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ORIENTAL NEMESTRINIDÆ

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I have recently been privileged to study an interesting lot of Nemestrinidæ obtained by Mr. Vitalis de Salvaza in Laos and Cochinchina, comprising four species, two of which appear undescribed. An additional species new to Science was obtained by Prof. T. D. A. Cockerell in Siam.

The Oriental and Indo-Malayan Region proper (excluding New Guinea) is poor in Nemestrinidæ, a peculiarity which it shares with the other truly tropical parts of the World. The subfamily Nemestrininae is not represented, the two old records of *Nemestrina pallipes* Olivier (1810, *Nouv. Bull. Sci. Soc. Philom. Paris*, II, p. 94) and *Nemestrina javana* Macquart (1840, *Dipt. Exot.*, II, pt. 1, p. 17), supposedly from Java, being obviously erroneous. The subfamily Hirmoneurinae comprises thirteen Oriental species, all of the genus *Hirmoneura*, and the subfamily Trichopsideinae, seven species of four genera, *Atriadops*, *Nycterimyia*, *Nycterimorpha* and *Ceyloniola*.

The latest revision of Oriental Nemestrinidæ is by E. Brunetti in the *Fauna of British India* (1920, *Diptera Brachycera*, I, pp. 144-156).

Subfamily HIRMONEURINÆ

Hirmoneura Meigen, 1820

Key to Subgenera

1. Three submarginal cells present (second longitudinal vein and upper branch of third connected by a cross-vein). Alula well developed.....2.

- Two submarginal cells only (the first and second fused).
 No accessory cross-veins in any of the posterior cells4.
2. First and second posterior cells normally not divided by cross-veins. Eyes densely pubescent, holoptic in both sexes (or at least in the male)*Hymnophlæba*.
 First or second posterior cells, or both, subdivided by an accessory cross-vein, sometimes producing a second, incomplete diagonal vein in the apical third of the wing3.
3. Eyes densely pubescent, holoptic in both sexes (or at least in the male)*Austrohirmoneura*.
 Eyes bare, distinctly separated on the frons (in which sex?)*Hirmoneurites*.
4. Alula much narrowed, especially basally. Eyes bare, distinctly separated by the frons in the female; (male unknown)*Indohirmoneura*.
 Alula well developed5.
5. Eyes holoptic in both sexes or in the male only6.
 Eyes always distinctly separated by the frons in both sexes7.
6. Eyes very densely pubescent*Hirmoneurilla*.
 Eyes either completely bare or with a few, scattered, microscopic hairs*Hirmoneuropsis*.
7. Eyes densely pubescent*Hirmoneura*, proper.
 Eyes bare*Neohirmoneura*.
- Of the eight subgenera in which I have divided the genus, all but two are represented in the Oriental Region. *Austrohirmoneura* is restricted to Chile and *Hirmoneurites* is known in the fossil state only.

Subgenus **Hirmoneura**, proper

Key to Species

1. Ground color of legs, antennæ and palpi black. Large species, 15 to 16 mm. long2.
 Ground color of legs, including femora, bright yellowish-red or ferruginous3.
2. Body rather uniformly covered with thin, soft, gray pubescence, with an admixture of yellowish hairs on the abdomen. Eyes covered with dark brown pile..
H. opaca Lichtwardt.

Abdomen with a broad basal band of pale pubescence, contrasting with the black pilosity of the remainder of the abdomen. Eyes covered with yellowish pile. .

H. cockerelli J. Bequaert.

3. Small, gray species, 11 to 12 mm. long, with abdominal transverse bands of yellowish and brown pubescence. Antennæ and palpi yellowish-red.

H. cingulata Lichtwardt.

Larger species, 16 to 20 mm. long; abdomen mostly covered with pale yellowish-rufous pubescence, close to the base with a narrow, transverse band of black hairs. Antennæ and palpi black.

H. austeni Lichtwardt.

Hirmoneura (Hirmoneura) cingulata Lichtwardt

Hirmoneura cingulata Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 644 (♀; India, without more definite locality); 1913, Rec. Indian Mus., IX, p. 333 (♂; Phagu, Simla Hills). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 151 (♀♂).

I have seen the female holotype at the British Museum and found it to have the characters of *Hirmoneura* proper. The male allotype is at the Indian Museum, Calcutta. Brunetti notes that in the male the eyes are narrowly separated, the frons being scarcely wider in the female.

Hirmoneura (Hirmoneura) austeni Lichtwardt

Hirmoneura austeni Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 643 (♂; Assam: Khasi Hills). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 152 (♂).

I have seen three male cotypes at the British Museum and found that they have the characters of *Hirmoneura* proper. No additional specimens seem to have been collected.

Hirmoneura (Hirmoneura) cockerelli, new species

Male. — A large, thickset fly, similar in appearance to *H. austeni* Lichtwardt, characterized by the very dark legs and the conspicuous, broad band of pale pubescence at the base of the abdomen.

Integument uniformly black, the antennæ faintly blotched with rufous. Pruinosity dull, grayish-black dorsally, ashy gray ventrally and beneath the transverse band of pale hairs at the base of the abdomen; the humeral angles with a grayish-white pollinose area sharply set off from the remainder of the dorsum; there are faint indications of the beginning of two yellowish-gray stripes at the anterior margin of the thorax close to the head; otherwise thorax and abdomen appear unspotted. Body densely covered

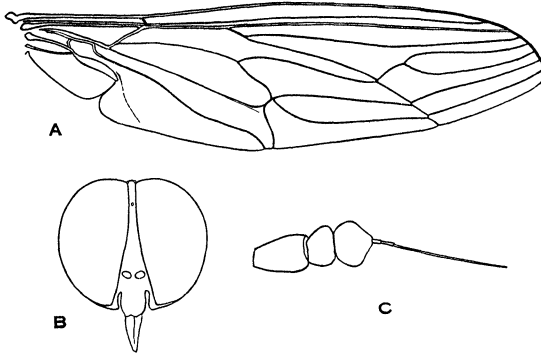


Fig. 1. *Hirmonoëura cockerelli* J. Bequaert. A, wing; B, head seen in front; C, antenna.

with rather short pilosity, which is black on frons, dark brown dorsally on thorax and most of abdomen, pale grayish-yellow on the sides, ventrally, on the face, and on first and second antennal segments; a broad transverse band of whitish, somewhat silvery, long, erect hairs covers the apical half of the first and the basal half of the second abdominal tergites; there are long tufts of pale yellowish hairs on the sides of the thorax behind the bases of the wings.

Head (Fig. 1B) large, flattened, hemispherical in profile, about as wide as high seen in front, hardly broader than the thorax. Eyes uniformly covered with short, pale yellowish hairs, distinctly separated throughout by a narrow frons which is only slightly narrower than the ocellar triangle; the upper half of the frons is almost parallel-sided, but narrowest just below the anterior ocellus; the lower

half widens very rapidly toward the bases of the antennæ. Ocellar triangle very long and narrow, the anterior ocellus being placed close to the upper third of the distance separating the occiput from the antennæ; the ocellar triangle is faintly depressed in the middle, but not saddle-like. Antennæ (Fig. 1C) small, crowded together; first segment about twice as long as the second, slightly swollen throughout; second segment rather large; third segment flattened pear-shaped, distinctly longer and broader than the second, gradually narrowed apically. Style longer than the antenna, the two basal segments of very unequal length (the first the shorter). Legs rather slender, of normal shape.

Wing (Fig. 1A) long and comparatively narrow, less than four times as long as wide, rather uniformly yellowish-gray; veins yellowish-brown. Costa distinctly developed along the hind margin and reached by the diagonal vein. Alula broad. Venation normal, the same in both wings.

Length: 16 mm.; length of wing: 18 mm.; width of wing: 4.8 mm.

Holotype male, Doi Sutep, a mountain near Chieng Mai, northern SIAM, February 9, 1928 (T. D. A. Cockerell Collector.—M. C. Z., Cambridge, Mass.). The locality has an interesting flora, partly resembling that of the Himalayas (see T. D. A. Cockerell, 1929, *Torreyia*, XXIX, pp. 159-162).

Hirmoneura (Hirmoneura) opaca Lichtwardt

Hirmoneura opaca Lichtwardt, 1909, *Deutsch. Ent. Zeitschr.*, p. 643 (♀; W. Himalaya: Kangra Valley, 4,500 ft.); 1913, *Rec. Indian Mus.*, IX, p. 334 (♀ ♂; add. loc.: W. Himalaya: Mussoorie; Simla Hills; Nepal: Pharping). Brunetti, 1920, *Fauna Brit. India, Dipt. Brach.*, I, p. 150, fig. 9, Pl. II, fig. 22 (♀ ♂; add. loc.: W. Himalaya: Dehra Dun).

Hirmoneura montana "Brunetti MS" Maxwell-Lefroy and Howlett, 1909, *Indian Insect Life*, p. 597 (without description; in Indian Museum collection from Mussoorie).

I have examined the female holotype at the British Museum. In the same collection there is a female, without

locality, labelled "*H. montana* Brun., paratype." I was unable to separate this from *opaca*: the eyes are hairy, the frons broad, the wings with two submarginal cells and the alula of normal width. The male allotype of *opaca* is at the Indian Museum, Calcutta.

Subgenus **Indohirmoneura** J. Bequaert

Hirmoneura (Indohirmoneura) coffeata Lichtwardt

Hirmoneura coffeata Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 644 (♀; Ceylon: Rambodde). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 152 (♀).

The female holotype is at the Berlin Museum. I owe to the generosity of Mr. Lichtwardt a beautiful color sketch which he made of the type. It shows clearly the much narrowed alula and the adjoining axillary cell also narrower than usual.

Lichtwardt plainly stated in the paragraph preceding the description of *H. coffeata* that "the species which follow [*viz.*, *H. coffeata*, *H. brunnea* and *H. orientalis*] have wholly bare eyes." This was unfortunately overlooked by Brunetti, so that he wrongly included in his key (1920) both *brunnea* and *coffeata* among the species with pubescent eyes.

Hirmoneura (Indohirmoneura) brunnea Lichtwardt

Hirmoneura brunnea Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 645 (♀; Ceylon: Rambodde and Trincomali). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 151 (♀).

I have seen a female cotype at the British Museum. The alula is distinctly narrowed, though not as much as in Mr. Lichtwardt's sketch of *H. coffeata*.¹ According to the description, *H. brunnea* is a much smaller species than *H. coffeata* (wing 11 mm. long, about as long as the body, without the ovipositor, in *brunnea*; wing 24 mm. long and 5.5 mm. wide, much longer than the body, without the ovipositor, in *coffeata*). In addition, the pubescence of

¹Miss D. Aubertin, who at my request examined once more the alula of the Oriental *Hirmoneuræ* at the British Museum, writes me that in the type of *H. brunnea* the alula is "very narrow."

the sides of the thorax and the base of the abdomen is yellow in *brunnea*, pale brown in *coffeata*.

Subgenus **Neohirmoneura** J. Bequaert

Key to Species

1. Small species, 11 to 13 mm. long. Abdomen black-haired at base; otherwise with alternating transverse zones of yellow and black pubescence. Antennæ, palpi and legs reddish-yellow. Wings tinged with gray, darker along anterior margin.....
H. annandalei Lichtwardt.
Larger species, body 15 to 17.5 mm. long, wing 17 to 20 mm. long2.
2. Smaller. Wing 17 mm. long, tinged with blackish-gray*H. orientalis* Lichtwardt.
Larger. Wing 20 mm. long, of a uniform pale, semi-opaque brown. Antennæ, palpi and legs tawny or brownish-yellow. Frons of male wide, occupying about one-seventh of the width of the head.....
H. philippina C. S. Banks.

Since I have seen none of these three species and since their published descriptions are not comparable, the key must remain unsatisfactory. The published figures of *H. orientalis* show a broad alula and two submarginal cells in the wing. It is assumed that the same is true of *H. annandalei* and *H. philippina*. I have my doubts as to the specific distinctiveness of *orientalis* and *philippina*.

In 1932 (Zoolog. Anzeiger, C, p. 15) I included in *Neohirmoneura*, *H. oldenbergi* Lichtwardt, of eastern Siberia, on the strength of the statement in the original description, "Augen kahl." In his recent monograph of Palearctic Nemestrinidæ (1933, Fliegen der Pal. Region, Lief. 75, p. 40), P. Sack redescribes the species from the type and states: "Augen lang und dicht hellbraun behaart." This is, however, an error. Dr. Walter Horn, who at my request kindly examined the type, writes that the eyes are bare.

Hirmoneura (Neohirmoneura) annandalei Lichtwardt

Hirmoneura annandalei Lichtwardt, 1913, Rec. Indian Mus., IX, p. 333 (♀ ♂; W. Himalaya: Simla, 7,000 ft.;

and Kufiti, Simla Hills, 8,000 ft.). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 149 (♀ ♂; add. loc.: Kufiti to Phagu; Mahabaleshwar, Satara Distr., 4,200 ft.).

This species is known only from Western India. Holotype and allotype are at the Indian Museum, Calcutta. I have seen no specimens. Brunetti states that it is very like *H. cingulata* in size and color, "but, in addition to the bare eyes, it may be recognized by the black hairs on the abdomen being much shorter than the yellow ones, whereas in *H. cingulata* they are nearly or quite as long as the yellow ones."

Hirmoneura (Neohirmoneura) orientalis Lichtwardt

Hirmoneura orientalis Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 645 (♀; Formosa: Kosempo); 1919, Ann. Mus. Nat. Hungarici, XVII, p. 277 (♀ ♂; add. loc.: Formosa: Taihanroku). Matsumura, 1916, Thousand Insects Japan, Addimenta, II, p. 386, Pl. XXII, fig. 15 (♂). Esaki (and others), 1932, Iconogr. Insect. Japon., p. 143, fig. (♂).

The female holotype and male allotype are at the Budapest Museum. I have not seen the species. The male was recorded by Lichtwardt and figured by the Japanese authors, but was never adequately described.

Hirmoneura (Neohirmoneura) philippina C. S. Banks

Hirmoneura philippina C. S. Banks, 1921, Philippine Jl. Sci., XIX, p. 518, Pl. I, figs. 1-9 (♂; Philippines: Lanao, Kolambagan, Mindanao, 8° 10' N., 123° 55' E.).

The holotype is in the entomological collection, Bureau of Science, Manila. I have not seen the species. The author states that it differs from *H. annandalei* "in size, in the color of the hairs, there being no 'yellowish' abdominal hairs, in the color of the legs and in the width of vertex and frons with respect to eye width." No comparison is made with *H. orientalis*, which appears to be very closely related. Perhaps the best character of *H. philippina* resides in the shape of the hind tarsi, which in the male are much swollen basad and curved. It will be important to examine the males of *H. orientalis* and *H. annandalei* in this respect.

Subgenus **Hirmoneurilla** J. Bequaert*Key to Species*

1. Antennæ pale chestnut-brown. Eyes covered with blackish-brown hairs, contiguous over about one-half of the length of the frons (in male); ocellar triangle about as long as wide. Wing subhyaline, slightly yellowish along costa. *H. vitalisi* J. Bequaert.
- Antennæ bright yellow. Eyes covered with pale yellowish hairs, contiguous (in the male) or closely approximated (in the female) over one-third of the length of the frons; ocellar triangle longer than wide. Wing fairly uniformly yellowish-gray, more ochre-yellow along costa. . . . *H. ochracea* Lichtwardt.

Hirmoneura (Hirmoneurilla) ochracea Lichtwardt

Hirmoneura ochracea Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 643 (♂; Burma: Tau Plateau, 4,000 ft.). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 151 (♂).²

Specimens Examined. — LAOS: one male without more definite locality; two females, one the allotype, Pak Hang, Prov. Xieng Khouang (or Chieng Khuang), March 2, 1915 (R. Vitalis de Salvaza Collector).

I have compared these specimens with the holotype at the British Museum. The alula in this species is broader than in *H. austeni*, *H. opaca*, and *H. cingulata*.

Female (undescribed). — Differs scarcely from the male and is readily associated with it. The eyes are not properly speaking contiguous, but over about one-third of the length of the frons, below the ocellar triangle, they are separated by an extremely narrow area, which measures less than the width of the anterior ocellus.

Length (without ovipositor): 16 to 16.5 mm.; length of wing: 18.5 to 19 mm.; width of wing: 4.8 to 5 mm.

The allotype is at the M. C. Z., Cambridge, Mass.

In the two females the wing venation is normal and about the same in both wings; in the male, that of the left wing is normal, while in the right wing there is a supernumerary

²The type locality, misspelled "Jaoo" by Lichtwardt, was corrected by Brunetti.

cross-vein in the fourth posterior cell, dividing off the basal fourth of the cell.

Hirmoneura (Hirmoneurilla) vitalisi, new species

Male. — A large, thickset fly, similar in appearance to *H. austeni* Lichtwardt, characterized by the abdomen uniformly covered with pale yellowish pubescence, the russet-yellow antennæ, palpi and legs, the dark brown pilosity of the eyes and the nearly hyaline wings.

Integument almost uniformly dark chestnut-brown, somewhat darker on the dorsum of the thorax, paler ventrally on the abdomen; hind margin of abdominal tergites, especially the second and third, very narrowly black. Legs yellowish-red, the hind tibiæ and tarsi darker, chestnut-brown. Ocellar triangle and frons black, face dark brown; proboscis and palpi russet-yellow; antennæ pale chestnut-brown, apical third of style black. Pruinosity on under side of thorax white. Pilosity very abundant, dense, erect; black and long on ocellar triangle, frons and sides of face, russet on palpi, white on jowls and occiput; first and second antennal segments with long, black hairs; pilosity of dorsum of thorax and abdomen uniformly pale yellowish, with a few black hairs on the hind margins of the second, third and fourth tergites; that of under side of thorax and abdomen whitish-yellow, more or less matted ventrally, erect on the sides. Hairs of coxæ and base of femora long and white; those of remainder of legs mostly yellowish; those of hind tibiæ and tarsi mostly black, forming rather distinct fringes on the sides.

Head (Fig. 2B) large, hemispherical in profile, a little narrower than the thorax seen from above, about as wide as high seen in front. Eyes uniformly and densely covered with long, erect, blackish-brown hairs, contiguous over the upper half of the frons below the ocelli. Ocellar triangle short, almost as wide as long, scarcely depressed behind the anterior ocellus. Antennæ (Fig. 2C) small, crowded together; first segment short, slightly swollen, about twice the length of the second; second segment very short, transverse; third segment flattened, triangular in outline, wider than the second and about as long as wide. Style longer

than the antenna, the first segment only slightly shorter than the second. Legs stout, the hind tibiæ and tarsi slightly thickened; otherwise of normal shape.

Wing (Fig. 2A) very large, nearly four times as long as wide, subhyaline except along the anterior margin and at the base, where it is suffused with yellow; veins pale chestnut-brown. Costa distinctly developed along the hind margin and reached by the diagonal vein. Alula very broad. Venation normal, the same in both wings.

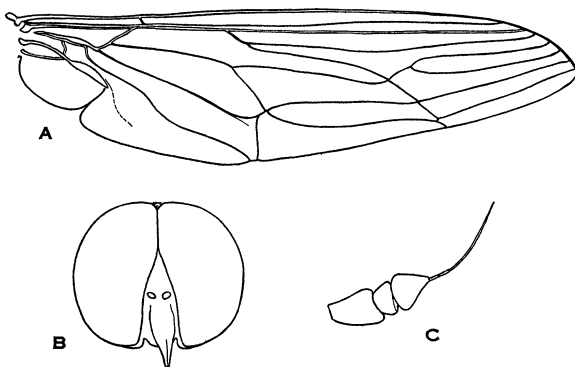


Fig. 2. *Hirnoneura vitalisi* J. Bequaert. A, wing; B, head seen in front; C, antenna.

Length: 18 mm.; length of wing: 19 mm.; width of wing: 5 mm.

Holotype male, Giaray, COCHINCHINA, February 24, 1921 (R. Vitalis de Salvaza Collector. — M. C. Z., Cambridge, Mass.).

This species is quite closely allied to *H. ochracea* Lichtwardt, from which it differs as shown in the key.

Subgenus **Hirnoneuropsis** J. Bequaert

Hirnoneura (Hirnoneuropsis) basalis Lichtwardt

Hirnoneura basalis Lichtwardt, 1910, Deutsch. Ent. Zeitschr., p. 595, fig. 3 (♂; erroneously described as from Ecuador; the type came from Northern India); 1913, Rec. Indian Mus., IX, p. 333 (♂; Burma: Dawna Hills, 2,000-3,000 ft.). Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 149 (♂).

The holotype, from Lichtwardt's collection, is now at the Deutsches Entomologisches Institut, Berlin-Dahlem, where I have seen it.

At the British Museum there is a specimen from Kolaw, S. Shan States, 4,000 ft. (F. M. Markwood Collector), which is possibly the undescribed female of *H. basalis*.

Subgenus *Hymrophlæba* Rondani

Hirmoneura (*Hymrophlæba*) *laotica*, new species

Male. — A large, thickset fly, similar in appearance to *H. obscura* and most Oriental species of the genus, though not closely related to any of them.

Integument of head, thorax and base of abdomen black; scutellum and juxta-alar tubercles dark brownish, the swollen margin of the scutellum bright ferruginous; antennæ (except style), palpi, proboscis and legs (except hind coxæ), bright yellowish-red; sides of second and most of succeeding tergites, most of the sternites and terminalia ferruginous-brown. Pruinosity uniformly dull gray, without markings or spots on thorax and abdomen; that of frons more yellowish; between the first and second tergite there is a narrow band of ashy-gray pruinosity. Body densely and uniformly covered with rather short, pale yellowish, erect hairs, longer on the head and on the sides and under side of the thorax; those below the base of the wing forming a yellowish tuft. A few black hairs mixed with the yellowish on the frons; first and second antennal segments densely covered with long, pale yellowish hairs. Hind femora and tarsi with short, appressed, bright rufous pilosity.

Head (Fig. 3B) large, hemispherical in profile, about as high as wide seen in front, not broader than the thorax. Eyes uniformly covered with short, yellowish-gray hairs, contiguous over most of the upper half of the frons. Ocellar triangle long and narrow, divided about midway by a transverse, saddle-like depression. Antennæ (Fig. 3C) small, crowded together; first segment about three times as long as the second, slightly swollen throughout; second segment very short, transverse; third segment flattened, pear-shaped, only slightly longer and not broader than the

second, rather abruptly narrowed apically. Style shorter than the antenna, the two basal segments short and thickened, of nearly equal length. Legs moderately stout, of normal shape.

Wing (Fig. 3A) long and comparatively narrow, about four times as long as wide, rather uniformly smoky, more yellowish along the anterior margin and near the base; veins yellowish. Costa distinctly developed along the hind margin and reached by the diagonal vein. The cross-vein which separates the first and second submarginal cells, reaches the third longitudinal at or slightly beyond its branching. Alula broad.

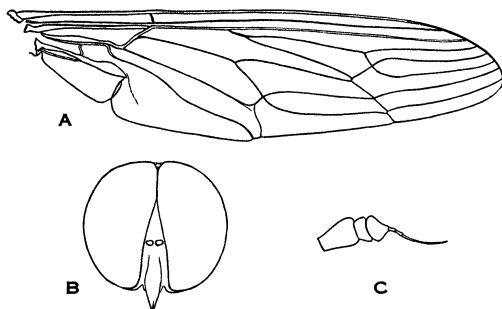


Fig. 3. *Hirmononeura laotica* J. Bequaert. A, wing; B, head seen in front; C, antenna.

Length: 15 to 16.5 mm.; length of wing: 16.5 to 17 mm.; width of wing: 4.3 to 4.5 mm.

Holotype male, Pang-Bo, LAOS, March 29, 1920 (M. C. Z., Cambridge, Mass.). Two male paratypes, Pak Hang, Prov. Xieng Khouang, LAOS, March 2, 1915 (R. Vitalis de Salvaza Collector).

This is the first species of the subgenus *Hyrmorphlæba* known from the Oriental Region.

Subfamily TRICHOPSIDEINÆ

I divide the Trichopsideinæ into the following six genera: *Atriadops* Wandolleck, *Nycterimyia* Lichtwardt, *Ceyloniola* Strand, *Nycterimorpha* Lichtwardt, *Cyclopsidea* Mackerras, and *Trichopsidea* Westwood. I have shown recently (1934, Jl. New York Ent. Soc., XLII, p. 181) that *Dicrotrypa*

Bigot, *Symmictus* Loew and *Parasymmictus* Bigot should all be united with *Trichopsidea*, these names being hardly worth retaining, even in a subgeneric sense.

The six genera may be tabulated as follows:

1. Ocelli absent. Alula vestigial *Atriadops*.
 Ocelli distinctly developed 2.
2. Alula well developed, though narrower than usual... 3.
 Alula vestigial or absent 4.
3. Neither the third nor the fourth longitudinal veins branched; cross-veins present between second and third, and between first and second longitudinal veins; the whole forming two marginal, two submarginal, and only four posterior cells. Hind margin of wing more or less wavy. Hind femora swollen toward apex *Nycterimyia*.
 Both third and fourth longitudinal veins forked, the branches ending freely in the apical margin; cross-vein absent between first and second, present between second and third longitudinal veins; the whole forming one marginal, three submarginal, and five posterior cells. Hind margin of wing not wavy.....
Ceyloniola.
4. Antennal style much flattened, leaf-like at apex. Wing of normal shape *Cyclopsidea*.
 Antennal style slender, or very slightly expanded at apex 5.
5. Wing much narrowed toward the base, more or less club-shaped. Hind femora and tibiae swollen apically *Nycterimorpha*.
 Wing of normal shape, not or scarcely narrowed toward the base. Femora and tibiae not appreciably swollen *Trichopsidea*.

Cyclopsidea Mackerras (1925) contains only one species, of Queensland. One species of *Trichopsidea* occurs in New Guinea, Australia and Tasmania; and since the genus is otherwise known from the Mediterranean Subregion, the Ethiopian Region and North America, it will probably be found in the Oriental Region also.

Atriadops Wandolleck, 1897

Type by present designation: *Colax javanus* Wiedemann, 1824.

There appear to be only two well-established species of *Atriadops*: *A. vespertilio* (Loew) (= *A. africana* Wandolleck; *A. cinnamomea* Brunetti), a widely distributed Ethiopian insect, and *A. javana* (Wiedemann) of the Oriental Region. *A. macula* (Wiedemann), described from Brazil, is known only from the type, which, according to Lichtwardt, is labelled "Bahia." It is so poorly preserved that Lichtwardt was unable to decide whether it belonged to *Atriadops*. No specimen of *Atriadops* has been recorded from the New World for over a century.

Atriadops javana (Wiedemann)

Colax javanus Wiedemann, 1824, *Analecta Entom.*, p. 18 (♂; Java); 1830, *Aussereurop. Zweifl. Ins.*, II, p. 261 (♂). Bigot, 1891, *Jl. Asiat. Soc. Bengal*, LX, pt. 2, p. 281. v.d. Wulp, 1891, *Sumatra Exped.*, *Diptera*, p. 26 (add. loc.: Sumatra); 1896, *Cat. Dipt. South Asia*, p. 69.³

Atriadops javana Wandolleck, 1897, *Entom. Nachr.*, XXIII, p. 246, fig. 1. Kertész, 1909, *Cat. Dipt.*, IV, p. 31. Lichtwardt, 1909, *Deutsch. Ent. Zeitschr.*, p. 650 (♀ ♂; add. loc.: Ceylon: Trincomali. Northern Territory of Australia: Palmerston. Queensland: Cape York and Townsville); 1919, *Ann. Mus. Nat. Hungarici*, XVII, p. 277 (♂; add. loc.: Formosa: Taihanroku). Brunetti, 1920, *Fauna Brit. India, Dipt. Brach.*, I, p. 155 (♂). Mackerras, 1925, *Proc. Linn. Soc. New South Wales*, L, pt. 4, p. 552, figs. 14 *a-d* (♀ ♂; add. loc.: Queensland: Cape Greville; Port Curtis; Port Denison; Gayndah; Brisbane; Toowoomba. New South Wales: Coff's Harbour). Sack, 1933, in Lindner, *Fliegen Pal. Reg.*, Lief. 75, p. 41, fig. 29; Pl. I, fig. 11 and Pl. III, fig. 40 (♀ ♂).

Atriadops javana Hardy, 1924, *Proc. Linn. Soc. New South Wales*, XLIX, pt. 4, p. 456, figs. 2 and 8.

Atriadops javana J. Bequaert, 1932, *Zoolog. Anzeiger*, C, p. 33 (♂; add. loc.: Mioko, Duke of York Island).

³The specific name was originally spelled "*iavanus*," but later corrected by Wiedemann to "*javanus*."

Colax (?) *variegatus* Westwood, 1848, Cabinet of Oriental Entomology, p. 38, Pl. XVIII, figs. 5-5a (no sex; China). Walker, 1849, List Dipt. Brit. Mus., II, p. 235. Bigot, 1891, Jl. Asiat. Soc. Bengal, LX, pt. 2, p. 281. v.d. Wulp, 1896, Cat. Dipt. South Asia, p. 69 (add. loc.: Singapore; Sumatra).

Atriadops variegata Wandolleck, 1897, Entom. Nachricht., XXIII, p. 247, fig. 3. Kertész, 1909, Cat. Dipt., IV, p. 31.

Atriadops westwoodi Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 650 (♂; New Guinea); 1910, *Loc. cit.*, p. 624.

Colax javana? Walker, 1850, Insecta Saundersiana, Diptera, Pl. V, figs. 4-4a-c (drawn by Westwood, not mentioned in the text).

Specimens Examined. — LAOS: Paklay, one male (Vitalis de Salvaza. — Paris Mus.). — FORMOSA: Kaukau, two females and fourteen males, September 1912 (H. Sauter Collector. — Deutsch. Ent. Inst., Berlin-Dahlem). — QUEENSLAND: Coen, Cape York, one male, May, 1932 (J. P. Darlington Collector. — M. C. Z.); Burnett River District (Brit. Mus.); Enongera near Brisbane (Brit. Mus.). — NEW SOUTH WALES: Sydney, one female (Brit. Mus.).

I have also seen the holotype, very badly preserved, of *Colax variegatus* at the British Museum. It is labelled "Foo-chow, China." That part of China has, like Formosa, a truly Oriental, tropical fauna. There is no evidence that *A. javana* enters the Palearctic Region, proper.

Nycterimyia Lichtwardt, 1909

Nycterimyia, originally established as a monotypic genus for *Trichopsidea dohrni* Wandolleck, now contains four Oriental, one Australian, one Papuan and three Ethiopian species.

Key to Oriental, Australian and Papuan Species (partly after Lichtwardt, 1912)

1. Wings uniformly brownish, without hyaline spots or fenestræ. Formosa
N. fenestro-inornata Lichtwardt.
- Wings brownish, with distinct hyaline streaks, spots or fenestræ2.

2. Fourth posterior cell only with a narrow, somewhat curved, hyaline streak; small, subhyaline areas in the combined first and second posterior, and in the second basal cells. New Guinea
N. papuana J. Bequaert.
 Large hyaline fenestræ at least in the first submarginal and axillary cells 3.
3. Wings moderately wavy along hind margin. No hyaline spots in the combined first and second posterior cells; second basal cell mostly hyaline; large fenestræ in discal and fourth posterior cells 4.
 Wings strongly wavy along hind margin. Combined first and second posterior cells with two small, hyaline spots; no hyaline spot in discal cell. 5.
4. The longitudinal veins end almost straight in the costa. Smaller, darker species. Formosa.
N. fenestro-clathrata Lichtwardt.
 The longitudinal veins distinctly curved upward at apex. Larger, paler species. Formosa.
N. kertészi Lichtwardt.
5. Hyaline fenestra of axillary cell concave apically, with a pointed upper extension; very small hyaline spots in second basal cell. Queensland.
N. horni Lichtwardt.
 Hyaline fenestra of axillary cell with almost straight apical margin, without upper extension; a large hyaline fenestra in second basal cell. Sumatra, Mapor, Andaman Islands. *N. dohrni* (Wandolleck).

Nycterimya dohrni (Wandolleck)

Trichopsidea dohrni Wandolleck, 1897, Entom. Nachr., XXIII, p. 251, figs. 7-8 (♂; Sumatra). Kertész, 1909, Cat. Dipt., IV, p. 32. Brunetti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 153 (♂).

Nycterimya dohrni Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 647 (♂; add. loc.: Rhio Archipelago: Mapor or Panjang Id.;⁴ Andaman Islands: Ross Isl.); 1912, Ent. Mitt., Berlin, I, p. 27.

I have seen the male from the Andaman Islands at the

⁴The misspelling "Mafor" was corrected by Mr. Lichtwardt in the working copy of his paper, now in my library.

British Museum and the male from Mapor at the Munich Zoölogical Museum. The type is in the Stettin Museum.

Nycterimymia kerteszi Lichtwardt

Nycterimymia kerteszi Lichtwardt, 1912, Ent. Mitt., Berlin, I, p. 27, Pl. II, fig. 2 (♀; Formosa: Fuhosho); 1919, Ann. Mus. Nat. Hungarici, XVII, p. 277.

The type is in the Budapest Museum.

Nycterimymia fenestro-clathrata Lichtwardt

Nycterimymia fenestro-clathrata Lichtwardt, 1912, Ent. Mitt., Berlin, I, p. 28, Pl. II, fig. 3 (♀; Formosa: Fuhosho); 1919, Ann. Mus. Nat. Hungarici, XVII, p. 277.⁵

The type is in the Budapest Museum. I am not quite convinced that this is specifically distinct from *N. kerteszi* Lichtwardt.

Nycterimymia fenestro-inornata Lichtwardt

Nycterimymia fenestro-inornata Lichtwardt, 1912, Ent. Mitt., Berlin, I, p. 28, Pl. II, fig. 4 (♂; Formosa: Fuhosho); 1919, Ann. Mus. Nat. Hungarici, XVII, p. 277.

Specimen Examined. — FORMOSA: Hoozan, one male (H. Sauter Collector. — D. E. Institut, Berlin-Dahlem).

The type is in the Budapest Museum.

Ceyloniola Strand, 1928

(*Ceylonia* Lichtwardt, 1909)

The only species of *Ceyloniola* is a beautiful, large fly (♂ 16 mm. long, wing 16 mm. by 5 mm.), readily recognizable by the peculiar venation and markings of the wings. These are mostly hyaline, with dark brown base, irregularly edged median cross-band (over base of discal cell, reaching anterior but not posterior margin) and irregularly edged preapical band connected along anterior margin with the dark-brown tip.

Ceyloniola magna (Lichtwardt)

Ceylonia magna Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 646, fig. 5 (♂; Ceylon: Pundaluoya). Bru-

⁵Originally misspelled "*fenestro-clatrata*," the specific name was corrected by the author in 1919.

netti, 1920, Fauna Brit. India, Dipt. Brach., I, p. 156, Pl. II, fig. 23 (♂).

Atriadops nivea Brunetti, 1912, Rec. Indian Mus., VII, p. 477, Pl. XXXVII, fig. 11 (♂; Ceylon: Haldumulla).

I have seen two males, including the holotype, at the British Museum.

Nycterimorpha Lichtwardt, 1909

Nycterimorpha was originally erected as a monotypic genus for *Nycterimorpha speiseri* Lichtwardt, of Queensland. Edwards has recently added an Oriental species.

Nycterimorpha pyralina Edwards

Nycterimorpha pyralina Edwards, 1932, Stylops, I, p. 138, figs. 1, 1*b*, 1*c*, 2*a* (♂; Malay Peninsula: Fraser's Hill, Pahang, 4,000 ft.).

I have seen the holotype at the British Museum.



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