

Papéis Avulsos de Zoologia

ARCHILESTRIS LOEW IN THE AMERICAS, WITH THE DESCRIPTION OF TWO NEW NEOTROPICAL SPECIES (DIPTERA, ASILIDAE, STENOPOGONINAE)

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ABSTRACT

Archilestris Loew is revised; the following species belong to this genus: capnoptera (Wiedemann, 1828; southeastern and southern Brazil and Paraguay); excellens Enderlein, 1914 (Ecuador and Bolivia); geijskesi, sp. n. (Surinam); magnifica (Walker, 1854; Mexico and USA: Arizona); and wenzeli, sp. n. (Guatemala). Comments on the hypothetical evolution of the species are given.

INTRODUCTION

Study of several collections of *Archilestris* Loew revealed the existence of two new species, which are described in this paper.

The senior author is greatly indebted to the John Simon Guggenheim Memorial Foundation, whose fellowship made possible the study of North American and European collections during 1971-72.

Abbreviations used in the text are listed below. We are greatly indebted to Drs. P. Wygodzinsky (AMNH) and P. van Helsdingen (RNH) for sending us specimens. To the curators of the museums and collections visited, our best thanks for their assistance and hospitality.

AMNH	American Museum of Natural History, New York (P. Wygodzinsky).
BMNH	British Museum (Natural History), London (H. Oldroyd).
CHM	Collection of Prof. Charles H. Martin, Tucson.
CNC	Canadian National Collection, Central Experimental Farm, Canada Department of Agriculture, Ottawa (D. M. Wood).
FMNH	Field Museum of Natural History, Chicago (R. L. Wenzel, H. Dybas).
IZPAN	Instytut Zoologiczny, Polska Akademia Nauk, Warsaw.
LAX	Los Angeles County Museum of Natural History, Los Angeles (Charles L. Hogue).
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge (H. E. Evans).

MNHN	Muséum National d'Histoire Naturelle, Paris (L. Tsacas, L. Matile).
MUN	Zoologische Sammlung des Bayerischen Staates, Munich (F. Kühlnhorn).
MZUSP	Museu de Zoologia, Universidade de São Paulo.
OXF	Hope Department of Entomology, Oxford University, Oxford (E. Taylor).
RNH	Rijksmuseum van Natuurlijke Historie, Leiden (P. van Helsdingen).
USNM	United States National Museum, Washington, D. C. (L. V. Knutson).
WIEN	Naturhistorisches Museum, Wien (R. Lichtenberg).

Genus *Archilestris* Loew

Archilestes Schiner, 1866: 672 (1868: 163; second erection of genus; preocc. Selys, 1862). Type-species, *Dasypogon capnopterus* Wiedemann (Schiner, 1868: 168).

Archilestris Loew, 1874: 377 (nom. nov. for *Archilestes* Schiner). Type-species, *Dasypogon capnopterus* Wiedemann (aut.). Ref. — Hull, 1962: 140, figs. 118, 151 (antenna), 473 (wing), 1015 (head, lateral view), 1024 (head, frontal view), 1826 (♂ genitalia), 1851 (♀ terminalia).

Pseudarchilestes Bigot, 1889: clxxxiii (unnecessary change of name).

Pseudoarchilestes Bigot, 1890: 96 (unnecessary change of name).

Key to species

1. Abdomen entirely red, pilosity black; face relatively broad, one-fourth of head width or seven-tenths width of one eye, conspicuously yellow pollinose; mystax black; legs entirely black; hind femora 6.5-7 times, first fore tarsal segment 4 times, hind metatarsus 3 times, as long as broad; length, 40 mm (USA: Arizona; Mexico) *magnifica* (Walker)
Abdomen normally black; if some tergites red, then at least tergites 1-2 black; face black, narrower, one-fifth width of head or one-half width of one eye, brownish or cinereous-white pollinose 2
2. Legs black, with black vestiture; wings uniformly very dark brown microvillose; face black, brownish pollinose below antennae, silvery pollinose above oral margin; abdomen usually black; if some tergites red, then at least tergites 1-2 black; hind femora 10 times, first fore tarsal segment 8 times, hind metatarsus 5 times, as long as broad; length, 19-26 mm (Ecuador; Bolivia) *excellens* Enderlein
At least apex of tibiae light-colored, or, if legs entirely black, then ventral surface of hind tibiae and ventral surface of hind tarsi golden-yellow haired; wings with lighter areas in some cells 3

3. *Mystax* black; apical half of hind tibiae yellowish, with several regular, horizontal rows of golden-yellowish hairs; face black, dark brownish pollinose; apex of third antennal segment with a short, spoon-shaped concavity bearing a spine; hind femora 9.5 times, first fore tarsal segment 6 times, hind metatarsus 3 times, as long as broad; length 21-24 mm (Guatemala) *wenzeli*, sp. n.
- Mystax* pure white; face silvery-white pollinose; apex of third antennal segment truncate, with an apical spine 4
4. Legs entirely black, ventral side of apical half of hind tibiae and ventral side of hind tarsi with several regular, horizontal rows of golden-yellowish hairs; wings brownish, with lighter areas in the second basal and anal cells and in the axillary lobe; hind femora 12 times, first fore tarsal segment 7 times, hind metatarsus 6 times, as long as broad; length, 21 mm (Surinam) *geijskesi*, sp. n.
- Basal two-thirds of fore and middle first tarsal segments, base of femora and tibiae (in variable extent), the entire hind metatarsus, and the basal two-thirds of the second hind tarsal segment, whitish (sometimes legs darker, but hind metatarsus always entirely whitish); wings yellowish, greyish-brown microvillose on anterior margin and on apical half; hind femora 10 times, first fore tarsal segment 10 times, hind metatarsus 5.5 times, as long as broad; length, 17-25 mm (southeastern and southern Brazil; Paraguay) *capnoptera* (Wiedemann)

***Archilestris capnoptera* (Wiedemann)**

(Figs. 1, 4-6)

- Dasypogon capnopterus* Wiedemann, 1828: 15. Type-locality: "Brazil". Lectotype ♀, WIEN, n.º 5865 (Cabinet 10, drawer 368), seen in 1972. Ref. — Walker, 1854: 444.
- Dasypogon albitarsis* Macquart, 1846: 66, pl. 7, fig. 7 (wing). Type-locality: Brazil, Minas Gerais. Type, OXF (examined in 1970, 1972). Ref. — Walker, 1854: 440.
- Archilestes capnotera*; Schiner, 1866: 677; 1867: 377.
- Archilestris capnoptera*; Lynch Arribálzaga, 1880: 259; 1882a: 132; 1882b: 142; Williston, 1889: 259; Kertész, 1909: 156; Carrera, 1945: 160 (Brazil; Angra dos Reis; Tipulidae as prey).
- Pseudarchilestes albitarsis*; Bigot, 1889: clxxxiii.
- Pseudoarchilestes albitarsis*; Bigot, 1890: 96.
- Archilestris capnopterus*; Williston, 1891: 71; Martin & Papavero, 1970: 16; error.

♂ ♀ — Body length: 17-25 mm; wing length: 13-19 mm.

Head black; frons light brown pollinose; face one-fifth width of head or one-half width of one eye, silvery-white pollinose;

mystax and beard white; palpi and proboscis black, with black bristles and a few white hairs on the midventral surface of proboscis; 1st and 2nd antennal segments light brown, sometimes with dirty white areas; 3rd antennal segment black, apex truncate with an apical spine; antennal bristles and hairs black; occiput black, silvery-white pollinose, especially along orbital margins; dorsal bristles black, white on sides of orbital margins.

Thorax dark chocolate-brown, brownish-golden pollinose on pronotum, anterior and posterior corners of humeri, on two triangular areas between dorsocentral stripes and humeri, on tip of transverse suture, on the base of the three last pairs of dorsocentral bristles; postalar calli yellowish-brown; lateral margins of mesonotum mixed silvery-white and brownish pollinose; scutellum black, with silvery-white pollinosity on disc; all bristles on thorax and scutellum long, stout, black; postscutellum black, silvery-white pollinose on lateral slopes; pleura dark chocolate brown in ground color, silvery pollinose, in some areas with brownish pollinosity; superoposterior area of meron-2 with some slender white hairs; metapleura with long, slender, black bristles and white hairs

Wings yellowish, greyish-brown microvillous along anterior margin and on apical half; halteres yellowish on stem, brownish on knob.

Legs black, with black vestiture; basal two-thirds of fore and middle first tarsal segments, base of femora and tibiae (in variable extent), the whole hind metatarsus, and the basal two-thirds of the second hind tarsal segment, whitish; coxae black, silvery-white pollinose, with long soft white bristles and hairs; pulvilli whitish; claws black; first fore tarsal segment 10 times, hind metatarsus 5.5 times, and hind femora 10 times, as long as broad.

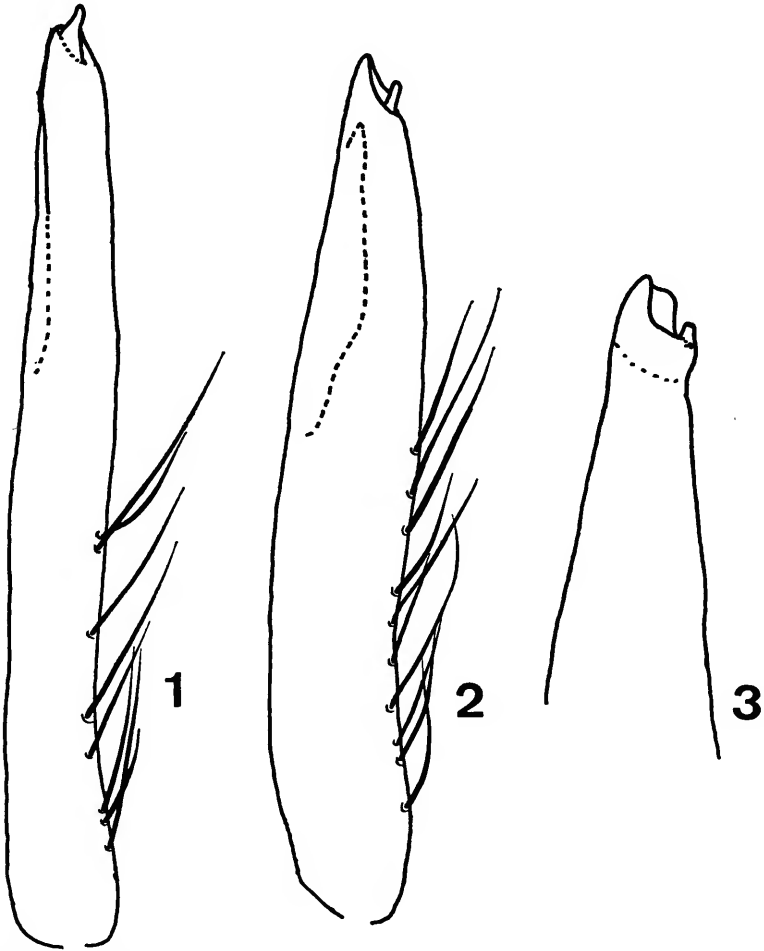
Abdomen black; tergite 1 laterally with a few strong, slender, white bristles and hairs; 2 with broad greyish pollinose spots on anterolateral margins; tergites 2-7 with narrow greyish pollinose lateral margins; hairs short, recumbent, black, on dorsum; longish and white on lateral margins; sternites black, very sparsely grey pollinose, hairs sparse, soft, white. Male genitalia (Figs. 4-6) black, with black bristles. Female acanthophorites and spines reddish brown.

Lectotype designation: A female specimen from "Brazil", in WIEN, n.º 5865 (Cabinet 10, drawer 368), was selected by the senior author in 1972 as the lectotype of *capnoptera*.

Material examined

BRAZIL. *Goiás*: Leopoldo Bulhões, x.1935 (Spitz), 1 ♀; Goiânia (Campinas), xii.1935 (Spitz), 1 ♀. *Mato Grosso*: Corumbá (Faz. Monjolinho), xi.1945 (Barretto), 3 ♀. *Minas Gerais*: Serra do Cipó, i.1951 (Machado & Santos), 1 ♂, 1 ♀; Pouso Alegre, i.1946 (Pereira), 1 ♀; Belo Horizonte (Barreiro de Cima), i.1963 (Evangalista), 1 ♀. *Rio de Janeiro*: Nova Friburgo (Muri), i.1966, i.1965 (Gred & Guimarães), 1 ♂, 1 ♀; Angra dos Reis, xi.1945 (Lane), 2 ♀; Teresópolis, i.1957 (Seabra), 1 ♀; Mangaratiba, xii.1938 (Serviço de Febre Amarela), 1 ♀. *Espírito Santo*: Santa Teresa, iv.1969 (Papavero), 2 ♀. *São Paulo*: Barueri, iii.1965, ii-iii.1956,

xii.1954 (Lenko), 1 ♂, 3 ♀; Juquiá (Fonte do Tapir), i.1941 (Coutinho), 1 ♂; São Paulo (Cantareira), ii.1944 (Ramalho), 1 ♂; Porto Albano, x.1954 (Exp. Faculd. Higiene, Univ. S. Paulo), 1 ♂; Ribeirão Preto (Rio Tamanduá), x.1953 (Barretto) 1 ♀; Campos do Jordão (Eugênio Lefevre), 1200 m, ii.1963 (Guimarães, Morgante, Rocha, Barroso & Travassos), 1 ♀; Paranapiacaba, ii.1928 (Spitz), 1 ♀; Avanhadava (Barra Mansa), ii.1946 (Barretto), 1 ♀; Estação Biológica de Boracéia, Salesópolis, i.1948 (Travassos F.º & Braz), 1 ♂ (teneral); i.1949 (Barretto), 3 ♂, 4 ♀; iii.1948 (Travassos F.º, Braz, Rabello & Bokermann), 1 ♀; v.1948 (Rabello, Tra-



Archilestris, types of third antennal segment, 1, *A. capnoptera* (Wiedemann); 2, *A. wenzeli*, sp. n.; 3, *A. magnifica* (Walker).

vassos F.^o & Gaeta), 1 ♀; ii.1949 (Travassos F.^o & Rabello), 1 ♀; ii.1949 (Carrera), 1 ♀; ii.1950 (Travassos F.^o & Rabello), 1 ♀; i.1952 (Carrera), 1 ♀; i.1950 (Travassos, Travassos F.^o & Rabello), 1 ♀; i.1957 (Buckup, Carrera & Travassos F.^o), 1 ♂, 3 ♀; xi.1960 (Lenko), 2 ♂; xii.1961 (Rabello), 1 ♂; iii.1962 (Lenko), 1 ♀; ii.1962 (Travassos F.^o), 1 ♀; ii.1963 (Werner & Reichardt), 3 ♂, 2 ♀; i.1964 (Rabello), 2 ♂; vii.1967 (Oliveira Santos), 1 ♀ (teneral); i.1968 (Travassos & Travassos F.^o), 1 ♀; xii.1967 (Travassos F.^o & Kuhlmann), 3 ♂; ii.1968 (Oliveira Santos), 12 ♂, 10 ♀; ii.1968 (Travassos & Travassos F.^o), 2 ♂; iii.1968 (Oliveira Santos), 1 ♂, 1 ♀; iii.1969 (Exped. Dep. Zool.), 2 ♂; iii.1969 (Papavero), 3 ♂, 2 ♀. *Santa Catarina*: Nova Teutônia, i-ii.1963, xii.1967, xi.1968 (Plauermann), 3 ♂, 1 ♀ (CHM).

PARAGUAY: Molinascué, no date (Schade), 1 ♂ (MCZ); Cerro Pelado, Cordillera de Villarica, xii.1927 (no collector), 1 ♀ (USNM); Villarica, i.1937, xi-xii.1937, xi.1940 (Schade), 1 ♂, 3 ♀ (USNM).

Unless otherwise stated, all specimens are in the MZUSP.

Archilestris excellens Enderlein

(Figs. 7-9)

Archilestris excellens Enderlein, 1914: 174. Type-locality: Ecuador, Balzapamba. Type, IZPAN. Ref. — Martin & Papavero, 1970: 16 (cat.).

♂ ♀ — Body length: 19-26 mm; wing length: 15-20 mm.

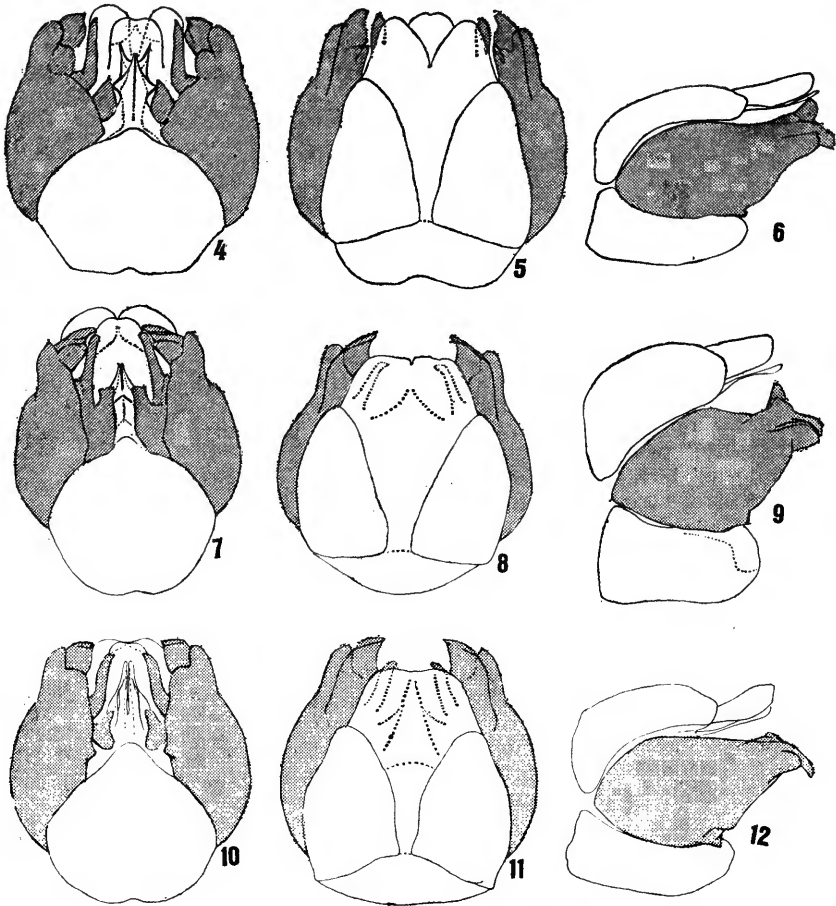
Head black; face and frons dark chocolate brown pollinose, with a triangular silvery-grey pollinose spot above oral margin; palpi and proboscis black; beard white; all bristles of head black; antennae black, apex of 3rd segment truncate, with an apical spine; occiput silvery-grey pollinose, especially along orbital margins.

Thorax black, bristles black; anterior part of humeri, small spot between dorsocentral stripes and humeri, and presutural lateral margins of mesonotum, silvery pollinose; scutellum black; postscutellum black, silvery pollinose on lateral slopes; pleura black, some areas with grey pollinosity; superoposterior part of meron-2 with white and black hairs; metapleura with black bristles.

Wings uniformly dark brown microvillose; halteres very dark brown, light brownish at base.

Coxae black, grey pollinose, with black bristles and long, white hairs; legs black, the long bristles and the hairs also black; pulvilli yellowish white, claws black with light brownish base; hind femora 10 times, first fore tarsal segment 8 times, hind metatarsus 5 times, as long as broad.

Abdomen entirely black, tergite 1 laterally with black bristles and white hairs; tergite 2 with broad, grey pollinose spots on anterolateral margins; 2-7 with recumbent, black hairs, except on lateroposterior margins, where hairs are longish and white; sternites black, hairs short, sparse, and white, except on sternite 2, where they are very long. The abdomen may also be entirely red,



Archilestris capnoptera (Wiedemann), male genitalia: 4, ventral view; 5, dorsal view; 6, lateral view. *Archilestris excellens* Enderlein, male genitalia: 7, ventral view; 8, dorsal view; 9, lateral view. *Archilestris geijskesi*, sp. n., male genitalia: 10, ventral view; 11, dorsal view; 12, lateral view.

with the exception of tergites 1-2; tergites 3-5 may be entirely red with blackish lateral margins. Male genitalia (Figs. 7-9) black, with black bristles and hairs. Female acanthophorites black or reddish brown.

Material examined

ECUADOR: Zumbi, Río Zamora, 700 m, xi.1941 ("D.B.L."), 1 ♂, 1 ♀ (MZUSP); Gualaquiza, 100 m, xii.1941 (no collector), 1 ♂

(MZUSP); Santo Domingo de los Colorados, ix.1940 (McIntyre), 1 ♀ (USNM); do., 500 m, xii.1940 ("D.B.L."), 4 ♀ (MZUSP); Río Pastaza, Hda. Zulay, iv.1937 (McIntyre), 1 ♀ (USNM).

BOLIVIA: Yungas de Coroico (no other data), 1 ♀ (Coll. Hermann, MUN).

***Archilestris geijskesi*, sp. n.**

(Figs. 10-12)

♂ ♀ — Body length: 21 mm; wing length: 16 mm.

Head black; frons brownish pollinose; face entirely white pollinose; mystax white; palpi and proboscis black, palpal bristles black, basal palpal segment and proboscis with white hairs; antennae brownish, bristles and hairs black; third antennal segment with truncate apex and apical spine; occiput black, silvery-white pollinose, especially along orbital margins; dorsal occipital bristles black, laterally white; beard white.

Thorax dark chocolate brown; humeri, transverse spots between dorsocentral stripes and humeri, transverse suture, anterior margin of postalar calli, and a small rounded spot between dorsocentral stripes and postalar calli, silvery pollinose; lateral margins of mesonotum mixed reddish brown and silvery pollinose; scutellum very dark chocolate brown to black, with disc mixed brownish and silvery pollinose; all bristles on thorax black; presutural dorsocentral bristles present; postscutellum black, silvery pollinose on lateral slopes; pleura dark chocolate brown; superoposterior part of meron-2 with black and white hairs; metapleura with long black bristles and white hairs.

Wings light brown microvillose, sometimes with lighter areas in the second basal and anal cells; halteres yellowish brown on stem, dark chocolate brown on knob.

Coxae dark chocolate brown, grey pollinose, with white bristles and hairs; legs black, with black vestiture, except on the ventral apical half of hind tibiae and on ventral side of hind metatarsi, where there are several regular, horizontal rows of golden-yellowish hairs; pulvilli yellowish; claws reddish at base, black on remainder; hind femora 12 times, fore first tarsal segment 7 times, hind metatarsus 6 times, as long as broad.

Abdomen black, tergite 1 laterally with black bristles and long white hairs; broad anterolateral margins of 2 and narrow posterior margins of 2-4 greyish pollinose; hairs short, recumbent black on dorsum; longer and white on lateral margins of all tergites; sternites black, grey pollinose, posterior margins of 2-4 yellowish brown; hairs on 2 long and white; sparse, recumbent, black, on remainder sternites. Male genitalia (Figs. 10-12) black, with black bristles and hairs. Female acanthophorites and spines reddish.

Holotype ♂, SURINAM, Phedra Boskreek, x.1962 (Geijskes); Paratype ♀, same data, in the RNH; Paratype ♂, Surinam, Ma-

rowijne, Mooi-Wanna, iv.1964 (Belle), in the MZUSP; Paratype ♀, "Suriname" (no other data), in Coll. Herman, MUN.

This species is dedicated to its collector, Dr. D. C. Geijskes, who has greatly contributed to our knowledge of the fauna of the Guianas.

***Archilestris magnifica* (Walker)**

(Figs. 3, 13-15)

Dasypogon magnificus Walker, 1854: 472; Type-locality: "Mexico". Type, BMNH (examined in 1970, 1972).

Dasypogon (Microstylum) magnificus; Bellardi, 1861: 79, pl. 1, fig. 11 (whole insect).

Archilestes magnificus; Schiner, 1866: 672; 1868: 168; Bigot, 1889: clxxxiii.

Microstylum magnificum; Loew, 1872: 68.

Archilestris magnificus; Osten Sacken, 1887: 169; Williston, 1889: 258; 1891: 71; Aldrich 1905: 256 (cat.); Kertész, 1909: 157 (cat.); Back, 1909: 216-217; Wilcox, 1936: 204 (first record in USA: El Oro Mine, Baboquivari Mts., 4000 ft, Arizona); Martin, 1965: 18 (distr.); 1968: 90, fig. 41 (aedeagus).

♂ ♀ — Body length: 40 mm; wing length: 28 mm.

Head black; frons brownish pollinose; face relatively broad, one-fourth width of head or seven-tenths width of one eye, intensely yellow pollinose; mystax and all hairs and bristles of head black; antennae, palpi, and proboscis dark brown; third antennal segment with deep, spoon-shaped apical concavity bearing a spine (Fig. 3).

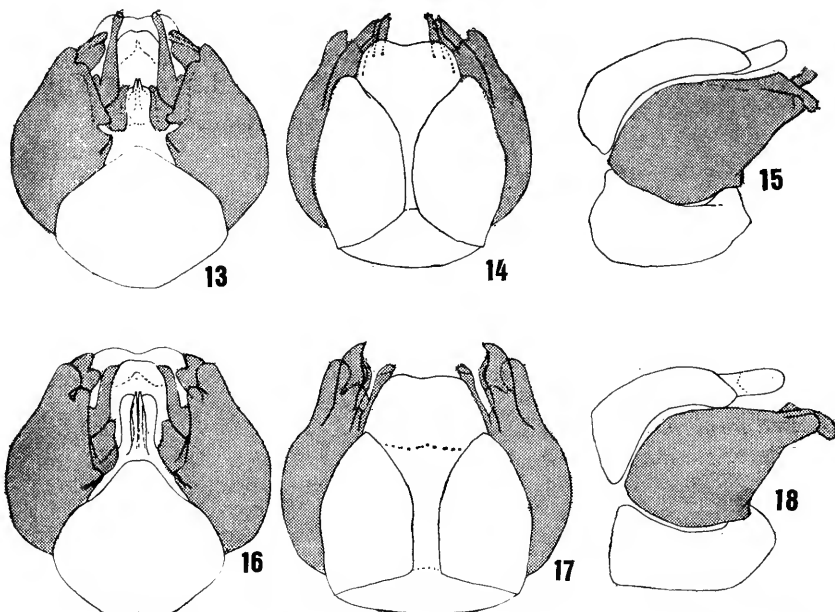
Thorax and legs black, with black bristles and hairs; pulvilli yellow, claws black; hind femora 6.5-7 times, first fore tarsal segment 4 times, hind metatarsus 3 times, as long as broad, or, the broadest legs among the species of this genus.

Wings yellowish brown microvillose, lighter in the interior of cells; halteres yellowish brown.

Abdomen broad, red; lateral margins of tergites blackish; bristles and hairs black. Male genitalia (Figs. 13-15) red, with black bristles and hairs. Female acanthophorites and spines dark red.

Material examined

UNITED STATES. *Arizona*: Santa Cruz Co., viii.1906 (Nunemacher), 1 ♀ (CHM); Nogales, ix.1959, corn stalks (Dunn), 2 ♂ (USNM); do., ix.1966 (Wilson), 1 ♀ (USNM); Sonoita, viii.1947 (Parker), 1 ♂ (USNM); Douglas, fall 1960 (Russell), 1 ♂, 3 ♀ (USNM); Madera Canyon, Santa Rita Mts., ix.1951 (Martin), 1 ♀, 2 ♂ (LAX); Santa Rita Mts., ix.1951 (Martin), 1 ♀, 2 ♂ (LAX); Santa Rita Mts., viii.1924 (Nichol), 1 ♀ (AMNH); San Pedro River, 5 mi. s. Hereford, Cochise Co., ix.1950 (Cohn, Boone & Cazier), 1 ♂ (AMNH).



Archilestris magnifica (Walker), male genitalia: 13, ventral view; 14, dorsal view; 15, lateral view. *Archilestris wenzeli*, sp. n., male genitalia: 16, ventral view; 17, dorsal view; 18, lateral view.

MEXICO. No other data, 1 ♂ (CNC); do. (Dugès), 1 ♂ (USNM). *Chihuahua*: Ciudad Juárez, vii.1933 (Hardy), 1 ♂ (USNM). *Coahuila*: Monclova, viii.1930 (Palmer), 1 ♀ (MCZ). *Durango*: Durango; 6200 ft, viii.1947 (Cazier), 1 ♂ (AMNH); near Pedriceña, viii.1932 (Smith), 1 ♂ (CHM). *San Luis Potosí*: Río Verde, ix.1903 (W. L. Tower), 1 ♀ (AMNH). *Nayarit*: 6 mi. s. Tépic, vii.1953 (C. & P. Vaurie), 1 ♂ (AMNH); Tépic, ix.1947 (Malkin), 1 ♂ (AMNH); vic. Compostela, ix.1932, ix.1933, viii.1934 (Post), 2 ♂, 1 ♀ (USNM); "Sierra ou Nayarit", 1898 (Diguët), 2 ♂, 1 ♀ (MNHN), no other data, 1 ♀ (USNM). *Jalisco*: no other data, 1900 (Diguët), 1 ♂ (MNHN); s. side of Lake Chapala, no date nor collector, 1 ♂ (MZUSP); env. of Guadalajara, 1901 (Diguët), 1 ♂ (AMNH); Guadalajara, no other data (Crawford), 1 ♂ (USNM); do., 1897 (Diguët), 3 ♂, 4 ♀ (MNHN); do., viii.1903 (Coll. Hermann, MUN), 1 ♂, 2 ♀; 8 km w. Tequila, viii.1960 (Martin), 1 ♂ (CHM). *Colima*: 6 mi. s. Colima, vii.1962 (R. H. & E. M. Painter), 1 ♂ (CHM). *Guanajuato*: Guanajuato, 1889 (Dugès), 2 ♀ (MNHN); do., 1 ♂, 1 ♀ (USNM). *Querétaro*: Querétaro, summer 1928 (González), 1 ♂ (USNM). *Veracruz*: no other data, vii-viii.1956 (Dreisbach), 1 ♂ (CNC); do., 4 ♂ (CHM); do., 1921 (Génin), 1 ♂ (MNHN); 20 mi. s. Pánuco, viii.1959 (Menke & Stange), 1 ♂ (LAX); Jalapa, no date (Coll. Hermann, MUN). *Morelos*: no other data (Crawford), 2 ♂ (USNM); do., 1 ♀ (MCZ); do., 1 ♂ (USNM); Cuernavaca, ix.1900 (Barrett), 1 ♂

(USNM); Matamoros, viii.1903 (Tower), 2 ♀ (AMNH). *Guerrero*: 5 mi. n. Chilpancingo, vii.1958 (Howden), 1 ♀ (CNC); Chilpancingo, ix.1950 (Downe). 1 ♀ (USNM); Taxco, viii.1955 (Krauss), 1 ♀ (USNM). *Oaxaca*: no other data (Crawford), 1 ♂ (MCZ); Oaxaca, 5400 ft, ix.1957 (Scullen), 1 ♂ (CHM); do., ix.1923 (Smyth), 2 ♂ (USNM).

***Archilestris wenzeli*, sp. n.**

(Figs. 2, 16-18)

♂ ♀ — Body length: 21-24 mm; wing length: 18-19 mm.

Head entirely black, with brownish pollinosity; palpi and proboscis black; mystax and all bristles and hairs of head black; antennae dark brown, apex of third segment with a spoon-shaped concavity bearing a spine (Fig. 2).

Thorax black, ochre brownish pollinose; all hairs and bristles black; presutural dorsocentral bristles present.

Wings light brown microvillose, especially on anterior margin and on apical half; interior of cells, especially of posterior half of wing, lighter; halteres yellowish brown on stem, yellow on knob.

Legs black, with black vestiture; ventral surface of apical half of hind tibiae and ventral surface of hind metatarsus with regular, horizontal rows of golden yellowish pilosity; pulvilli yellow, claws black; hind femora 9.5 times, first fore tarsal segment 6 times, hind metatarsus 3 times, as long as broad.

Abdomen black, with black bristles. Male genitalia (Figs. 16-18) black, with black bristles. Female acanthophorites and spines reddish brown.

The metatarsus in the female may be yellowish brown on its basal two-thirds.

Holotype ♂, GUATEMALA, Chimaltenango, Mun. Yepocapa, Finca Panajabel, 3850 ft. v.1948 (Chicago Nat. Hist. Mus., Guatemala Zool. Exp., R. L. Wenzel leg.), in the FMNH. Paratypes: 2 ♂, Guatemala, Antigua, 5000 ft, viii.1930 (Bates), and x.1965 (Krauss), in the USNM; 1 ♂, Capetillo, 5000 ft, viii.1947 (C. & P. Vaurie), AMNH; 2 ♀, Antigua, 500 ft, viii.1947 (C. & P. Vaurie), 1 in the AMNH, 1 in the MZUSP.

This species is dedicated to Dr. Rupert L. Wenzel, in honor of his dipterological publications.

HYPOTHETICAL HISTORY OF EVOLUTION

The three South American species of *Archilestris* (*capnoptera*, *geijskesi* and *excellens*) have in common the following characters: face narrow, one-fifth width of head; third antennal segment with truncate apex and apical spine; hind femora very slender, 10-12 times as long as broad; fore tarsus with first segment also elongate, 7 to 10 times as long as broad; the hind metatarsus is very long and slender, from 5 to 6 times as long as broad. *Archilestris capnoptera* and *A. geijskesi* are most closely related.

A. wenzeli, from Central America, is similar to the South American species in the width of the face; the third antennal segment is however spoon-shaped at the apex, the spine being inserted in the interior of a concavity; the hind femora are also slender (9.5 times as long as broad), and the first tarsal segments of both the fore and hind tarsi have suffered reduction in length (6 and 3 times, respectively, as long as broad).

Finally, *Archilestris magnifica* is the more derived and differentiated species — the face is relatively broad, one-fourth of the width of the head, the third antennal segment has a very well developed apical, spoon-shaped concavity bearing a spine, the hind femora are very thick (6.5-7 times as long as broad), and the first tarsal segments of the fore and hind tarsi have undergone a great reduction in length (4 and 3 times, respectively, as long as broad).

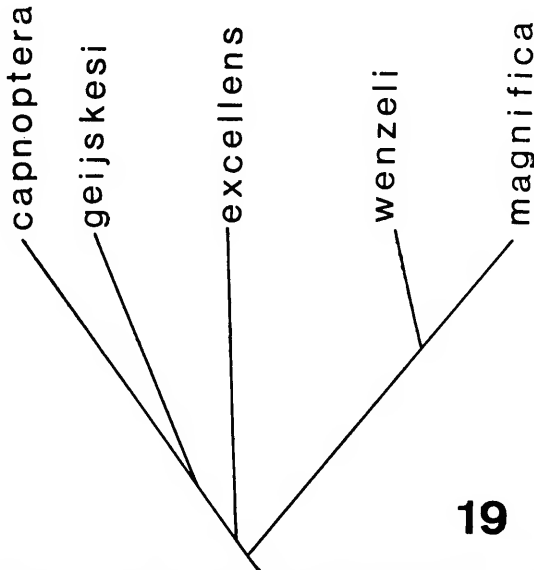


FIG. 19, Hypothetical phylogeny of the species of *Archilestris*.

Thus, we have a group of closely related species in South America, mostly with primitive characters; one intermediate species in Central America; one highly derived species in North America.

Examination of Fig. 20 shows that *geijskesi* is surely an inhabitant of the Amazonian forest in the Guianas; *capnoptera* is a typical inhabitant of the forest of southeastern and southern Brazil, and has always been captured inside shadowed trails in the forest, where it feeds mostly on Tipulidae; *excellens* may inhabit either forests or open formations, no firsthand information is available; *wenzeli* is very probably an inhabitant of forests in Central America; *magnifica* is surely an inhabitant of the open formations and deserts of the Mexican plateau and the Sonoran Desert.

The comparison of the distribution of these species with the coloration of the body shows that: species probably or surely inhabiting forest have a black body; species occurring in open formations have a red abdomen (this may explain the occurrence of specimens with black or red abdomen in Ecuador — those with black tergites would live in the forest, white those with some of the tergites red would be recent invaders of open formations).

Based on the foregoing data, we postulate for the species of *Archilestris* the following speculative history of evolution (see phylogenetic scheme, Fig. 19):

Archilestris probably evolved in the forests of the Guiano-Brazilian subregion, during the Tertiary isolation of South America. The primitive stock gave origin to the three recent species, *capnoptera*, *geijskesi* and *excellens*, probably during one of the arid cycles of the Pleistocene, according to the models proposed by Haffer (1969, 1970b), and Vanzolini & Williams (1970): *capnoptera* in the Serra do Mar refugium, *geijskesi* in the Guianas refugium, an *excellens* either in the Eastern Peru, or in the Napo-Pastaza refugia. Later *excellens* may have occupied open formation in Ecuador, and de-

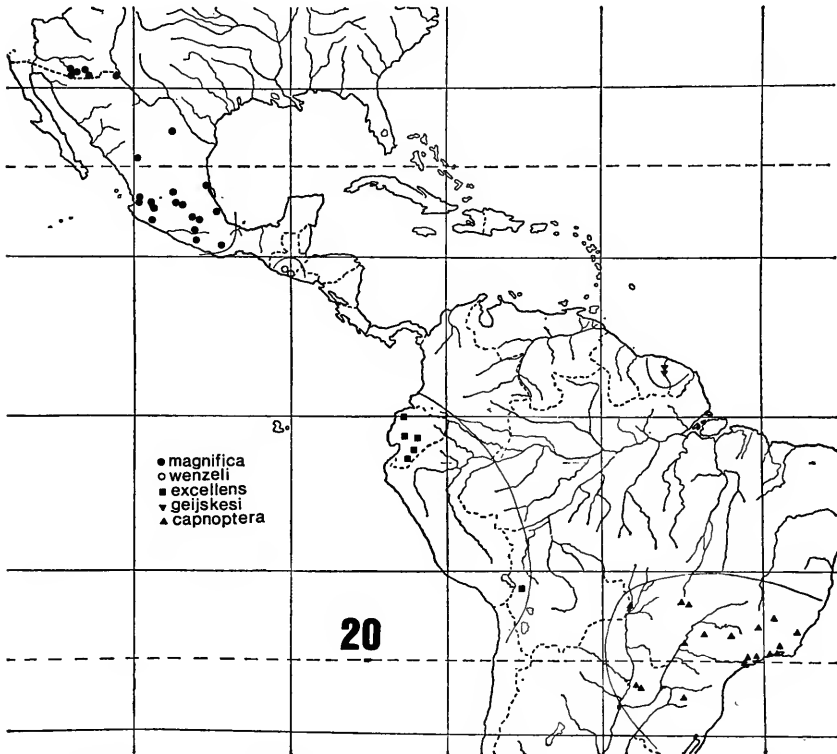


FIG. 20, Geographical distribution of the species of *Archilestris*.

veloped the red color of some of the tergites (this is highly speculative; more specimens and more localities will have to be studied to confirm this).

With the establishment of the Central American land-bridge (Panamanian land-bridge) in the Plio-Pleistocene transition (Haffer 1970a), the primitive stock of *Archilestris* invaded the forests of Central America, giving origin to the species *wenzeli*; a Central American stock finally invaded North America, occupying the Mexican plateau and the Sonoran Desert, and becoming the most derived and modified species — *magnifica*.

This probable history of evolution explains very well the present distributional patterns and copes very well with the morphological characters of the five species.

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