Insecutor Inscitiae Menstruus

Vol. IX JANUARY–MARCH, 1921 Nos. 1–3

NOTES ON SOUTH AMERICAN MOSQUITOES IN THE BRITISH MUSEUM

(Diptera, Culicidæ)

By J. BONNE-WEPSTER and C. BONNE

During the years 1916–1919 we collected and studied mosquitoes in Surinam. We compared our material, 110 species, of which some 30 were new, with the collections in the U. S. National Museum in Washington and afterwards went to England to study Theobald's South American types. Mr. F. W. Edwards, of the British Museum, gave us every assistance and allowed us to mount the hypopygium of male types, which makes the identifications more accurate.

Genus SABETHES Robineau-Desvoidy

Sabethes bipartipes Dyar and Knab.

This species is identical with the mosquito Theobald described as the supposed male of his *Sabethes nitidus*, but which really is a female. The name *nitidus* cannot stand for this species as already shown by Howard, Dyar and Knab (Mosq. N. & Cent. Amer. & W. Ind., iii, 31, 1915). This species is recorded from Santo Domingo only. Theobald's specimen came from South America and we also found the species in Surinam. *Sabethes chroiopus* Dyar and Knab, a single male from British Guiana, is probably the male of this species as pointed out by us (Ins. Ins. Mens., vii, 165, 1920). The synonymy becomes now as follows:

Sabethes nitidus Theobald (in part), Mon. Culic., ii, 347, 1901.
Sabethes nitidus Theobald (in part), Mon. Culic., iii, 326, 1903.
Sabethes nitidus Blanchard (in part), Les Moustiques, 422, 1905.

Sabethes bipartipes Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
Sabethes nitidus Coquillett (in part), U. S. Dept. Agr., Bur. Ent., Tech. Ser. 11, 28, 1906.
Sabethes nitidus Peryassú (in part), Os Culicideos do Brazil, 283, 1908.
Sabethes nitidus Theobald (in part), Mon. Culic., v, 575, 1910.
Sabethes nitidus Surcouf and Gonzalez Rincones (in part), Essai Dipt. Vuln. Venez., 241, 1911.
Sabetes bipartipes Howard, Dyar and Knab, Mosq. No. & Cent. Amer. & W. Ind., iii, 30, 1915.
Sabethes chroiopus Dyar and Knab, Ins. Ins. Mens., i, 76, 1913.
Sabethes bipartipes Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes chroiopus Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes bipartipes Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 165, 1920.

Sabethes tarsopus Dyar and Knab.

There are specimens of this species from the Lower Amazon sent by Prof. Goeldi. This extends its range into South America.

Sabethes schausi Dyar and Knab.

There are three specimens of this species in the British Museum; two from British Guiana, one of which has been sent by Mr. Schaus himself, and one from Para from Prof. Goeldi.

Sabethes albiprivus Theobald.

This species is not identical with *Sabethes cyaneus* Fabricius, although there is no constant difference in the cross-veins, the position of which is variable. The colors of the abdomen are not separated in a straight line, however, but deeply incised; sometimes there are nearly complete broad basal violet bands. The golden color of the venter is also more or less present in *cyaneus*. The paddles are present in *albiprivus* only on the first tarsal joint, not on the second as in *cyaneus*. *Albiprivus* is much smaller than *cyaneus*.

Genus SABETHOIDES Theobald

Sabethoides nitidus Theobald.

For the discussion about the name of this species we refer

to Howard, Dyar and Knab (Mosq. No. & Cent. Amer. & W. Ind., iii, 40, 1915). Theobald himself gives the name *confusus* to this species. One of his *confusus* specimens bears a type label. This one has no distinct white patches on the sides of the abdomen. It has a very long and slender proboscis with the point scarcely swollen. It is not a *Sabethoides imperfectus* Bonne-Wepster and Bonne (Ins. Ins. Mens., vii, 165, 1920). In comparing our material of *Sabethoides nitidus* from Surinam with the material in Washington we found some slight differences between the Central American and South American forms.

Genus SABETHINUS Lutz

In the British Museum we found:

1. One larval preparation labeled Dickson, Trinidad, *Sabethoides nitidus*. This is a *Decamyia* species.

2. Another larval preparation labeled Dickson, Trinidad, *Sabethoides nitidus*. This is like *Sabethinus undosus* Coquillett. There must be some confusion here, because the type of *Sabethoides nitidus* has a long and slender proboscis, different from a *Sabethinus* proboscis.

3. One larval preparation labeled *Sabethinus aurescens* Lutz, Brazil. This is like *Sabethinus identicus* Dyar and Knab.

4. One mount of male genitalia labeled *Sabethinus albiprivatus*. There is a male in the collection labeled *Sabethinus albiprivatus* without an abdomen, to which this mount probably belongs. This is recognizable as a *Sabethinus* with four spines on the basal appendages, two spines on the basal accessory lobes.

5. One mount of male genitalia labeled *Sabethinus intermedius*. There is a male labeled *Sabethinus intermedius* without an abdomen, to which the mount probably belongs. This is recognizable as a *Sabethinus* with three spines on the basal appendages.

The following table for the male genitalia results:

Basal appendages with three spines.....*intermedius* Lutz.
Basal appendages with four spines,
albiprivatus Theobald; *undosus* Coq.
Basal appendages with five spines.....*identicus* Dyar and Knab.

Sabethinus identicus Dyar and Knab may be a synonym of *aurescens* Theobald.

Sabethoides purpureus Theobald has a stout proboscis and belongs in the genus *Sabethinus*.

In some descriptions the *Sabethinus* species are supposed to have postnotal scales. We could not find these scales in any of them.

SYNONYMY

Sabethinus Lutz in Bourroul, Mosq. do Brazil, 48, 57, 1904.
Sabethinus Theobald, Mon. Culic., v, 574, 1910.
Sabethinus Howard, Dyar and Knab, Mosq. N. & Cent. Amer. & W. Ind., iii, 31, 1915.
Sabethinus Dyar, Ins. Ins. Mens., vii, 118, 1919.

Sabethinus moerbista Dyar.

Sabethinus moerbista Dyar, Ins. Ins. Mens., vii, 2, 1919.

Sabethinus purpureus Theobald.

Sabethoides purpureus Theobald, Mon. Culic., iv, 617, 1907.
Sabethoides purpureus Theobald, Mon. Culic., v, 585, 1910.
Sabethinus purpureus Dyar, Ins. Ins. Mens., vii, 119, 1919.

Sabethinus undosus Coquillett.

Sabethoides undosus Coquillett, Proc. Ent. Soc. Wash., vii, 186, 1906.
Sabethoides undosus Theobald, Mon. Culic., v, 585, 1910.
Sabethinus undosus Howard, Dyar and Knab, Mosq. No. & Cent. Amer. & W. Ind., iii, 32, 1915.
Sabethinus undosus Dyar, Ins. Ins. Mens., vii, 119, 1919.

Sabethinus intermedius Lutz.

Sabethinus intermedius Lutz, Mosq. do Brazil, 48, 57, 1904.
Sabethinus intermedius Theobald, Mon. Culic., v, 586, 1910.
Sabethinus intermedius Howard, Dyar and Knab, Mosq. No. & Cent. Am. & W. Ind., iii, 32, 1915.
Sabethinus intermedius Dyar, Ins. Ins. Mens., vii, 119, 1919.

Sabethinus albiprivatus Theobald.

Sabethinus albiprivatus Theobald, Mon. Culic., iv., 620, 1907.
Sabethinus albiprivatus Theobald, Mon. Culic., v, 586, 1910.
Sabethinus albiprivatus Dyar, Ins. Ins. Mens., vii, 119, 1919.

Sabethinus aurescens Theobald.

Sabethinus aurescens Theobald, Mon. Culic., iv, 622, 1907.
Sabethes identicus Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 207, 1907.
Sabethoides? identicus Theobald, Mon. Culic., v, 585, 1910.
Sabethinus aurescens Theobald, Mon. Culic., v, 586, 1910.
Sabethes? identicus Theobald, Mon. Culic., v, 585, 1910.
Sabethinus identicus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethinus aurescens Dyar, Ins. Ins. Mens., vii, 119, 1919.

TABLE OF SPECIES

1. Prothoracic lobes blackish scaled, with white at base and tip, *moerbista* Dyar
   Prothoracic lobes metallic blue or purple.....2
2. Abdomen purple and coppery above.....*purpureus* Theobald
   Abdomen bluish or greenish above.....3
3. Hind legs with fifth tarsal joint whitish on under side..*undosus* Coq.
   Hind legs without white.....4
4. Mesonotum metallic green.....*intermedius* Lutz
   Mesonotum deep metallic blue.....*albiprivatus* Theobald

Genus LIMATUS Theobald

Limatus paraensis Theobald.

The type of Theobald's *Dendromyia paraensis* is identical with *Limatus cacophrades* Dyar and Knab. The synonymy is as follows:

Dendromyia paraeneis Theobald, Mon. Culic., iii, 316, 1903.
Limatus cacophrades Dyar and Knab, Smith. Misc. Colls., Quart. Iss., lii, 266, 1909.
Dendromyia paraensis Theobald, Mon. Culic., v, 592, 1910.
Limatus cacophrades Howard, Dyar and Knab, Mosq. N. & Cent. Amer. & W. Ind., iii, 45, 1915.
Dendromyia paraensis Dyar, Ins. Ins. Mens., vii, 135, 1919.

In Mon. Culic., iii, 361, 1903, Theobald describes the prothoracic lobes as bright ochraceous. In his table in Vol. v, he puts this species in a group with "prothoracic lobes not golden, mauve or white." They are yellow, however. There is a specimen of *Limatus paraensis* from the Upper Amazon. We have many specimens from Surinam and the species seems to be widely spread in tropical America.

Genus LEMMAMYIA Dyar

Lemmamyia asullepta Theobald.

The type of Theobald's *Dendromyia asullepta* is identical with *Lemmamyia methysticus* Dyar and Knab, as suggested by Dyar (1919). Synonymy:

Dendromyia asullepta Theobald, Mon. Culic., iii, 315, 1903.
Limatus methysticus Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 266, 1909.
Dendromyia asullepta Theobald, Mon. Culic., v, 587, 588, 1910.
Limatus methysticus Howard, Dyar and Knab. Mosq. N. & Cent. Amer. & W. Ind., iii, 48, 1915.
Lemmamyia methysticus Dyar, Ins. Ins. Mens., vii, 140, 1919.

Theobald does not mention the white on the mid legs, but it is there, although the specimen was a pale one and mounted in such a way that it could only be seen with difficulty. It is present, however, on the three last segments of the mid legs on one side. The abdominal colors are separated in a straight line, the first abdominal segment is clothed with dark scales and not with golden scales as in *pseudomethysticus* Bonne-Wepster and Bonne. The prothoracic lobes have yellowish golden scales. The mesonotal pattern is distinct.

Genus DYARINA, new genus

Theobald's female type of *Phoniomyia longirostris* does not show anything of lateral white abdominal patches, although these are mentioned in his description. He took the character from a perfect male which he combined with the female, but which shows the abdominal colors deeply incised. It looks much more brilliant than the female and probably belongs to another species. The mount of the genitalia of this specimen shows it to be a *Dodecamyia*. But Dyar received a *longirostris* male from Brazil with a quite different clasp filament, which he made the type of his genus *Phoniomyia*, based on genitalic characters. Now there is just as little chance that this male corresponds to Theobald's female type as there is with Theobald's male. The safest way to proceed is to leave Theobald's name *Phoniomyia longirostris* for the rubbed female and to

consider the males of Dyar and Theobald as belonging to two other species differing from *Phoniomyia longirostris.* Theobald's male becomes a new species of the genus *Dodecamyia.* A new generic as well as a specific name must be given to Dyar's male, because there is no reason to keep it in the same genus with the damaged female sent to Theobald in London. We propose the name **Dyarina tripartita,** new genus, new species, and consider it as the type species of the genus *Dyarina* B.-W. & B., which replaces Dyar's genus *Phoniomyia* (not *Phoniomyia* as used by Theobald).

Theobald received a number of females from Trinidad. He named them *Phoniomyia trinidadensis,* but later on identified them with *longirostris,* because they were so similar to his *longirostris* male, not to the female. We share his opinion as to the probable identity and the name *trinidadensis* now becomes available for this male, the name of which should be *Dodecamyia trinidadensis* Theobald.

Dodecamyia trinidadensis Theobald has the mid tarsi in the female and the male faintly white on the apical part of second and distinctly white on all of the third and fourth joints. The hind tarsi have the bases of the fourth and fifth joints white. In the female type of *Phoniomyia longirostris* these parts are missing. Theobald does not mention white on the legs in his description. *Dodecamyia trinidadensis* comes near to *Dodecamyia splendida* B.-W. & B.; but it has the white on the hind legs only on the bases of the two last joints, not on the four last as in *splendida;* it has no tuft of spines on the side piece in the male genitalia and only two spines on the basal appendages.

Dyar and Knab also describe mosquitoes from Trinidad under the name *Phoniomyia trinidadensis.* The genitalia of this species are different from *Dodecamyia trinidadensis* Theobald, and place their males in *Dyarina* B.-W. & B. There remains the possibility that the females from Trinidad Theobald described as *Phoniomyia trinidadensis* really belonged to this species. However, the mesonotum of this species is dull gray brown, the scutellum silvery. The mesonotum of Theo-

bald's females is golden bronzy, the scutellum dark-scaled, and Theobald females are clearly different. The specific name *trinidadensis* must be dropped for Dyar and Knab's specimens, and we propose the name **Dyarina lassalli,** new species.

Synonymy:

Phoniomyia longirostris Theobald.

Wyeomyia longirostris Theobald, Mon. Culic., ii, 275, 1901.
Phoniomyia longirostris Theobald (in part), Mon. Culic., iii, 311, 1903.
Phoniomyia longirostris Theobald (in part), Mon. Culic., iv, 598, 1907.
Phoniomyia longirostris Theobald (in part), Mon. Culic., v, 576, 1910.

Dodecamyia trinidadensis Theobald.

Wyeomyia trinidadensis Theobald, Mon. Culic., ii, 277, 1901.
Phoniomyia longirostris, Theobald (in part), Mon. Culic., iii, 311, 1903.
Phoniomyia longirostris Theobald (in part), Mon. Culic., iv, 598, 1907.
Phoniomyia longirostris Theobald (in part), Mon. Culic., v, 576, 1910.

Dyarina lassalli Bonne-Wepster & Bonne.

Wyeomyia trinidadensis Dyar & Knab, Proc. Biol. Soc. Wash., xix, 141, 1906.
Wycomyia trinidadensis Howard, Dyar & Knab, Mosq. N. & Cent. Amer. & W. Ind., iii, 59, 1915.
Phoniomyia trinidadensis Dyar, Ins. Ins. Mens., vii, 121, 1919.

Dyarina tripartita Bonne-Wepster & Bonne.

W[ycomyia] longirostris Howard, Dyar & Knab, Mosq. N. & Cent. Amer. & W. Ind., iii, 61, 1915.
Phoniomyia longirostris Dyar, Ins. Ins. Mens., vii, 121, 1919.

Dodecamyia quasilongirostris Theobald.

Phoniomyia quasilongirostris Theobald, Mon. Culic., iv, 598, 1907.
Phoniomyia quasilongirostris Theobald, Mon. Culic., v, 577, 1910.

This species is probably not identical with *Dodecamyia trinidadensis* Theobald and still more probably not with the damaged type of *Phoniomyia longirostris* Theobald. The white on the mid legs is the same as in *trinidadensis,* but the

fifth tarsal joint is white too. The hind legs of the specimen from Mana are like those in *trinidadensis;* the specimen from Brazil has the white on the hind legs on the bases of the two last tarsal joints well developed, and traces of white on the second and third, and is more like *splendida.* Almost certainly the species, if distinct, will be a *Dodecamyia* species.

Dyarina pallidoventer Theobald.

Phoniomyia pallidoventer Theobald, Mon. Culic., iv, 598, 1907.
Phoniomyia pallidoventer Theobald, Mon. Culic., v, 577, 1910.

There is not much left of the type but legs and a mount of the male genitalia. This is far from perfect but is recognizable as a mount of a *Dyarina* species. The basal arm seems to be divided again but this is not clearly visible. Theobald indicated the peculiar structure of the clasp already in Mon. Culic., iv, 599, where he writes, "The claspers large and curved with a large acute process arising from the base about half the length of the clasper." By this process he did not mean the basal arm but the other short one, half way up. The white on the mid legs on one side of the first joint, second and third all round, fourth on one side basally, fifth all black. The fifth segment is very short, fourth and fifth segment distinctly thickened, the last two hind tarsals white at base beneath.

TABLE OF DODECAMYIA DYAR

1. Side piece without tuft of spines.....2
   Side piece with a tuft of spines near or beyond the middle.....3
2. Basal appendages with four long spines.....*clasoleuca* Dyar & Knab
   Basal appendages with two spines.....*trinidadensis* Theobald
3. Spines near the middle of the side piece.....*aphobema* Dyar
   Spines near the apex.....*splendida* Bonne-Wepster & Bonne

Of *Dodecamyia quasilongirostris* the male is unknown.

TABLE OF DYARINA BONNE-WEPSTER & BONNE

1. Expansion on basal arm of clasp divided....*pallidoventer* Theobald
   Expansion on basal arm of clasp simple.....2
2. This expansion smooth, apical hook recurved,
   tripartita, Bonne-Wepster & Bonne
   This expansion pilose denticulate on the margin, apical hook laterally directed .....*lassalli* Bonne-Wepster & Bonne

Genera DENDROMYIA and WYEOMYIA Theobald

Wyeomyia oblita Lutz.

Dendromyia oblita Lutz, Mosq. do Brazil, 49, 68, 1904.
Dendromyia oblita Theobald, Mon. Culic., iv. 512, 1907.
Dendromyia oblita Theobald, Mon. Culic., v, 591, 1910.
Wyeomyia oblita Dyar, Ins. Ins. Mens., vii, 128, 1919.
Wyeomyia fallax Bonne-Wepster & Bonne, Ins. Ins. Mens., vii, 110, 1919.
Wyeomyia fallax Dyar, Ins. Ins. Mens., vii, 128, 1919.

There are no differences visible between *Wyeomyia fallax* B.-W. & B. and *Dendromyia oblita* Lutz. We consider them identical. Only one female is present, sent by Lutz. It has the same narrow wing scales as *Wyeomyia fallax* B.-W. & B. The name should be *Wyeomyia oblita* Lutz. Peryassú does not describe white on the legs. Perhaps he did not see it, or Lutz had two species in his material.

Dendromyia ulocoma Theobald.

This cannot be *Cleobonnea occulta* Bonne-Wepster & Bonne, as supposed by Dyar (Ins. Ins. Mens., vii, 134, 1919), because there are no postnotal scales. The condition of the specimen is too bad to be recognizable.

Wyeomyia grenadensis Edwards.

This is probably idential with *Dodecamyia clasoleuca* Dyar & Knab, as supposed by Dyar (Ins. Ins. Mens., vii, 139, 1919).

Wyeomyia grayi Theobald.

The specimens from St. Lucia and Grenada have all the characters of *Wyeomyia abebela* Dyar & Knab, from southern Mexico.

Wyeomyia pertinans Williston.

The type is a male with the base of the proboscis pale white beneath. Postnotum and clypeus without scales. Eyes with a white-scaled border. A white spot on the occiput. Abdominal colors separated in a straight line. Prothoracic lobes dark throughout. Scutellum concolorous. Legs dark. The mount of the genitalia shows it to be a *Wyeomyia*. Three hairs on the side-piece. Clasp filament with long stem and three short

lobes, one broad squarely ended, with one angle produced, with a series of small hairs on the margin; lateral lobes much smaller, one with a bent appendage. No core visible.

There is still another male besides the type, of the same locality and sent at the same time. This is a poorly developed small *Lesticocampa* species, bred perhaps from the same lot of larvae as *Wyeomyia pertinans* and preying upon them. From the same locality and at the same time by the same collector *Lesticocampa perturbans* Williston was sent, and it represents probably a specimen of this species (compare genus *Lesticocampa*).

Dendromyia quasiluteoventralis Theobald.

Only a female specimen is present without a type label. It differs distinctly from Theobald's description by having white on the mid legs. The locality on the label is New Amsterdam, which is different from the localities mentioned in Theobald's original description. The hind legs of the specimen are lost. It is perhaps *Wyeomyia oblita* Lutz, but the specimen is too much damaged to be sure.

Dendromyia luteoventralis Theobald.

It cannot be placed. The legs are unbanded. The eyes have a continuous white border. Median distinct white line on occiput. Colors of the abdomen separated in a straight line. Scutellum dark. Prothoracic lobes dark, with coppery tips. Proboscis swollen, dark, not white below. Palpi short, dark. Mesonotum dark. Postnotum and clypeus without scales.

Genus TRIAMYIA Dyar

Triamyia personata Lutz.

Dyar supposed already (Ins. Ins. Mens., vii, 121, 1919) that *Dendromyia personata* Lutz came in his new genus *Triamyia*. We can confirm this by the examination of a mount of the genitalia of Lutz's species. The side-piece is moderate, attenuated at the apex; insertion of clasp filament apical. On the side-piece a long ridge of numerous long wavy hairs. Basal lobes setose. Clasp filament slender, long, a triangular

widening with a flattened spine at one of its angles and a slender branch near the base. Harpes broad, inner edge thickened, curving at tip and ending in a few teeth; moderately long and slender hairs present on one margin. Unci forming a basal cone. Basal appendages low, each bearing four or three small hairs.

Genus JOBLOTIA Blanchard

Joblotia compressum Lutz.

Hypopygium. Side pieces conical, over twice as long as wide; at the base a rounded lobe is present, with long setae reaching to tip of side piece. Clasp filament long and slender with an inserted subterminal double claw. Harpes flat, slender, with bent tip. Basal appendages widely separated, each with about ten long setæ.

Genus GOELDIA Theobald (1903)

The genera *Isostomyia* Coquillett (1906), *Binotia* Blanchard (1904), *Hyloconops* Lutz (1907), *Lesticocampa* Dyar and Knab (1906) become synonyms of *Goeldia* Theobald (1903), as will be shown below. *Runchomyia* Theobald (1903) was preoccupied. For the synonymy of *Lesticocampa* Dyar and Knab, we refer to Howard, Dyar and Knab (Mosq. N. & C. Amer. & W. Ind., iii, 163, 1915).

Goeldia lunata Theobald.

The head of the type of *Wyeomyia lunata* Theobald, a female, is missing. The scutellum is concolorous with the mesonotum. Several other specimens, all from Rio, put here by Theobald have the clypeus nude and also the scutellum concolorous with the mesonotum. Amongst them is a male, the genitalia of which we mounted. We do not see differences with the genitalia of *Lesticocampa rapax* Dyar and Knab, only the tip of the side piece is rounded, not conical. This male has long palpi like *rapax*. The proboscis of this species is very long and pointed. A complete description of the male genitalia is as follows: Side pieces twice as long as wide, tips

rounded, not conical. Basal lobes with many long setæ. Clasp filament long and slender, becoming narrower a small distance from its base, with terminal appendage. Harpes prominent, with thickened margin and spinose tip. Unci forming a basal cone. Basal appendages short, broad, large, near each other but not contiguous, each with seven long, coarse setæ.

Goeldia longipalpis Theobald.

Under the name *Hyloconops longipalpis* Theobald describes three specimens without designating a type. Two of them are females, one is a male. They were sent by Lutz from Brazil. One of the females has a pale ring on the hind tibiæ and differs from the two others in many details. First we give a description of this female with ringed tibiæ:

Proboscis rather short, black. Labellæ pointed, paler. Palpi one-third of the proboscis, black. Clypeus gray, rounded, nude. Antennae slender. Eyes black. Head clothed with flat white scales with grayish violet luster, a row of erect black scales behind.

Prothoracic lobes well separated, with whitish, flat, elliptical scales. Mesonotum with white scales on front and side margins. Disk black, covered with small bronzy brown narrow curved scales, broader in front of scutellum. Scutellum with broader, flat brown scales with grayish luster. Postnotum without scales, with a group of setæ posteriorly. Pleuræ and coxæ brown, with patches of white scales.

Abdomen strongly depressed, black above with coppery violet luster, venter silvery golden. Colors separated in a nearly straight feebly angulated line. A black shade on the mid ventral line.

Wings hyaline clothed with fusiform and elliptical scales, petiole of second marginal cell about one-fourth of its cell, that of second posterior cell shorter. Basal cross vein about its own length distant from anterior cross vein.

Legs dark, femora pale beneath. Hind tibiæ with a pale white spot at outer third, forming a ring with a narrow opening on upper side.

This species seemed to come near to *Lesticocampa moralesi* Dyar and Knab, but this was described with the ring on the hind femur. This could be an error of observation of course, so we wrote to Washington and Mr. C. T. Greene, of the U. S. Nat. Mus., kindly informed us, that the ring in *moralesi* is present on the tibia and not on the femur. We consider this specimen now identical with *Lesticocampa moralesi* Dyar and Knab.

Theobald's description of *Hyloconops longipalpis* does not say anything about a white ring and is evidently based on the two other specimens. Surcouf and Gonzales-Rincones (Essai Dipt. Vuln. Venez.), however, mention the ring and they have their information from Peryassú (Os Culicideos do Brazil), who saw Lutz specimens, which probably belonged to two species. The name *longipalpis* was given by Lutz, but without a description. We retain the name for the species with unbanded hind tibiæ on which Theobald's description of *longipalpis* was based.

A few amendments can be made in Theobald's description of *longipalpis.* Palpi of the female one-fourth of the proboscis. Hardly any scales on the basal prolongation of the third vein. In the female peacock colored scales only on the scutellum, in the male on scutellum and also before the scutellum on the mesonotum. Basal cross vein half its length basally distant from anterior cross vein.

Longipalpis is more brilliantly violet than *moralesi* Dyar and Knab. The female palpi are shorter, the scutellum has other scales; the abdominal colors are deeply incised.

The male palpi of *longipalpis* are as long as the proboscis. The clypeus is nude, the postnotum has no scales.

Longipalpis differs from *lunata* by the shortness of the proboscis, which is shorter than the abdomen and absolutely different from the proboscis of *lunata* and by the presence of the peacock scales, and the male palpi are longer. *Lesticocampa rapax* Dyar and Knab also has a long proboscis like *lunata,* and the stem of the second marginal cell is one-half of its cell and not one-fourth as in *longipalpis.*

The male genitalia are indistinguishable from those of *rapax*, only the basal appendages seem more contiguous.

Goeldia pallidiventer Theobald.

A male and a female are present, sent by Lutz. They are very similar to *longipalpis*. The male palpi are just as long, the female has no wings, the male has the cross veins as in *longipalpis*. The color of the venter is golden as in *longipalpis*. The only remaining difference is the color of the abdomen, which is more greenish blue in this species, violet in *longipalpis* and the female palpi are one-sixth of the proboscis. The male genitalia are like those of *longipalpis* but the basal appendages are completely contiguous. It cannot be *rapax* because of the proboscis and the stem of the second marginal cell is one-third of its cell.

Goeldia frontosa Theobald.

There are two females from British Guiana, one of them labeled type. The original description was based on these females as Theobald states himself. Later on he added three other specimens from Brazil, one of which he called a male. He gave this male a second type label. This male is a female, however, and all these three Brazilian females are females of *Goeldia lunata* and have nothing to do with the females from British Guiana. They have the colors of the abdomen deeply incised, whereas the true *frontosa* has them separated in a straight line. The male of *frontosa* remains unknown therefore.

Runchomyia was founded by Theobald on the presence of a conical prominence in front of the head between the tori above the clypeus. This character is certainly present in Theobald's type of *frontosa*, but also in many other species when looked for. We saw it, e. g., even much more distinctly in a male *Joblotia digitatus* Rondani, and a female *Lesticocampa culicivora* Dyar and Knab. It is not always equally distinct, and is probably an artifact due to shrinking. *Runchomyia* is an earlier name for *Lesticocampa* and nothing else. The postnotum has no scales. Clypeus without scales or hairs. The

proboscis is very long and slender as in *lunata* and not like *longipalpis, pallidiventer* and *moralesi.* It is not *rapax,* because the abdominal colors are separated in a nearly straight line, although there are some peacock scales on the scutellum visible. It is not *dicellaphora,* because the mid lobe of the scutellum is not silvery.

Runchomyia was preoccupied by *Rhynchomyia* Rob. Desv. and *Binotia* proposed as a substitute by Blanchard in 1904. *Goeldia* Theobald (1903), however, is available.

Goeldia fluviatilis Theobald.

Based upon a male. Later a female was added. This is in poor condition with only one mid and one hind leg. It is still recognizable as a rubbed female of *Prosopolepis flui* Bonne-Wepster and Bonne. It came from British Guiana.

The male has disappeared. It is described, however, with an incomplete white ring on the hind tibiæ. There is but one allied species with this character, viz., *Lesticocampa moralesi* Dyar and Knab. There is nothing in Theobald's description, which does not fit this species except the presence of scales on the postnotum. Theobald did not see these scales, however, and only mentions them because Lutz wrote him they were present. There was probably some confusion. A few striking characters of *moralesi* are also mentioned in Theobald's description of *Goeldia fluviatilis,* viz., the length of the female palpi (one-third), the white scales of the prothoracic lobes, the broader scales on the scutellum and the back part of the mesonotum and the tibial ring of course.

For all these reasons we consider *Lesticocampa moralesi* Dyar and Knab a synonym of *Goeldia fluviatilis* Theobald. We believe that the so-called male type of *Goeldia fluviatilis* was placed by some error by Theobald with his specimen of *Hyloconops longipalpis* and that the female with the ringed hind tibiæ we found there, represents the missing male of *Goeldia.*

Goeldia perturbans Williston.

Under the name *Aëdes perturbans* Williston we found two

males without an abdomen, both with short palpi, and two females labeled type. They come extremely near *frontosa* Theobald and *dicellaphora* Dyar and Knab; but the mid lobe of the scutellum is concolorous with the mesonotum. The specimens are much rubbed, however. There is still another reason to consider *perturbans* a distinct species. As mentioned already in the notes on *Wyeomyia pertinans* Williston, we found a *Lesticocampa* male amongst the *pertinans* material. This *Lesticocampa* now becomes a *Goeldia,* of course. From the same locality at the same time by the same collector the *perturbans* specimens were sent, so probably this male also represents a *perturbans* male. More so still because *perturbans* is the only *Goeldia* species from St. Vincent in the British Museum. We mounted the genitalia of this male. Side piece very slender, at least four times as long as wide, clothed with scales and hairs. Clasp filament long, slender, attenuated, with rounded terminal appendage. Basal lobe continued as a crest on inner side of the side-piece to its base. A densely setose ridge or area with long hairs near the apex of the side-piece. Harpes very short, terminating in a single spine. Unci a basal cylinder. Basal appendages not contiguous, each with seven spines. The setose area near the apex separates it immediately from all the other *Goeldia* species.

TABLE OF THE SPECIES OF THE GENUS GOELDIA

1. Mid tarsi only marked with white, *lampropus* Howard, Dyar & Knab
   Hind tarsi marked with white....2
   Tarsi all black....5
2. Hind tarsi marked with white at bases of joints; mid tarsi without white....*schedocyclica* Dyar and Knab
   White markings at the tips of mid and hind tarsi....3
3. Second hind tarsal joint not ciliate; tip of fourth joint white, *leucopus* Dyar and Knab
   Second hind tarsal joint ciliate; over half of the fourth joint white....5
4. Palpi of female as long as six joints of antennae *longipes* Fabricius
   Palpi of female as long as four joints of antennae, *culicivora* Dyar and Knab

5. Proboscis very long and slender at least as long as the abdomen..6
   Proboscis moderately long, shorter than the abdomen.....9
6. Abdominal colors separated in a nearly straight line.....7
   Abdominal colors incised 8
7. Scutellum silvery on mid lobe.*dicellaphora* Howard, Dyar and Knab
   Scutellum with peacock scales.....*frontosa* Theobald
   Scutellum concolorous with mesonotum.....*perturbans* Williston
8. Scutellum with peacock blue scales.....*rapax* Dyar and Knab
   Scutellum concolorous with mesonotum.....*lunata* Theobald
9. Scutellum concolorous with mesonotum.....*fluviatilis* Theobald
   Scutellum with peacock blue scales.....10
10. Abdomen violet above.....*longipalpis* Theobald
    Abdomen bluish green above.....*pallidiventer* Theobald

We have not placed *Goeldia lineata* Peryassú, *Goeldia vonplesseni* Dyar and Knab, *Goeldia trichopus* Dyar, *Goeldia espini* Martini, and *Goeldia paranensis* Brèthes.

Genus CULEX Linnaeus

Culex subfuscus Theobald.

One male from Jamaica; one preparation male genitalia. Seems to be related or identical with *Culex corniger* Theobald. The mass of denticles between the arms of the second uncal plate is present, also the three filaments, the leaf and another filament beyond. Instead of one seta near the base of the leaf, there seem to be two setæ however. There are pale scales near the antescutellar space as in *corniger*, but if it is *corniger*, it is an unadorned specimen.

Culex palus Theobald.

We made a mount of the male type from Barbados sent by Dr. Low. This places the species in *Culex factor* or *inflictus*, the basal lobe showing three rods, a leaf and a seta on an undivided lobe. The female type of Theobald is from St. Vincent and may be different. The genitalia of the male from British Guiana (fig., Mon. Culic., iv, 456, 1907), are from a different species.

Culex scholasticus Theobald.

This species was considered the same as *Culex inflictus* Theobald by Edwards and Dyar. The male genitalia of

inflictus are described by Dyar as indistinguishable from *factor* Dyar and Knab (Ins. Ins. Mens., vi, 95, 1918). The male genitalia of the male type of *scholasticus* Theobald, however, are different from those of *factor*. The basal lobe consists of two parts; the inner part forms a well defined and rather elongate lobe with three rods, more outwardly a leaf and a filament are present on a distinct prominence but arising more or less immediately from the side piece far away from the lobe with the three rods. It must be a species closely related to *Culex extricator* Dyar and Knab, probably the same. The types are from Grenada.

Culex similis Theobald.

The original type of this species was a female from Jamaica (Mon. Culic., iii, 207, 1903). Later on Theobald added a male from British Guiana as the male type of the species. This male was bred together with several females from the trunk of a hollow tree. The females were considered identical with the female *Culex similis*. We mounted the genitalia of this male, which is a male of *Culex factor* Dyar and Knab. The species was based on the female type, which probably belongs to another species. There is also a mount labeled *Culex similis* Theobald, St. Vincent, Dr. Low. This is a *Culex factor*. A trunk of a hollow tree is not a common breeding place of *Culex factor,* but apparently it was not a regular tree hole but water had collected on the ground in a hollow tree. We also found swamp larvæ in similar locations in Surinam, e. g., larvæ of *Culex declarator* Dyar and Knab.

Culex inflictus Theobald.

Only a female type can be found and only a female has been described by Theobald from Grenada. It looks just like *scholasticus* with which it can be considered identical.

Culex annulipes Theobald.

On the occiput some upright forked and many narrow curved whitish scales. Palpi white tipped. Mesonotum with bronzy brown narrow curved scales. Proboscis unbanded. Abdomen

with distinct white basal lateral spots and ventral bands. Wing scales elliptical. Hind tarsi with rings on both ends, last joint white. Fore and mid legs without rings. This species comes near *taeniopus*.

Melanoconion theobaldi Lutz.

Identical with *Culex chrysonotum* Dyar and Knab.

Melanoconion luteopleurum Theobald.

A very striking mosquito. Proboscis moderate, black. Palpi very short. Head clothed with some narrow curved gray scales especially on the eye margins and many yellow upright forked scales and some flat creamy ones laterally. Prothoracic lobes collar like, yellow. Mesonotum black with black narrow curved scales. Pleuræ deep yellow, the yellow separated from the dorsal black in a sharp straight line. Scutellum black. Postnotum black, nude. Abdomen black above; distinct narrow yellow lateral basal patches. Legs dark. Femora and tibiæ swollen apically. Wing scales dark elliptical. From Para.

Culex spissipes Theobald.

The type has traces of brown spots in the golden part of the disk. Our material from Surinam shows that these spots vary very much in size. *Culex fur* Dyar and Knab is a synonym.

Neomelanoconion chrysothorax Newstead and Thomas.

This species differs from *chrysonotum* by the broad white apices of its femora and tibiæ. The golden narrow curved scales of the mesonotum are more or less arranged in lines. The wing scales are intermediate between *spissipes* and *chrysonotum*. It seems to be a distinct species coming nearest to *chrysonotum* of which it has the size. The specimens were from Manaos.

Melanoconion indecorabile Theobald.

Can not be placed.

Culex humilis Theobald.

Can not be placed.

Trichopronomyia microannulata Theobald.

The genitalia place this species in *Culex factor* Dyar and Knab. The type is from British Guiana. In Surinam we found specimens of *Culex factor* with a tuft of hairs on the proboscis in the male. The adult of *microannulata* has two submedian impressed bare lines and a bent line above the roots of the wings, the four lines resembling the lyre of *Aëdes argenteus*. The abdomen with very faint traces of banding dorsally, more distinct laterally.

Culex janitor Theobald.

The genitalia of the male type agree with Dyar's description (Ins. Ins. Mens., vi, 94, 1918).

Culex bilineatus Theobald.

The mount of the male genitalia of the male type shows it to be a true *Culex*. The basal lobe is undivided and has three rods, a filament, a leaf and a filament. The second uncal plate consists of three teeth as in *declarator*. The adults have a distinct thoracic ornamentation of dark bronzy brown and silvery golden narrow curved scales. The silvery golden scales are present on the anterior margin of the disk, continuing medianly for a short distance, a spot on the margin before and one at the root of the wing, and a spot more medianly between them and around the antescutellar space. Also on the scutellum. Two bare impressed lines on the mesonotum. Proboscis unbanded. Head with golden brown narrow curved scales, black erect ones and whitish scales on eye margins. Abdomen with basal lateral spots, unbanded or faintly dorsally banded in the femle, distinctly in the male. Legs faintly and narrowly pale banded basally and apically on all the joints. It may be an ornamented form of *declarator*.

Culex virgultus Theobald.

Two males from Rio. The mount of the genitalia of the male type shows it to be a true *Culex*. The lobe of the side piece is as in *declarator* Dyar and Knab, also the equal plates. The adult has faint pale rings on the hind legs. We consider

it identical with *declarator*. It should be noted, however, that the dorsal bare lines are less distinct in the specimens of *virgultus* than in *declarator* from Surinam.

Culex microsquamosus Grabham.

The male type has no abdomen. There are three good mounts of three males from Dr. Grabham, Jamaica. All three *factor* Dyar and Knab.

Culex nigripalpus Theobald.

Originally described from a male from St. Lucia. This male has disappeared from the collection. Later Theobald mentioned a second male from Barbados. This male is in the collection and bears the type label. It is a specimen of *Culex factor* Dyar and Knab.

Microculex argenteoumbrosus Theobald.

This is identical with *Culex imitator* Theobald.

Genus PSOROPHORA Robineau-Desvoidy

Psorophora sayi Dyar and Knab.

Howard, Dyar and Knab consider *sayi* different from *posticatus* and describe *sayi* the North American species with a yellow venter and *posticatus* the Central and South American species with a yellow venter with basal violet bands. There is no difference in the genitalia. We think there is only one species, the name of which should be *posticatus* Wiedemann. The violet ventral bands of the abdomen are often very indistinct in South American specimens, and may even be absolutely absent as in specimens sent by Austen to the British Museum from the Lower Amazon.

Psorophora albipes Theobald.

We can confirm the identity with *Psorophora lutzi* Theobald.

Psorophora neoapicalis Theobald.

This is the South Brazilian form of *cingulatus* Fabricius. Male genitalia: Side pieces more than twice as long as wide, conically tapered, apical lobe prominent, triangular, basal lobe

absent; clasp filament stout, strongly swollen medianly, reticulate, a moderate terminal spine. Harpes flat, concave, one margin thickened, cleft at tip, forming two blunt teeth. Harpagones with a slender ligulate base and broad quadrate tip bearing five long hairs and a shorter one on elevated bases. Unci forming a cone.

Genus AËDES Meigen

Aëdes terrens Walker.

Culex terrens Walker, Ins. Saund., 429, 1856.
Stegomyia terrens Theobald, Mon. Culic., i, 305, 1901.
Culex terrens Theobald, Mon. Culic., i, 423, 1901.
Stegomyia terrens Theobald, Mon. Culic., v, 174, 1910.

The mount of the male genitalia of the male type shows it to be an *Aëdes,* falling in the *oswaldi* group. It differs from *oswaldi* in missing the long subapical seta on the harpago. The single type in the British Museum is much damaged but shows traces of white thoracic ornamentation as in *oswaldi.* The only mid leg left has a broad white band apically and basally on the first tarsal joint separated by a brown band; second tarsal joint with narrow basal band; femur with white streak beneath. Other legs missing or broken. Reported from South America.

Aëdes fluviatilis Lutz.

Danielsia mediomaculata Theobald is identical, and also *Danielsia tripunctata* Theobald. *Tripunctata* is described with white bands on both ends of the joints, but only on some of the joints there are a few pale scales at the apex, the bands are almost purely basal. *Fluviatilis* and also the male of *mediomaculata* sometimes have a few of these apical pale scales. The abdominal markings vary considerably in *fluviatilis,* the golden scales of the mesonotum of *tripunctata* could with equal right be called silvery.

Aëdes oswaldi Lutz.

There are four specimens of *Aëdes oswaldi* Lutz in the British Museum, from which Theobald made his description

of *Culicada fluviatilis*. So *Culicada fluviatilis* Theobald (Mon. Culic., iv, 342, 1907), is a synonym of *Aëdes oswaldi* Lutz. *Gualteria fluviatilis* Peryassú is the old *Culex fluviatilis* Lutz and remains a synonym of this one. Theobald's type of *Culicada fluviatilis* had the mesonotum much rubbed and almost without scales.

Genus MEGARHINUS Robineau-Desvoidy

Megarhinus chrysocephalus Lutz.

Only a male is present with broken legs. Head covered with coppery golden scales, which are rather characteristic and not present in *solstitialis* Lutz, *violaceous* Wiedemann, or *purpureus* Theobald. *Trichopygus* Wiedemann has it a little in the same way and *chrysocephalus* may be a synonym of *trichopygus*.

Megarhinus fluminensis Neiva.

One male specimen. Identical with *trinidadensis* Dyar and Knab.

Megarhinus grandiosus Williston.

Described from Guerrero, Mexico. One female specimen present. Mid legs missing; Williston does not mention the mid legs and only describes a female, probably the same female, which we had under observation.

Front legs white on tips of first, all of second, third and fourth joint, fifth joint dark on one side, white with a few dark scales on the other. Hind legs with tip of third joint, all of fourth and fifth white, according to description, broken in the specimen.

Williston thought his specimen different from *rutila* Coquillett by the leg markings. The leg markings of *rutila* as described in Howard, Dyar and Knab differ a little from Coquillett's description. The white markings in the *grandiosus* specimen agree fairly well with *rutila* as described by Howard, Dyar and Knab.

The general color of the legs of *rutila* are given as dark blue; the specimen of *grandiosus*, however, has at least as much

yellow as blue, the tibiæ of the hind legs are golden yellow all round on their distal two thirds, except the tip, which is black, more extensively on one side; the yellow coloration cannot be overlooked and we consider for this reason *grandiosus* distinct from *rutila*.

Megarhinus longipes Theobald.

One single female, labeled: "Mexico, one of Walker's series unnamed." A careful examination shows that on one side a mid leg is stuck to the specimen in the position of a front leg of the same side. The legs show much yellow as in *grandiosus* Williston. The hind tibiæ are just the same. The first hind tarsal joint is more yellowish still than in *grandiosus*. The mid legs, which were absent in the *grandiosus* specimen, have the tibiæ and first tarsal joint nearly completely yellow, except the tip of the tibia.

The front legs which are darker than the others, show white on the tip of the first, all of the second, third and fourth joint, fifth joint dark on one side, white with a few dark scales on the other side as in *grandiosus*. The mid legs with tip of first, all of second and third joint white, rest missing. This is also like *grandiosus* where, according to the description, the mid legs were like the front legs. The hind legs of *longipes* were broken off after the first joint; according to the description the tip of the third joint was white, the last two joints were lost already. Then there was no difference with *grandiosus* in the hind legs.

We also can not find differences in the ornamentation of the head or body and make *longipes* Theobald a synonym of *grandiosus* Williston, 1900.

Genus MANSONIA Blanchard

Mansonia pseudotitillans Theobald.

This species is certainly different from *titillans* Walker. We also have several specimens from Surinam.

Mansonia amazonensis Theobald.

This has the front part of the mesonotum solidly covered

with golden brown scales. It has the size and the general color of *titillans*. We found a male amongst the material.

Genitalia: Side pieces about twice as long as wide, narrowed a little at the middle. Apical lobe present with an inner and an outer division, the inner division with moderately long hairs, outer division with long hairs and filaments, one of the filaments spatulate. Tip of basal lobe a stout rod, attenuated at the middle, with rounded tip on which a short terminal spine is inserted. A group of long hairs at the base of the side piece. Clasp filament very stout, distorted, tapering to tip, with a terminal spine and a long slender branch. Harpes small, toothed at tip. Unci a stout basal cylinder.

Mansonia arribalzagae Theobald.

Mansonia coticula Dyar and Knab seems to be a synonym of this species.

COMMENT ON THE PRECEDING PAPER

(Diptera, Culicidæ)

By HARRISON G. DYAR

Mrs. Bonne-Wepster and Doctor Bonne are to be congratulated on the valuable work, the results of which appear in this paper. A few points of comment occur to me.

Genus PHONIOMYIA Theobald

This name is left in the air. The authors substitute *Dyarina* for *Phoniomyia* Dyar (not Theobald), but are unable to cite a male for *Phoniomyia* Theobald. One of Theobald's specimens is shown to be a *Dodecamyia,* but not the type. Not improbably this rubbed female type will prove to be a *Wyeomyia* or *Dendromyia,* and the name *Phoniomyia* can be dropped.

Wyeomyia grayii Theobald.

The authors state that the species has all the characters of *abebela* D. & K. from southern Mexico. This presumably refers to the characters of coloration, and not to the genitalia.