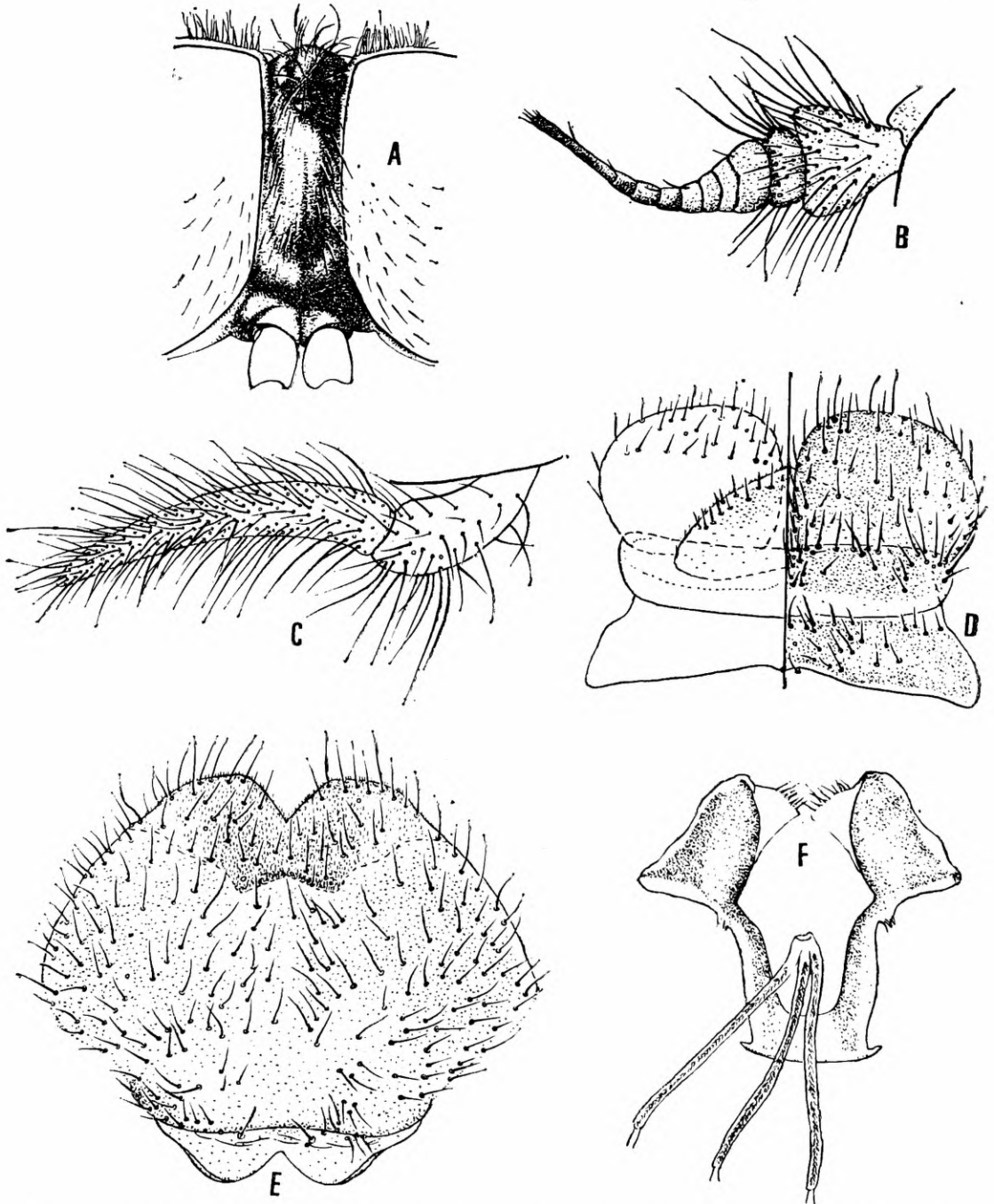


Fig. 4. *Austromyans dasyops*, gen. n., sp. n., ♀. a. frons, b. antenna, c. palpus d., e., f. genitalia (incl. cerci, sternite VIII, and genital fork with combs).

African species show variation in subulate or basally-fused flagellar annuli similar to that in our Chilean species.

### **Fairchildimyia, gen. n.**

Moderately large, generalized flies with hairy unibanded eyes, swollen cheeks and occipital rims, short fleshy proboscides but little exceeding the robust palpi, flagellar annuli more or less fused basad of the 4-annulate styles. Wing venation normal except anal cell constricted but not closed at the margin, spur veins present and isolated clouds on "fork" and cross veins. Basicostas bare. Frons of female with orbicular, isolated basal callosity and prominent triangular ocelligerous tubercle at vertex bearing 3 ocelli. Paired spurs at apices of 2 hind pairs of tibiae.

Type species, *Fairchildimyia penai*, sp. n. Named in honor of Dr. G. B. Fairchild, enthusiastic student of Neotropical tabanid phylogeny, and Luis Peña, indefatigable collector, particularly of Chilean Tabanidae.

### **Fairchildimyia penai, sp. n.**

(Fig. 5)

A medium-sized brownish fly with predominantly brown appendages, plainly hairy eyes and 3 ocelli, a prominent, isolated, orbicular callosity at base of a strongly divergent frons in the female, flagellum with 4 distinct apical annuli, and the base with a fusion of annuli, the proboscis and palpi short and stout, and wings with prominent isolated clouds and spur veins.

Holotype female, 11.5 mm. Eyes distinctly hairy and with one narrow purple cross stripe (relaxed). Frons (Fig. 5 b) sooty-gray pollinose with sides markedly divergent below, index 1:1.5; a prominent black boss at vertex bearing 3 large ocelli, and a rounded black *Silvius*-like callosity below, widely separated from the lateral margins. Subcallus small, flat, buff-gray. Face and swollen cheeks pale brown pollinose with mixed black and pale yellow pile, the latter predominating below and behind the eyes in the occipital fringe; occipital rim wide to the vertex. Antennae shaped as figured (Fig. 5 c), hairs on basal 2 segments long and black above, pale below. Palpi conical, short and swollen (Fig. 5 d), with bushy black and yellow hairs and a distinct "sensorial" pit dorsally on the apical segment. Proboscis as short as the palpi, black, the labella large and fleshy (Fig. 5 a).

Thorax tan with mixed sparse dark and pale hairs, notum with a pair of shortened and 2 complete sublateral, prominent dark brown stripes, and the disc of the scutellum dark brown, a fringe of long pale hairs on the hind border of the latter. Pronotal spiracle unusual, without evident (retracted?) lip, rather small and, in this specimen, wide open and circular, not slit-like. Legs brown, predominantly black-haired, hind tibiae with 2 strong apical spines. Wings suffused with brown, intensified around the cross veins and the long spur veins. Cells  $R_5$  wide open, anal cells slightly open, the anal area not unusually narrowed. Halteres brown, the knobs paler. Basicostas pale yellow, bare, scale-like, triangular.

Abdomen mottled brown, the first tergite darkened across the middle and with a deep median sulcus; dorsally with mixed black and pale hairs, the narrow pale incisures with pale hairs. Venter gray buff pilose and with short concolorous hairs.

Genitalia (Fig. 6): Cerci (A) subquadrate, tergite IX complete, but X with a median membranous fold similar to that in the preceding, *A. dasyops* sp. n., in which the cerci and hypoproct also show resemblance. Sternite VIII (B) broad, gonopophyses bilobed with quadrangular notch. Genital fork (C) with base homogeneously sclerotized, no combs; caudal ends of spermathecal ducts shorter and thicker than in the 2 preceding species, but likewise unexpanded; caudal ends bulbar, sclerotized and multiporous basally.

Catamarca Prov., Arg., "Arroyo El Pintado, Sta. Viña, 450 m., 26.IX.68". Coll. L. Peña. In Coll. S. C. courtesy of Luis Peña.

The generic relationships are very uncertain because of the hairy, unbanded eyes and pseudo-divided tergite X, but the head characters show some intergradation with Nearctic *Merycomyia* and *Silvius* and with Neotropical *Mesomyia* (*Pseudomelpia*) *horrens* (End.). The male is needed to assist definitive assignment.

#### COMMENT

The rather early belief that the subfamily Pangoniinae included the phylogenetically most primitive flies of this family on external morphological grounds has been substantiated by Mackerras (1955)

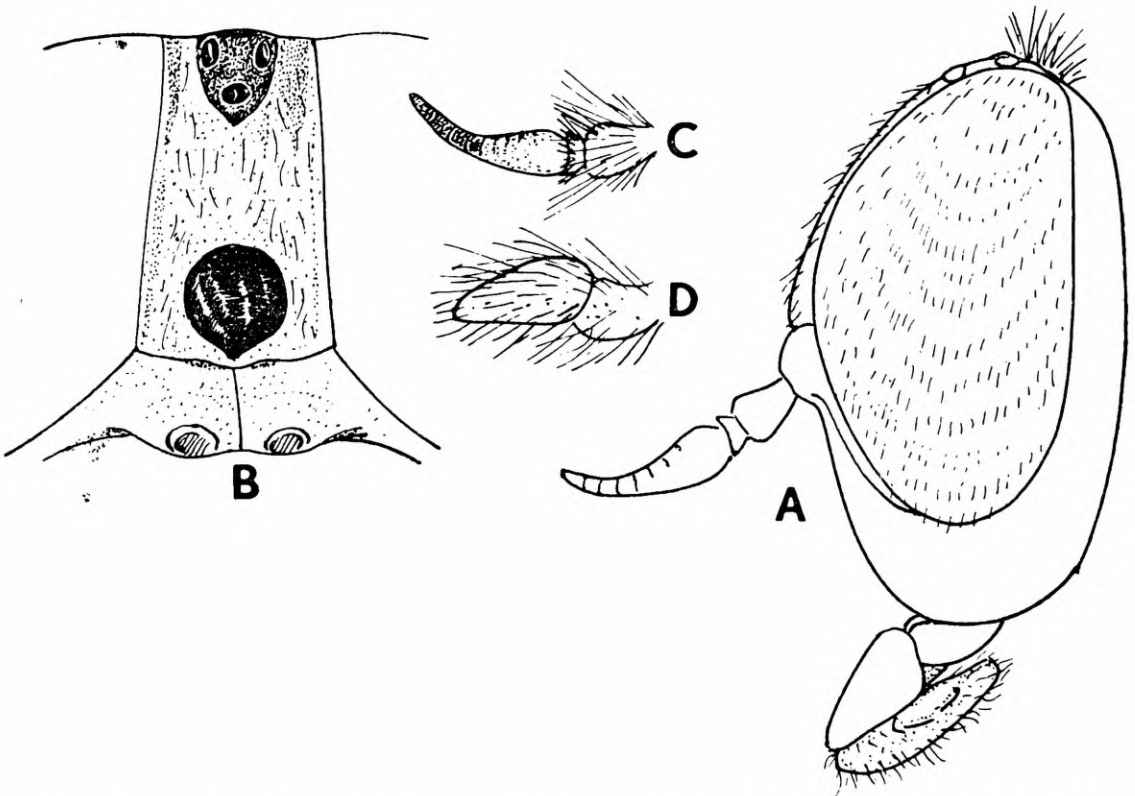


Fig. 5. *Fairchildimyia penai*, gen. n., sp. n. ♀. a. profile of head, b. frons, c. antenna, d. palpus.

on the basis of simplified genitalic characters. He also reinforced this idea by confirming and extending observed greatest elaboration of the primitive Tribe Pangoniini in the Southern Hemisphere. The concept was advanced in a recent discussion by Fairchild (1969) who tabulated a fifth more species of Pangoniini in the Neotropics than in all the other zoogeographic regions combined. He conceived the novel idea that "cool adaption" promoted survival of primitive relicts in temperate climates of which the present 3 species are possibly good examples. He further stated in relation to the Neotropics that the "unspecialized genera [of Pangoniini] occur ...in southern Brazil and Chile..." while specialized Scionini are wide-spread from Mexico to northern Argentina "but apparently not in Chile".

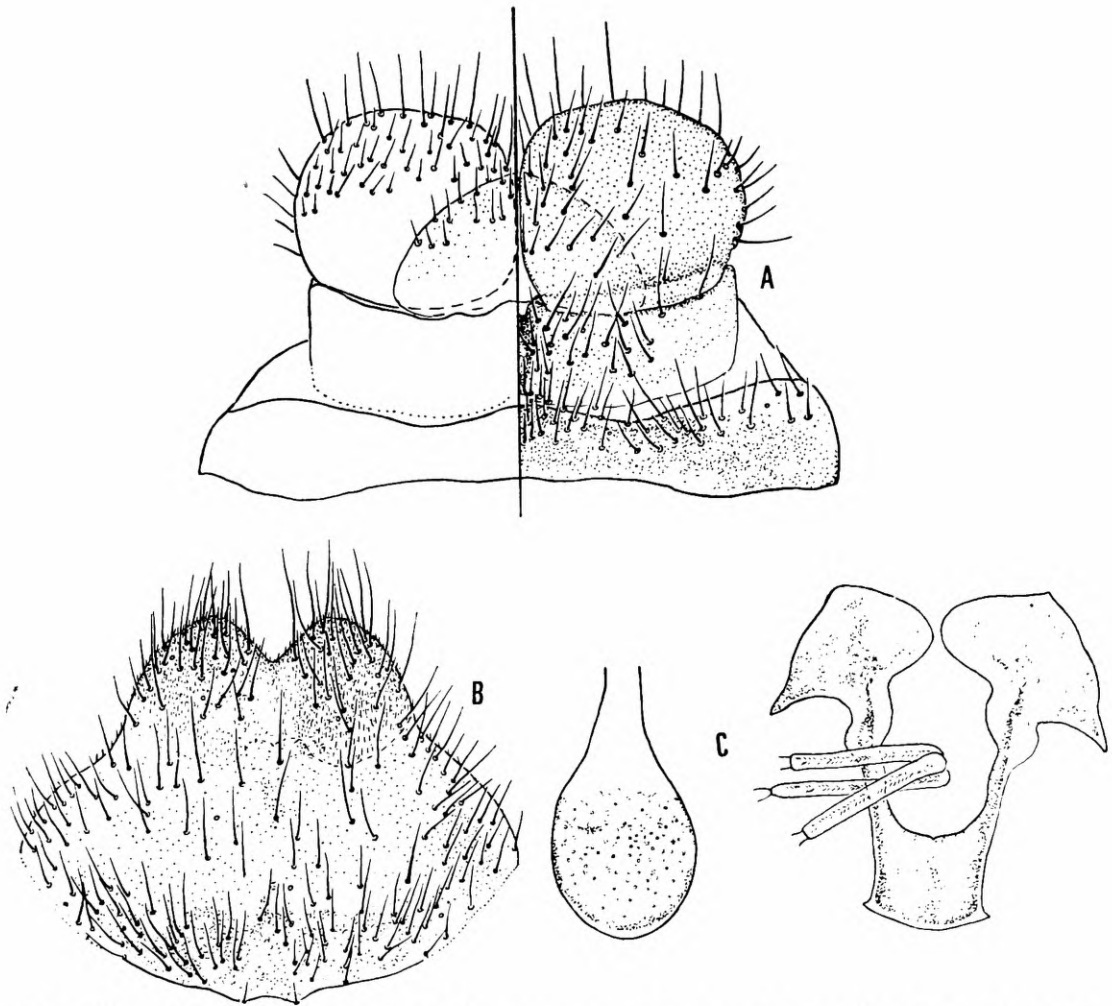


Fig. 6. *Fairchildimyia penai*, gen. n., sp. n., ♀ genitalia including: a. cerci, b. sternite VIII, and c. genital fork with caudal and basal ends of spermathecae.

The present 3 species eventually should therefore have special phylogenetic interest. The question of whether they should be assigned to the Pangoniini, in part to Mackerras' (1955) tribe Scionini or perhaps to a tribe of their own cannot be resolved until

males are eventually associated and reveal simple, rather than bifid, styles on the gonocoxites of the genitalia. The unproduced snouts and proboscides are very un-scionine-like, whereas the unbanded eyes in *F. penai* would be very exceptional for subfamily Pangoniinae. Mackerras called attention to a problematic related group of species in the Palaearctic Region assigned by authors (not Rondani) to *Corizoneura*, most of which Leclercq (1960) transferred to *Stonemyia*, a widely distributed genus in the temperate zone of the Northern Hemisphere. These are pangoniines with bare eyes, ocelli and widely open cells R<sub>5</sub>. The Nearctic *Brennania*, with densely hairy eyes, has superficial resemblance to *A. dasyops* in head characters, but the palpi are distinctly furrowed and shorter in the former, in addition to the divided tergite X in the female. There appear to be no prior genera to which the Chilean species could be assigned although there is some superficial resemblance of the head profile of *F. penai* to *Scaptia (Pseudomephia) horrens* (End.) as figured by Mackerras (1955, Fig. 29); nor do fundamental head and wing characters appear to provide congeneracy among the 3.

While tergite X is undivided and completely sclerotized in *A. angustipennis*, that structure in *A. dasyops* and *F. penai* has 2 less sclerotized plates merging mesally without sharp inner margins into a membranous connection with numerous microtrichiae. In higher groups, these sclerites, as figured by Mackerras (*op. cit.*), are more sharply margined inwardly and more obviously separated. However, these differences remain to be assessed by more detailed study of the female genitalia of other pangoniine genera.

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