

NOTES ON THE NOMENCLATURE OF CERTAIN AFRICAN TABANIDAE  
(SUB-FAMILY PANGONIINAE), WITH DESCRIPTIONS OF A NEW  
GENUS AND NEW SPECIES.

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Some six years ago, it was correctly pointed out by Brèthes (Bull. Soc. Ent. de France, 1914, p. 59) that the generic designation *Diatomineura*, Rond. (Archiv. Zool. Anat. Fisiol. iii, p. 84, 1864), is a synonym of *Oscia*, Walk. (Ins. Saund., Diptera, Part i, p. 10, 1850—*nec* Walk., 1864, *nec* Stål, 1871). The first species mentioned by both Walker and Rondani is *Pangonia depressa*, Macq. (= *Erephopsis lata* (*Tabanus latus*), Guér.), and this species is designated by Brèthes as the genotype. *Erephopsis lata*, Guér., of Kertész's Catalogus Dipterorum (iii, p. 165, 1908), must therefore be known henceforth as *Oscia lata*, Guér., and the South African *Tabanus barbatus*, L. (*Pangonia barbata*, Auct.), and *Pangonia fulvifascia*, Walk., must be transferred to the genus *Oscia*.

It is not, however, simply a question of substituting *Oscia* for *Diatomineura*, since *Oscia lata*, Guér., is certainly not congeneric with any, or at any rate with the majority of the species at present grouped under *Diatomineura*, sub-genus *Corizoneura*. So far as regards Ethiopian and Oriental species, the difficulty can be met by, as is hereby proposed, raising *Corizoneura*, Rond. (*loc. cit.*, p. 85) to generic rank, designating as its genotype the first species mentioned by Rondani under *Corizoneura*, viz., *Tabanus aethiopicus*, Thunb. (syn. *Pangonia appendiculata*, Macq.), and erecting a new genus, which may be termed *Buplex*,\* for certain Ethiopian species included by Kertész under the *Corizoneura* division of *Diatomineura*, but not congeneric with *C. aethiopica*, Thunb. The arrangement indicated may be expressed in tabular form as follows.

Eyes bare ; first posterior cell open.

Ocelli absent ; face, especially in ♀, markedly produced (forming a snout-like prolongation), with a shining callus, or at least a more or less shining area, on each side ; proboscis long or very long, usually much longer than thorax including scutellum, and generally horizontal or nearly so ; distal extremities of first and second joints of front tarsus in ♂ generally each produced above into a tongue- or lappet-like process, which, in case at least of second joint, is often of considerable relative length . . . . . *Corizoneura*, Rond.

(Genotype, *Tabanus aethiopicus*, Thunb.,—syn. *Tanyglossa aethiopica*, Thunb. ; *Pangonia appendiculata*, Macq.).

Ocelli usually present ; face not produced, merely convex, and without shining callus or area on each side ; proboscis of only moderate length, shorter than or about as long as thorax including scutellum, and generally slanting downwards at an angle of 45° ; distal extremities of tarsal joints never produced . . . . .

*Buplex*, gen. nov.

(Genotype *Pangonia suavis*, Lw.).

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\* βοῦ-πλήξ ὁ, an ox-goat.

Among other species referable to the new genus thus briefly characterised are *Pangonia brunnipennis*, Lw., *P. subfascia*, Walk., *Corizoneura albifacies*, Ric., *C. dissimilis*, Ric., and the new species described below.

The genus *Corizoneura*, Rond., as defined and restricted above, includes, in addition to the genotype and the new species described in this paper :—*Diatomineura virgata*, Austen ; *D. inornata*, Austen ; *D. neavei*, Austen ; *Pangonia sagittaria*, Surc. ; *Corizoneura distincta*, Ric. ; *Pangonia lateralis*, Wied. (Fabr. ?) ; *Diatomineura hastata*, Austen ; *D. lineatithorax*, Austen ; *D. penetrabilis*, Austen ; *Corizoneura pallidipennis*, Ric. ; and *C. umbratipennis*, Ric. The foregoing all belong to the Ethiopian Region, and congeneric with them are the Oriental *Pangonia taprobanes*, Walk. (syn. *P. rufa*, Macq.), and *P. longirostris*, Hardw.

Another change which may as well be made now, since in any case it is almost certain to be effected sooner or later, is the replacement of Macquart's generic designation *Cadicera* by *Phara*, Walk. (Ins. Saund., Diptera, Part i, p. 9, 1850). The latter name, accompanied by a brief diagnosis, was applied by its author to one of "several groups or subgenera" of *Pangonia*, Latr. ; eighteen species were mentioned under *Phara*, the first three of these being, in the order given, *Pangonia melanopyga*, Wied., *P. chrysostigma*, Wied., and *P. crassipalpis*, Macq. The present writer hereby proposes to regard *Pangonia melanopyga*, Wied., as the genotype of *Phara*, Walk. ; to raise the latter to generic rank ; and to restrict it so as to include besides the genotype, among the species mentioned under *Phara* by Walker, only *Pangonia chrysostigma*, Wied., and *P. crassipalpis*, Macq., since these three species are obviously congeneric. *Phara*, Walk., therefore, as thus restricted, replaces and must be substituted for *Cadicera*, Macq. (Mém. Soc. Imp. des Sc. Lille, 1854, (2) p. 42, 1855), founded for *C. rubramarginata*, Macq. (*loc. cit.*, p. 23).

Except where otherwise stated, the types of the new species described in the following pages are in the British Museum (Natural History).

#### Genus **Buplex**, nov.

##### **Buplex fuscinervis**, sp. n.

♀.—Length (2 specimens) 12 to 13 mm. ; width of head 4 to 4·2 mm. ; width of front at vertex 0·8 mm. ; length of proboscis 3·4 to 3·5 mm. ; length of wing 12·4 to 12·5 mm.

*Body, except certain areas at sides of abdomen, black above, with scutellum, lateral borders and three narrow longitudinal stripes on scutum, and deep posterior borders to abdominal segments smoke-grey\* or pale smoke-grey pollinose ; lateral extremities of tergites of first (visible) and second abdominal segments smoke-grey, more or less tinged with ochraceous tawny owing to the subjacent ground-colour ; wings with base, costal and sub-costal cells and stigmatic area ochreous, veins after first longitudinal in distal half (from base of discal cell onwards) dark brown, and for most part more or less strongly suffused with mummy brown.*

\*For names and illustrations of colours used for descriptive purposes in the present paper, see Ridgway, "Color Standards and Color Nomenclature" (Washington, D.C. Published by the Author, 1912).

*Head* : ocelli present ; face, jowls and lower half of front light buff pollinose, clothed with pale yellowish hair, occiput smoke-grey pollinose, and likewise clothed with pale yellowish hair ; upper part of front with a pair of narrow, blackish stripes, commencing at ocellar tubercle, descending somewhat lower than middle and diverging below, each stripe clothed with short, curving black hairs, interspersed with some glistening yellowish hairs ; *palpi* clothed with yellowish hair, longer on proximal than on terminal joint, latter russet or ochraceous tawny, proximal joint mouse-grey, russet towards distal extremity ; first and second joints of *antennae* clothed partly with yellowish hair, partly with black hair, first joint mouse-grey or deep neutral grey, second joint russet (third joint missing in case of type). *Thorax* : smoke-grey longitudinal stripes on dorsum extending from front to hind margin of scutum, confluent posteriorly ; transverse suture smoke-grey, forming a connection between lateral border and outer smoke-grey stripe on each side ; pleurae and pectus light greyish olive pollinose ; thorax clothed with yellowish hair, black stripes on dorsum clothed posteriorly with fine black hair. *Abdomen* : black area on first (visible) and second tergites restricted to a transverse band occupying middle third of anterior half, with rounded posterior angles in each case, and, especially on second segment, indented in middle line behind ; lateral margins of fourth and following tergites, and lateral extremities of hind border of third tergite ochraceous tawny, though normally concealed by hair and smoke-grey pollen ; seventh tergite entirely grey ; lateral extremities and hind borders of all tergites clothed with glistening hair, longer and ochreous on lateral extremities of second and two or three following segments, shorter and paler elsewhere ; black area on second tergite clothed with yellowish hair, corresponding areas on two following tergites clothed with short, erect black hair ; venter smoke-grey, clothed with appressed, glistening, cream-coloured hair ; second sternite with a transversely elongate, somewhat reniform, fuscous black blotch in middle line, resting on or close to anterior border and confined to anterior half of segment, third and three following sternites each with a sooty black, transverse band on front border, widely separated in each case from lateral margins, and from twice to four times deeper on third than on either of the other sternites, these bands clothed with short, erect, black hair. *Wings* with auxiliary and first longitudinal veins, second longitudinal from base to a little beyond origin of third longitudinal, praefurcal portion of fourth longitudinal, and extreme bases of fifth and sixth longitudinal veins ochreous ; veins otherwise more or less dark brown. *Squamae* cream-buff. *Halteres* maize-yellow, knobs sometimes darker (mummy-brown) at base. *Legs* : coxae and femora deep mouse-grey, clothed with yellowish hair ; tibiae and tarsi clove-brown, clothed with minute black hairs, tarsal joints sometimes paler towards base.

South Africa (Cape Province) ; type and para-type from Bizana, East Pondoland, 1912(—*Goodall* : presented by Mr. T. B. Goodall).

The species described above shows a decided resemblance to *Buplex* (*Pangonia*) *suavis*, Lw., but, apart from its smaller size, is distinguishable, *inter alia*, by the presence of the two blackish stripes on the front ; by the outer two of the three longitudinal smoke-grey stripes on the disk of the scutum being narrower ; by the absence of a brown blotch near the tip of the wing, above the fork of the third longitudinal vein ; and by the veins in the region of the discal cell being suffused with mummy-brown.

Genus **Corizoneura**, Rond.**Corizoneura formosa**, sp. n.

♂.—Length (4 specimens) 20 to 21.4, mm. ; width of head 6 to 6.4 mm. ; distance from upper margin of occiput to anterior extremity of face 5 to 5.25 mm. ; length of proboscis 13 to 15 mm. ; length of wing 17.4 to 18 mm. ; wing-expanse 21.5 to 23 mm.

*Dorsum of thorax dark olivaceous black, with broad smoke-grey lateral borders clothed with cream-coloured hair, and with two narrow, smoke-grey, admedian, longitudinal stripes ; dorsum of abdomen ochraceous tawny, with distal extremity (fifth to seventh segments) infuscated (iron-grey to olivaceous black), a large black median blotch on each of the first four visible segments, and fourth segment bordered posteriorly with appressed, silvery white and ochreous hair ; venter cinnamon-buff or cinnamon-coloured, with last three segments sometimes mouse-grey and lateral extremities of first visible scute neutral grey ; wings with a sepiaecous tinge ; processes at tips of first and second joints of front tarsus in ♂ very long.*

*Head* : face bluntly conical, moderately produced ; front and face (except sides of facial prominence below, which are clove-brown and shining) pinkish buff pollinose, front and borders of face adjacent to eyes clothed with longish, cream-buff hair ; occiput smoke-grey, clothed above with cream-buff, below with whitish hair ; jowls and basi-occipital region pale smoke-grey, clothed with long whitish hair ; *palpi* russet, dark brown on outer side, proximal joint with a bunch of whitish hair at base below ; first and second joints of *antennae* isabella-coloured pollinose, clothed above and below with longish hair, generally black or blackish but sometimes mainly cream-coloured on first joint, third joint ferruginous or vinaceous rufous, clove-brown at tip. *Thorax* : dorsum, including scutellum, clothed for most part with somewhat appressed, cream or cream-buff-coloured hair, often but little visible when regarded from above, hair above lateral borders between bases of wings often largely or mainly dark brown, pleurae and pectus clothed with fairly long, whitish or yellowish white hair. *Abdomen* : except on first (visible) tergite, on which median blotch extends to or is but narrowly separated from hind margin, black median blotches, which rest on front margin, do not reach hind border ; posterior angles of first and second tergites clothed with yellowish or whitish hair, hind border of second tergite with a patch of glistening, appressed, ivory-yellow or cream-buff-coloured hair in middle line, light-haired hind border of fourth tergite expanded in middle line and at each extremity, lateral extremities of sixth and seventh tergites generally clothed with glistening silvery white hair, lateral extremities of second to fourth tergites inclusive, except as already stated, clothed with black hair, ochraceous tawny area of first and second tergites clothed mainly with minute, glistening, appressed, ochreous hairs, corresponding area on third and fourth tergites clothed with minute black or blackish hairs, fifth and sixth tergites (except lateral extremities in case of latter) clothed with black hair ; venter clothed with minute, appressed, glistening, cream-buff-coloured hairs, fifth sternite sometimes largely clothed with minute, black or blackish hairs. *Wings* : veins sepia-coloured, adjacent membrane suffused with same colour at base, and to a less extent at level of proximal extremity of discal cell. *Squamae* waxen ochraceous buff or pale orange-yellow, fringed with minute yellowish hairs.

*Halteres* light chestnut-brown, tips of knobs light buff or light ochraceous buff. *Legs* : coxae neutral grey, clothed with whitish hair, which is longer on front pair ;

femora russet (extreme tips ochraceous buff), clothed mainly with whitish or yellowish white hair, antero-inferior area of front pair with minute, erect, blackish hairs; front and middle tibiae ochraceous buff, clothed with minute, glistening, yellowish or ochreous hairs, hind tibiae and hind tarsi russet-brown, clothed with black hair, distal extremities of hind tarsal joints blackish; front tarsi ochraceous buff or ochraceous tawny, distal extremities of last three joints dark brown, body of second joint very short, tongue-like process at its distal extremity very long (longer than following joint), process at end of first joint overlapping and closely applied to first two-thirds of following joint; first joint of middle tarsi cream-buff, remaining joints dark brown or mummy-brown, blackish brown at tips.

South Africa (Cape Province): type and three para-types from Deelfontein, 7.xii.1902 (presented by *Colonel Sloggett, A.M.S.*—now *Lieut.-General Sir A. T. Sloggett, K.C.B., K.C.M.G.*).

This handsome species presents a decided resemblance to *Corizoneura aethiopica*, Thunb., another inhabitant of the South African portion of the Ethiopian Region, but can at once be distinguished, *inter alia*, by the presence of the conspicuous, smoke-grey, admedian, longitudinal stripes on the dorsum of the thorax.

### ***Corizoneura schwetzi*, sp. n.**

♂ ♀.—Length, ♂ (6 specimens) 16.4 to 18 mm., ♀ (6 specimens) 16 to 18.6 mm.; width of head, ♂ just over 5 to 5.4 mm., ♀ 5.2 to 5.75 mm.; distance from upper margin of occiput to anterior extremity of face, ♂ 4.2 to 4.5 mm., ♀ 4.5 to 4.8 mm.; width of front of ♀ at vertex 0.6 to 0.75 mm.; length of proboscis, ♂ 15 to 15.25 mm., ♀ 11.75 to 13.75 mm.; length of wing, ♂ 15 to 15.2 mm., ♀ 15.5 to 17.25 mm.

*Dusky species, with base of abdomen paler; dorsum of thorax dark brownish olive, with a broad, indistinct, blackish brown longitudinal stripe along each side above lateral margin, a narrow, elongate, pale spot (composed of Naples yellow or cream-buff hair) above base of each wing in front of postalar callus, and a short but conspicuous stripe of black hair between base of costa and humeral callus on each side; dorsum of abdomen with first two (visible) segments cinnamon-buff or tawny olive in ♂, ochraceous tawny in ♀, ♂ with a blackish brown median triangular spot at base of second segment, tergites of third and following abdominal segments blackish brown or black, fourth segment posteriorly with a conspicuous transverse band of appressed, glistening, silvery white hair; venter abruptly bicoloured, proximal portion as far as base of third (visible) sternite, ivory-yellow, cream or cream-buff-coloured, remainder blackish brown; wings strongly and uniformly tinged with sepia.*

*Head* drab pollinose, posterior orbits paler (light greyish olive above, smoke-grey or pale smoke-grey below), shining callus on each side of face below antenna black, sharply defined, sides of face below calli more or less dark brown or blackish brown owing to ground-colour showing through pollinose covering, lower border of sides of face in ♂ shining blackish brown, deeper posteriorly, distal extremity of face in ♀ shining blackish brown, sparsely clothed with drab pollen, in both sexes a more or less distinct, somewhat triangular, olive-buff or pale olive-buff, pollinose spot on each side of lower part of front, between base of antenna, margin of eye and shining callus; front in ♀ with following series of dark brown marks—

a transversely oblong spot occupying ocellar region of vertex but not extending to eyes, a pair of somewhat guttate spots in centre of front, indistinctly connected with foregoing spot but likewise not in contact with eyes, and an oblique spot on each side below, extending from base of antenna to eye, above the light (olive-buff or pale olive-buff) spot already mentioned; front in ♂ clothed with black hair, in ♀ with shorter blackish hair, mingled with paler hair in upper portion, posterior orbits in both sexes fringed above with yellowish hair and below with longer whitish hair, basi-occipital region and jowls densely clothed with fairly long, whitish hair, lower borders of sides of face clothed posteriorly with black or blackish hair, more conspicuous in ♂ than in ♀; *palpi* russet-brown in ♂, russet in ♀, terminal segment (elongate and very narrow in ♂) clothed with minute black or blackish hairs, proximal segment, especially in ♀, clothed below with longer hair, brownish or blackish brown anteriorly, yellowish or whitish posteriorly; *antennae* russet, first and second joints more or less smoke-grey pollinose, clothed with black hair. *Thorax*: dorsum clothed anteriorly with silky, tawny olive or ochreous hair, posteriorly, including base of scutellum, with fine, erect, black hair, postalar calli, and scutellum, except as stated, clothed with Naples yellow or cream-buff hair, hairy covering of central portion of dorsum visible only when viewed from side; pleurae and pectus clothed with longish hair, for most part cream-buff (whitish on propleurae) in colour, a tuft of black hair (less conspicuous in ♀, in which sex it is often much reduced) below base of wing on each side; sternopleurae in ♂ sometimes clothed mainly with black or blackish hair. *Abdomen*: hind border (distal third or rather less) of second (visible) tergite clothed with minute, appressed hairs, which are silvery white or whitish at and towards lateral extremities of segment, and sparser and more yellowish (often glistening cream-buff) in vicinity of median line (owing to paler ground colour, whitish transverse band thus formed is, except at lateral extremities, less conspicuous than corresponding band on fourth segment); base of first (visible) tergite with a blackish brown, median area, extending beyond scutellum, but not or barely reaching hind margin except in middle line in ♂, in which sex it is more or less distinctly connected with triangular spot on second segment; blackish brown median triangle on second tergite in ♂ with its base resting on or close to anterior margin, and its apex reaching or extending somewhat beyond middle of segment; third tergite sometimes irregularly paler (cinnamon-brown) at base and on hind border; hairs in silvery white transverse band on fourth tergite somewhat yellowish in vicinity of middle line; seventh tergite in ♀, as well as frequently hind borders of fifth and sixth tergites, often dull fuscous; lateral extremities, or at least posterior angles, of fifth and sixth tergites each clothed with a prominent tuft of silvery white hair; posterior angles, as well as in ♀ hind margin of first (visible) tergite clothed with shining ochreous or pale ochraceous orange hair; dorsum of abdomen except as already stated clothed with minute, appressed, black hairs; first (visible) sternite bare, second sternite clothed with minute, appressed, glistening cream-coloured hairs (anterior border of second sternite fringed with fine, erect, black or blackish hair, shorter and less developed in ♀ than in ♂, in which sex fine, recumbent, black hairs are also present among the cream-coloured hair, especially towards lateral extremities of the scute), blackish brown portion of venter clothed with black hair, among which a few pale hairs are occasionally present

on one or more of fourth and following segments. *Wings*: appendix to anterior branch of third longitudinal vein, though of variable length, as a rule relatively somewhat long. *Squamæ* isabella-coloured. *Halteres* mummy-brown, knobs in ♀ often paler (cream-buff) at tip. *Legs*: front coxae neutral grey, clothed with cream-coloured or cream-buff hair, middle and hind coxae deep neutral grey or dark neutral grey, clothed with black hair, hind coxae in ♀ also with some yellowish hairs; hind femora in ♂ and bases of front and middle femora in same sex blackish brown, front and middle femora in ♂ except at base russet-brown or cinnamon-brown, all femora in ♂ clothed with black hair, femora in ♀ paler, and clothed largely with ochraceous buff or ochreous hair as well as with black hair; coloration of tibiae and tarsi and of their hairy covering alike in both sexes, front and middle tibiae ochraceous buff or ochraceous tawny, clothed with minute, appressed glistening ochraceous buff hair, hind tibiae and hind tarsi blackish brown, clothed with black hair, tips of second and two following tarsal joints clothed below with ferruginous hair, similarly coloured hair also largely present, at least in ♀, on under side of first tarsal joint, front and middle tarsi ochraceous tawny, clothed above with black hair, last joint in each case, as well as distal extremities of preceding joints mummy-brown, processes at tips of first and second joints of front tarsi in ♂ of moderate size, in neither case reaching distal extremity of following joint.

Belgian Congo (North Katanga) and Tanganyika Territory. Typical series from Kakanu (between 15 and 16 miles south of Kisengwa, R. Lomami), N. Katanga, vi. 1918 (*Dr. J. Schwetz*). Type of ♂, type of ♀, 36 ♂ and 2 ♀ para-types, in Musée Royal d'Histoire Naturelle de Belgique (Brussels); 6 ♂ and 6 ♀ para-types, in British Museum (Natural History)—presented by M. G. Severin; 1 ♀, from Tanganyika Territory (formerly German East Africa), 30° 55' E. Long., 2° 5' S. Lat., 16. vi. 1916 (*Dr. G. D. H. Carpenter*), in British Museum (Natural History), presented by Imperial Bureau of Entomology.

This fine species, with which the author has much pleasure in connecting the name of its discoverer (the well-known student of tsetse-fly bionomics in North Katanga), was met with by the investigator in question in large numbers in the vicinity of Kakanu.\* On 6th June 1918, in a belt of forest several hundred metres in breadth and about 3¾ miles from Kakanu, Dr. Schwetz's native carriers succeeded in catching some 2,000 specimens of *C. schwetzi*, from 80 to 90 per cent. of which were males.† Unlike *Corizoneura inornata*, Austen (see below), which is found in the open, *C. schwetzi* does not occur outside the forest. According to Dr. Schwetz,‡ in the case of the present and the following species (*C. inornata*, Austen) at least, the labium itself is the piercing organ, and in the act of biting is thrust by the insect deeply into the skin of its victim. It is therefore interesting and possibly suggestive to note that, in the ♀ taken by Dr. Carpenter in Tanganyika Territory, the labium

\* Cf. Schwetz, "Dix Jours d'Observations sur les Mœurs de la 'Pangonia zonata' et de la 'Pangonia oldii' (Deuxième Note)": *Revue Zoologique Africaine*, vii, pp. 92-106 (1919).—Cf. also the earlier paper by the same author, "Quelques Observations Préliminaires sur les Mœurs de la 'Pangonia zonata'": *ibid.*, pp. 46-54. In both of the memoirs cited *Corizoneura schwetzi* is referred to as *Pangonia oldii*, while the species termed *Pangonia zonata* is really *Corizoneura inornata*, Austen.

† Cf. Schwetz, *loc. cit.*, p. 103.

‡ See below, p. 147.

only projects 7.5 mm. beyond the extremity of the clypeus, exceeding the length of the labrum-epipharynx and the other mouth-parts by little more than the labella, while the proximal portion of the labium is bent backwards underneath the head, and beneath the cleft between head and thorax forms an angle of 45° with the distal portion.

Although superficially presenting a decided resemblance to *Pangonia oldii*, Austen, *Corizoneura schwetzi* can be distinguished from that species *inter alia* by the processes (entirely wanting in *P. oldii*) at the tips of the first and second joints of the front tarsi in the ♂; by the much greater development of the dark spot (often scarcely more than vestigial in *P. oldii*) at the base of the second abdominal tergite in the same sex; and in both sexes by the short stripe of black hair on each side of the dorsum of the thorax, in front of the base of the wing.

From *Corizoneura inornata*, Austen, apart from obvious differences in coloration, especially the sharply bicoloured venter of the species just described, *C. schwetzi* is distinguished by the inferior development of the processes at the tips of the first and second joints of the front tarsi in the ♂. Whereas in *C. inornata* ♂ each of these processes is so long as to project beyond the tip (excluding the process in the case of the second segment) of the following joint, in *C. schwetzi* ♂ neither process reaches the tip of the succeeding joint.

#### **Corizoneura inornata**, Austen.

*Diatomineura inornata*, Austen, Bull. Ent. Res. i, p. 282 (1911).

This species was described from a single ♀, obtained in September 1907, in S. Katanga, Belgian Congo, between Bunkeya and Kambove, at an altitude of 3,500 ft., by Dr. Sheffield Neave. The kindness of Dr. J. Schwetz, in presenting to the British Museum (Natural History) a large number of specimens of both sexes, now renders it possible to indicate the distinctive characters of the ♂.

*C. inornata*, Austen, ♂.—Apart from ordinary secondary sexual characters, agreeing generally with the ♀ except as follows. *Head*: hair clothing jowls and basi-occipital region often hoary or nearly white; first two joints of *antennae* clothed mainly with black hair. *Thorax*: pleurae on each side with a tuft of black hair below base of wing. *Abdomen*: first (visible) tergite with a median brownish black area at base, projecting somewhat beyond scutellum, but not reaching hind margin; second tergite with a conspicuous, median, brownish black, triangular spot resting on front margin, and varying in size in different individuals, but not extending beyond middle of segment, if so far; fifth and sixth tergites mainly brownish black, blackish brown or clove-brown, each of the two preceding tergites often with an ill-defined median blotch of same colour occupying anterior two-thirds. *Legs*: front and middle femora clothed largely with black hair, at least towards base, hind legs clothed mainly with black hair, processes at tips of first and second joints of front tarsi very long, in each case projecting beyond end of following joint (excluding process in case of second segment).

In the papers already referred to,\* under the name "*Pangonia zonata*," Dr. Schwetz has furnished a series of interesting field notes on the behaviour of this

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\* P. 145, note.\*



species, which, at the end of May 1914 and at the close of the same month and beginning of June 1918, was found by him in great abundance in the vicinity of Kakanu, N. Katanga, at and about the flowers of *Acanthus montanus* (termed by the natives "Nafimbia"), which grows in sheets in open spaces outside the forest. According to Dr. Schwetz, the existence of *C. inornata* is "intimately connected" with that of the flowers in question, the nectar of which is imbibed by both sexes, though the females also suck blood on occasion. It is interesting to note that, having in a number of cases observed the process of sucking blood by females of this and the foregoing species (*Corizoneura schwetzi*, Austen), Dr. Schwetz states that, in these PANGONINAE at any rate, the actual piercing organ is the *proboscis* (labium) itself, which is "evidently sufficiently rigid" to penetrate the human integument, and is driven by the insect "fairly and squarely into the skin to the extent of one-third or one-half of its length. . . ."\*

### Genus **Pangonia**, Latr.

#### **Pangonia discors**, sp. n.

♀.—Length (1 specimen) 19.6 mm. ; width of head 5.6 mm. ; width of front at vertex 0.75 mm. ; distance from upper margin of occiput to anterior extremity of face 4.5 mm. ; length of proboscis 5.5 mm. ; length of wing 17.6 mm.

*Deep black, somewhat shining ; first (visible) and second abdominal tergites densely covered with pale gull-grey pollen, and thickly clothed with closely appressed, silvery white hair ; area beneath scutellum free from pollen and clothed with black hairs, some black hairs also present in middle line on anterior border of second tergite, latter likewise exhibiting a broad, median, triangular area (its base resting on front margin, its apex directed backwards and reaching beyond middle of segment) which, like front border of same segment, has a blackish look owing to pollen on it being thinner than elsewhere ; lateral extremities of second tergite clothed with black hair ; wings mummy-brown, proximal half (as far as base of discal cell) and stigma pale orange-yellow or light orange-yellow.*

*Head* : ocelli wanting ; face moderately prominent, front above relatively somewhat narrow ; area from middle of front to anterior margin of clypeus olive-buff, upper half of front fuscous black, sides of face clove-brown, occiput and basi-occipital region smoke-grey or pale smoke-grey, jowls clothed with yellowish cream-coloured hair ; *palpi* clove-brown, terminal joint elongate, tapering to a point and somewhat curved ; first and second joints of *antennae* dark mummy-brown, clothed with minute black hairs mixed with some minute yellowish hairs, first joint short, expanded portion of terminal joint cinnamon-brown (terminal portion missing in case of type). *Thorax* : postalar calli chestnut-brown ; dorsum including scutellum clothed with short black hair, which on front border of scutellum is interspersed with minute, glistening, appressed, golden hairs, a few golden hairs also on upper portion of swelling occupying depression at each end of transverse suture, hair on pleurae and pectus entirely black or fuscous black. *Abdomen* : third (visible) and following tergites clothed with appressed, black hair ; venter, except second sternite, clothed with appressed, black or brownish black hair, ventral surface of second segment

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\* Cf. Schwetz, Rev. Zool. Africaine, vii, pp. 101-102 (1919).

clothed with minute, appressed, glistening, yellowish white hairs, fore border and lateral extremities clothed with black hairs. *Wings*: transition from orange-yellow proximal to mummy-brown distal portion sharply marked, at least in case of type. *Squamae* ivory-yellow. *Halteres* ochraceous buff, stalks and knobs towards base brownish. *Legs*: coxae and femora dark brown or blackish brown, clothed with black hair, which on under side of hind femora is mixed with a certain number of minute, glistening tawny hairs, and on anterior surface of front coxae with a few golden hairs; tibiae and tarsi russet, clothed for most part with minute, appressed, glistening, ochraceous tawny hairs, last three joints of tarsi dark brown above.

Angola (*J. J. Monteiro*).

*Pangonia discors* resembles and is closely allied to the East African *P. beckeri*, Bezzi, but is readily distinguishable owing to, *inter alia*, its more prominent face and narrower upper part of the front, the entire absence of white hair on pleurae, postalar calli and front coxae, and the distal portion of the abdomen being entirely black and covered with black hair, instead of having the tip ochraceous tawny and clothed with glistening ochraceous orange or ochreous hair.

***Pangonia lautissima*, sp. n.**

♂♀.—Length, ♂ (9 specimens) 17 to 19 mm., ♀ (3 specimens) 16 to 17.4 mm.; width of head, ♂ just under 5 to 5.4 mm., ♀ 5 to 5.6 mm.; width of front of ♀ at vertex just under 1 to 1.2 mm.; length of proboscis, ♂ just under 4 to 4.25 mm., ♀ 3.4 to 4.2 mm.; length of wing, ♂ 14 to 15.2 mm., ♀ 14 to 15.6 mm.

*Shining black; basi-occipital region clothed and lower halves of posterior orbits fringed with orange-buff hair, and patches of similarly coloured hair on pleurae; wings with base and a deep anterior border extending to end of third costal cell ochraceous orange, and remainder of surface uniformly brownish black, with a strong purplish metallic sheen.*

*Head* black, frontal triangle in ♂ and region of subcallus (area immediately above bases of antennae) in ♀ shimmering silvery white pollinose, a similar pollinose patch (clothed with a few whitish hairs, and usually more distinct and sharply defined in ♀ than in ♂) on each side of upper part of face in both sexes; face in both sexes tumid below antennal prominence, then indented or somewhat receding, not produced into a nose-like prolongation, front in ♀ deeply furrowed; occiput pallid neutral grey pollinose, clothed with whitish hair, posterior orbits silvery white, their upper halves fringed behind with minute blackish hairs; *palpi* and *antennae* black, proximal joints of both sparsely clothed with short, black or blackish hairs, third joint of antennae from certain aspects appearing dark olive-grey, mouse-grey or brownish grey pollinose. *Thorax*: dorsum including scutellum clothed with short black hair, humeral calli inconspicuously neutral grey pollinose and clothed on sides in front with pale orange-buff hair, postalar calli fringed posteriorly below with orange-buff hair; pleurae on each side with a thick tuft of orange-buff hair below humeral callus, and more posteriorly with two further tufts of similar hair arranged somewhat in the shape of a wide V, of which the anterior branch fringes the hind margin of the mesopleura, while the posterior runs back to the squamae; pleurae except as stated, and pectus except in front of front coxae clothed with black hair, pectus in front of front coxae neutral grey pollinose, clothed with pale orange-buff

hair. *Abdomen*: first six (visible) tergites in both sexes each with its lateral fourth on each side (rather more in case of ♀) clothed with close-set, appressed, minute, glistening smoke grey hairs (extreme lateral extremities of seventh tergite in ♀ clothed with hairs of same kind), so that dorsum of abdomen exhibits on each side a broad grey stripe, which in certain aspects contrasts fairly sharply with remainder of surface, which is clothed with minute appressed black hairs and thus forms a broad, longitudinal, median, black stripe; first (visible) tergite clothed with greyish pollen on each side at base, second tergite in both sexes on each side with a roughly semi-circular whitish pollinose spot on hind margin, from most points of view concealed by the smoke-grey hair, but clearly visible when abdomen is looked at obliquely from behind, in ♀ a pair of similar but smaller whitish pollinose spots on hind margin of each of the two following tergites also; venter clothed with minute, appressed, glistening, smoke-grey hair, last two sternites, and sometimes median area of hind border of preceding sternite also, clothed mainly or entirely with black hair. *Wings*: extreme base of costa and first longitudinal vein brownish black; ochraceous orange base extending into bases of basal and anal cells, similarly coloured anterior border including upper margin of first basal and proximal fourth of first submarginal cell, thence tapering obliquely to end of third costal cell; veins within ochraceous orange area similarly coloured, elsewhere dark brown. *Squamae* light orange yellow. *Halteres*: stalks and knobs mummy-brown above and below, tips of knobs cream-buff. *Legs* black and clothed with black hair, front coxae anteriorly dark neutral grey pollinose, thinly clothed towards base with longish pale orange-buff hair.

Tanganyika Territory (formerly German East Africa): Itigi, iv, 1917 (*Dr. G. D. H. Carpenter*). Type of ♂, type of ♀, and 2 ♀ para-types, taken 18.iv.1917; 7 ♂ para-types, taken 15.iv.1917, "on composite flower"; 1 ♂ para-type, taken 6.iv.1917, "among low herbage." All foregoing presented by Imperial Bureau of Entomology, which retains possession of six additional para-types, taken by Dr. Carpenter at same time and place as specimens already enumerated.

The extremely striking and unusual-looking Tabanid just described belongs to the group of the genus *Pangonia* that includes *P. elongata*, Ric., *P. beckeri*, Bezzi, and *P. discors*, Austen, but is readily distinguishable from all three species by, apart from its sharply defined wing-markings and other characters, its unbanded abdomen and the patches of orange-buff hair on the pleurae. The coloration of the wings, in conjunction with the shining black body, would seem to suggest that *P. lautissima* possibly mimics some species of wasp (perhaps *Rhynchium cyanopterum*, Sauss.), and it is worthy of note that the same colours, though differing widely in extent and arrangement in the case of the wings, are exhibited by "*Pangonia*" *mesembrinoides*, Surc., of which the type was also obtained in Tanganyika Territory (Amani). The latter species, however, was incorrectly assigned by its describer to the genus *Pangonia*, and really belongs to a new genus allied to *Thriambeutes*, Grünb.

#### ***Pangonia carpenteri*, sp. n.**

♀.—Length (8 specimens) 15 to 16.6 mm.; width of head 4.25 to just under 5 mm.; width of front at vertex 0.6 mm.; distance from upper margin of occiput to anterior extremity of face 3.5 to 4 mm.; length of proboscis 11.75 to 13.75 mm.; length of wing 13.5 to 15 mm.

*In ♀ sex, at any rate, a somewhat sombre-coloured species looking more like a small or medium-sized Corizoneura than a Pangonia, and not unlike a smaller and more dusky form of Corizoneura hastata, Austen, of Portuguese E. Africa.—Face moderately produced; dorsum of thorax olivaceous black, with a pair of broad, paler (greyish olive), narrowly separated or sometimes confluent, admedian, longitudinal stripes; dorsum of abdomen shining blackish brown, on each side of base rather more than lateral third of first (visible) tergite ochraceous tawny, a similar area on each side of second tergite, or of second and third tergites, usually russet or chestnut-brown, lateral borders, posterior angles, and (at least in part) hind borders of second and fourth tergites clothed with glistening silvery white hair; wings strongly tinged with sepia; legs for most part ochraceous tawny.*

*Head:* ocelli wanting; face and front clothed with yellowish grey or isabella-coloured pollen, and front thinly covered with yellowish hair, lower half of front, above antennal prominence, with an ill-defined, shining black, median longitudinal mark, upper half of front usually streaked with mummy-brown or dark brown along each side, while a narrow mummy-brown streak, which starts from base of antenna on each side, runs obliquely upwards and outwards, and joins corresponding eye just above base of antennal prominence; below antennae, a shining black transverse band unites and includes the shining black facial calli; jowls and basi-occipital region clothed with long, whitish hair; occiput greyish olive or smoke-grey pollinose, sparsely clothed with cream-coloured hair, which also forms a short fringe behind posterior orbits above, lower portion of posterior orbits fringed with whitish hair; *palpi* elongate, proximal joint russet-brown or deep mouse-grey, sparsely clothed with whitish hair on outer side and below, terminal joint russet, somewhat expanded in middle, clothed with minute black hairs; first and second joints of *antennae* pinkish cinnamon or cinnamon-buff pollinose, both sometimes clothed with black hair though in some specimens hair on first joint is for most part yellowish, second joint usually with outstanding black hair above and below, third joint orange-cinnamon. *Thorax:* admedian stripes on dorsum entire, extending from front margin to prescutellar groove, outer border of each stripe paler in front of transverse suture; dorsum including scutellum thickly clothed with fine yellowish hair, with which in some specimens on central part of posterior portion of scutum a few fine black or blackish hairs are intermixed; postalar calli and lateral margins of dorsum behind transverse suture fringed with whitish hair, pleurae and pectus thickly clothed with similar hair. *Abdomen:* central portion of base of first (visible) tergite olivaceous black, basal angles of same tergite more or less distinctly neutral grey or dark neutral grey; rather less than median third of second tergite and a broad median triangle on each of following tergites, in each case with its base resting on hind margin and its apex in contact with front margin, and on fourth and following tergites with its base expanded laterally so as to include entire hind border of segment, dull dark olive-grey; olive-grey median area on second tergite (sometimes that on third tergite also) indented on each side; second tergite at base with a median, semicircular, dead black spot, or in some cases with a pair of smaller spots, narrowly separated in middle line by a dark olive-grey longitudinal stripe; first (visible) tergite with a median patch of glistening yellowish or pale yellowish hair, and clothed elsewhere with ochraceous hair; second tergite, except on black spot

(or spots) on which hair is usually black or ochreous, clothed with minute, appressed, glistening silvery white hairs, which however, at least on each side of median olive-grey area, are often largely replaced by similar ochreous hairs; lateral borders of fourth and following tergites, as well as (at least in part) hind border of fourth tergite, clothed with glistening, silvery white hair, similar hair also usually visible on lateral margins of third tergite, towards posterior angles; dorsum except as stated clothed with appressed black hair; venter isabella-coloured or light brownish olive, clothed with minute, appressed, whitish or yellowish white hairs. *Wings*: veins mummy-brown; first posterior cell variable as usual as regards distance from hind margin at which it is closed, sometimes closed on margin itself, or even in one or other wing narrowly open. *Squamae* cream-buff. *Halteres*: knobs fuscous, stalks cinnamon-buff. *Legs*: coxae neutral grey, clothed with whitish hair, anterior and inferior surfaces of femora clothed, at least in part, with black hair, femora elsewhere clothed with yellowish hair, tibiae and tarsi clothed with minute, appressed, ochreous hairs, extensor surfaces of hind tibiae and hind tarsi clothed, at least in part, with black hair; front femora blackish brown at base and sometimes also on greater part of under side, joints of front tarsi often mummy-brown or dark brown at tips above, those of hind tarsi similarly marked, or sometimes entire upper surface of hind tarsi, except base of first joint, dark brown.

Tanganyika Territory: Itigi, iv, 1917 (*Dr. G. D. H. Carpenter*). Type and 3 para-types, taken 18.iv.1917; 1 para-type, taken 15, iv, 1917, "on low herbage"; 1 para-type, taken 6.iv.1917, "hovering while feeding from composite flower; looking much like a *Bombylius*." All foregoing presented by Imperial Bureau of Entomology, in whose possession are two other para-types, taken by Dr. Carpenter at same time and place as specimens already mentioned.

So far as it is possible to judge from the ♀ alone, this species, which is named in honour of its discoverer and does not resemble any African *Pangonia* hitherto described, presents, apart from the venation, all the characteristics of a *Corizoneura*, to which genus it would have been assigned were it not that its posterior cell seems normally to be closed before reaching the wing-margin. Should the ♂ prove to have processes at the tips of the first and second joints of the front tarsi, *Pangonia carpenteri*, despite the transitional character of its venation, would more fittingly be placed under *Corizoneura*, so long as the independence of the latter be maintained.

#### Genus **Thriambeutes**, Grünb.

##### **Thriambeutes fuscus**, sp. n.

♂.—Length (1 specimen) 11.14 mm.; width of head 4.25 mm.; length of wing 10.5 mm.

*Dorsum of thorax* sepia-coloured, with traces of a faintly marked, paler, longitudinal median stripe in front of transverse suture, pleurae and pectus mummy-brown; abdomen uniformly blackish brown; wings mummy-brown, with a clear oblique transverse streak, commencing on anterior transverse vein (its base extending from commencement of lower border of distal fourth of first basal cell to proximal extremity of first posterior cell), including rather more than proximal third of discal cell, proximal extremity of fourth posterior cell, distal extremity of second basal cell, and upper border of proximal two-thirds of fifth posterior cell, but not reaching hind margin; legs blackish brown or black, middle tarsi cream-buff, last joint and tips of preceding joints cinnamon-brown.

*Head* black or blackish brown, occiput dark neutral grey pollinose, basi-occipital region thinly clothed with fine blackish brown hair ; ocelli present, enlarged facets of eyes very coarse, area occupied thereby same as in ♂ of genotype (*Thriambeutes singularis*, Grünb., of Togoland and S. Nigeria), *i.e.*, small facets confined to a deep lower border and a narrower hind border of uniform width running up to ocelli ; *palpi* blackish brown and clothed with fine hair of same colour, terminal joint elongate and curved but not conspicuously swollen, considerably smaller and narrower than in ♂ of genotype ; antennal protuberance large and prominent, considerably larger and more prominent than in ♂ of genotype ; first joint of *antennae* blackish brown, short, swollen, cylindrical, and clothed like second joint with blackish brown hair, second and third joints sepia-coloured, expanded portion of third joint rather broad. *Thorax* and *abdomen* thinly clothed with fine blackish brown hair. *Wings* : anal angle and lower region of distal extremity short of actual tip paler than elsewhere with exception of clear, transverse streak, a close scrutiny, when wing is viewed against a light back-ground, revealing beyond clear streak an ill-defined transverse band, which appears somewhat darker than remainder of surface ; *stigma* well developed, elongate, cinnamon-brown when seen against a light background. *Squamae* blackish brown. *Halteres* : knobs ivory yellow, stalks sepia-coloured. *Legs* : coxae, femora and tibiae clothed with blackish brown or blackish hair, middle as well as front tibiae swollen (front and hind tarsi, and hind tibiae missing in case of type).

South Africa, Bechuanaland Protectorate : N'Gami Country, 1897 (*Sir Frederick Lugard, G.C.M.G., C.B., D.S.O.*).

The species characterised above is readily distinguishable by its wing-markings alone, apart from all other characters, from *Thriambeutes singularis*, Grünb. (the only other member of its genus as yet described), in which moreover the body as well as the head and its appendages are in the ♂ uniformly tawny.

So far as it is possible to judge from a photograph, which is all that is at present available for comparison, what appears to be another ♂ of *Thriambeutes fuscus* is in the possession of Mr. R. W. Jack, Government Entomologist, Southern Rhodesia, and was taken by him in November 1914, in Sebungwe District, Southern Rhodesia, on the jacket of a companion. In Mr. Jack's specimen, however, the clear streak in the wing reaches the hind margin, while the margin of the anal angle, and a further portion of the hind border embracing part of the distal extremity of the second submarginal cell and the distal extremities of the first three posterior cells are also hyaline.

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