No. VIII.—DIPTERA: ASILIDÆ, SCENOPINIDÆ, DOLICHOPODIDÆ, PIPUNCULIDÆ, SYRPHIDÆ.

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(Communicated by J. Stanley Gardiner, M.A., F.R.S., F.L.S.)

(With Plates **27—30.**)

Read 5th May, 1921.

Asilidæ.

The Asilids were submitted to Dr F. Hermann to confirm the identifications. Four of the species are well known; several specimens of a fine species of the Asilinæ were returned marked "genus et species incert."; there is also a single female specimen of a *Laphria* of undetermined species.

Dasypogoninæ.

1. *Leptogaster tenuis*, Loew, Dipt. Fauna Südafrika's, I. 105.

Twelve specimens of this South African species. Seychelles: Mahé; 1907 (Thomasset); Cascade Estate and Forêt Noire district, 1908—9. Aldabra: 1 specimen, 1908—9 (Fryer).

2. *Stichopogon scalaris*, Bigot, Ann. Soc. Ent. France, Ser. 5. VIII. 440. 2.

There are eleven specimens of this species, which was described by Bigot from Fiji. Chagos: Salomon, Peros Banhos, and Diego Garcia Atolls (including a pair taken *in coitu*, 12. vi. 1905). Amirantes: Desroches and D'Arros Islands, x. 1905 (including a pair taken *in coitu*, 12. x. 1905). Coetivy: 1 example, 24. ix. 1905.

Asilinæ.

3. *Ommatius pulchripes*, Bigot, Ann. Soc. Ent. France, Ser. 3. VII. 419.

A good series of this Madagascar species. Seychelles: Mahé and Praslin; in Mahé specimens were taken at sea-level and at about 1000 feet elevation (Cascade). Amirantes: Desroches I., 1905. Farquhar Atoll: ix. 1905. Cosmoledo: 1907 (Thomasset).

4. *Ommatius tibialis*, Ricardo, Nat. Hist. of Socotra, 375.

Twelve specimens. Aldabra: 1907 (Thomasset), 1908—9 (Fryer). Assumption I., 1909 and 1910 (Dupont).

5. *?Genus and species.* (Pl. **29**, fig. 21.)

This species belongs to the genus *Asilus* in the broad meaning. Seychelles. Mahé: Cascade Estate and Forêt Noire district, about 1000 feet, 1908—9; also Cascade, 1905 (Gardiner). Silhouette: plateau of Mare aux Cochons, about 1000 feet, ix. 1908.

Laphriinæ.

6. *Laphria*, sp.

There is a single female specimen of this genus which approaches most nearly to *Laphria cyaneogaster*, Macquart, from the Island of Réunion. Seychelles. Mahé: Cascade Estate, about 1000 feet, 1908—9.

Scenopinidæ.

In the *Ann. Mus. Nat. Hung.*, 1913, vol. XI., the above family was monographed by Kröber, the results being also published as the 161st fascicule of the *Genera Insectorum*. Nothing of moment has been added to the knowledge of the family since that date. Among the material are two species belonging to this family, the one from the Seychelles, the other from Aldabra. The latter can be identified with a Cingalese species described by Kröber, the other is apparently new.

7. *Scenopinus longiventris*, Kröber, *t. c.* p. 206.

There is a single male and two females from Aldabra which agree well, as far as the female is concerned, with the above species as described and figured by Kröber, that being the only sex he knew. The specimen described by Kröber came from Ceylon (Colombo). Unfortunately all the Aldabra specimens have the edges of the wings curled over which makes it a little uncertain as to the exact similarity of the venation, but there can be little doubt of the identity of the species as it agrees perfectly with the description, and the figures of the head (Tab. IX. 20, 21), and in the venation, as far as this is visible; the size is also in accordance with the description. But Kröber omits to refer to the remarkable anal flaps which the female possesses. The ante-penultimate segment of the abdomen forms a sort of cup from which proceeds a pair of flaps, which are fully exposed in one of the two specimens, but not so prominently in the other. These are situated dorsally and ventrally, the top one having some conspicuous black hairs on each side of the tip. These appendages are apparently correlated with the very exceptional form of the male abdomen.

The male, on the other hand, agrees very fairly with Kröber's description of *S. tarsalis*, a species from East Africa (*t. c.* p. 196). There is some unexplained discrepancy between the description of the head and the figure of the same (Tab. VIII. 9). In the text he says that the eyes are "auf lange Strecke zusammenstossend," whereas the figure shows a very slight degree of contiguity, only apparently for a few facets. If the text be preferred, the present insect will pass fairly well for that species in colour, size and general structure, except that the anal cell is shorter than shown in the fig. (IX. 64), being practically the same as in the female. The antennæ are crumpled in the same way, and the abdomen has the three bone-white bands of *S. tarsalis*. The pale humeral spot is very inconspicuous and small, the scutellum has no brownish tinge, and the base of the third antennal joint is somewhat rufous. Kröber makes no mention of the remarkable form of the end of the abdomen, and it is thus practically certain that the Aldabra species is not his *tarsalis*, but the male of *longiventris*, which is probably a species nearly related to *tarsalis*. The last segments of the abdomen have the appearance of being compressed or drawn upwards in the axial line of the insect, and in addition the covering hoods that practically conceal the genitalia in the common species, *S. fenestralis*, are completely absent, so that the whole of the genital appendages are visible at the tip of the abdomen; this unusual condition is apparently correlated with the exceptionally large flaps in the female. The genitalia are excessively complex, and could not be described to any advantage without dissection. Externally there are present two stout, inferiorly pointing, fleshy lobes and a median one; these are attached to the lower side of the end of the abdomen, and are densely clothed

with stout white hairs. On viewing the tip of the abdomen in the direction of the axis of the insect, there is visible a remarkable complex of chitinous hooks, etc.

Loc. Aldabra: 1908—9 (Fryer). Ceylon.

8. *Scenopinus balteatus*, n. sp. (Pl. **29**, fig. 22.)

The second species is represented by a single male and a large number of females. It is exceedingly closely related to *S. unifasciatus*, Kröber (*t. c.* p. 195), described in the male sex only, from Greece. The chief difference is in the venation, which differs considerably from that of *S. unifasciatus* as shown in Tab. XI. 58. The second vein is far longer, and the fork of the third vein is much more remote from the wing apex; the wing is shown in fig. 22. The Scenopinidæ are somewhat inconstant in their venation, but the present differences are too large to pass, and taken with other points are sufficient to permit the species to be considered new, though very close to *unifasciatus*.

Male. Head: the eyes approximate for a long distance, namely from just before the front ocellus to half-way down the frons. The ocellar tubercle is black and lightly shagreened, while the narrow strips between the eyes and the facial triangle are very shining and black; the latter triangle is slightly dusted at the points where the silvery pollinated eye-margins join it; just below the tip there is a tiny pit. The face between the eye-margins is also black and shiny, and carries two small circular pits at the top just below the eye-margins. The third joint of the antenna is short and pointed, though the main body of it is plump and rounded, very much as is shown in *t.c.* Tab. IX. 20, though a little less stout; the small second joint is rufous, the third brown-black. The bounding line between the large and small eye facets is quite sharp, and crosses the eyes a little below the level of the top of the face. The hind head is very smooth and is moderately shining black.

The thorax and scutellum are slightly shining and black and excessively finely punctate, with a few sparse and apparently pale hairs on the former; the pleura is the same as the dorsum, but the pale hairs are considerably longer. The hind angle of the humeral knob is slightly orange, and from it a very fine pollinated line extends down to the wing base. All the coxæ and the femora are brown black, the tibiæ are the same at the base, but get more orange towards the tips; the knees are not lighter than the rest; the tarsi are orange except for the slightly infuscate end joint. The halteres are conspicuously clear white with darkened stalks. The wings are clear with yellow veins, and are shown in fig. 22; the second vein ends well ahead of the small cross vein, and the fork arises only a comparatively small distance ahead of the mid-point of the last segment of the third vein. The abdomen is all black, except that the basal segment is somewhat brown. The very narrow silver edge of the third segment just crosses the edge of the segment over the sides. The near half of the abdomen between this line and the base is rather dull velvety black; the terminal part on the other side of that line is shining: the belly is entirely black. The genitalia are concealed as usual in two rounded hoods which are bordered with short pale hairs. Size about 3 mm.

Female: like the male in general colour, etc., except that the abdomen is all somewhat shining black. The frontal eye-margins are nearly parallel, the frons is shagreened all over and has a shallow pit at about the lower third of its length. The breadth of the frons when viewed from in front is about one-sixth of the maximum head breadth, that is to say about two-fifths of the breadth of one eye. Size about 4 mm.

Loc. Seychelles. Mahé: Cascade Estate, 800—1500 feet, 1908—9.

Dolichopodidæ.

This family contains some of the most interesting members of the dipterous fauna of the islands, including a considerable number of new and striking forms. The principal sections of the family are all represented except the Rhaphiinæ, and as might be expected, the Chrysosomatinæ (Psilopinæ) are the most important. The author has had the advantage of being able to submit examples of all the species to Dr de Meijere who has such extensive knowledge of Asiatic Diptera. He returned them with the remark that the majority were unknown to him, and with many helpful hints for which the author desires to record his thanks. The collection formerly made by Bigot, and now in the possession of Mr J. E. Collin of Newmarket, Cambridgeshire, was also very kindly placed at the service of the author by that gentleman, and was helpful in deciding some doubtful points. In addition the collections of the British Museum, both named and unnamed, and the small collection in the Cambridge Museum were carefully collated: but with a few exceptions none of the Seychelles species were represented in these collections. As is usually the case, the older descriptions, lacking as they do all references to points now considered to be of cardinal importance, offered little help unless they contained some casual reference to a striking character or were accompanied by recognisable figures.

The Chrysosomatinæ contain representatives of several of the provisional genera into which the group has been subdivided at various times, such as *Chrysosoma* (*Agonosoma*, *Psilopodinus*), and true *Psilopus*, but no representatives of the sections corresponding to *Megistostylus*, Bigot, or *Margaritostylus*, Bigot, are present. One of the *Chrysosoma* section is somewhat remarkable in that its eyes are excessively pubescent and it also possesses a hypopygium of very unusual form. The single true *Psilopus* is remarkable in having the two last joints of the hind tarsus flattened, a character borne by de Meijere's species *P. lobatus* on the last joint only. An interesting feature of the collection is the presence of a section including six species, all of which agree in the exceptional characters of complete absence of the acrostichal bristles and a very simple form of head in which the vertex is not in the least excavate and the eyes, certainly in the males, are practically touching for a short distance on the face. They appear to form a group which includes Macquart's two species *P. parallelus* and *P. desjardinsi* from Réunion (*D. E.* II. 2. 115). The venation is very like that figured even in small details; all the Macquart species have the abdomen green, but Thomson, *Eug. Reise Ins.* 510, describes briefly a *P. leptogaster* from Mauritius which differs from Macquart's species in having a dull abdomen with lighter side areas. It might even be that the species described below under the name *P. librativertex* is conspecific with Thomson's, but the original description is too slight for certainty. It may be noted that Giglio-Tos, *Ann. Soc. Ent. France*, LXIV. (1895), 359, identifies the only Dolichopid that he had from the Seychelles as being Thomson's species. The Cambridge collection contains a single female specimen of this group from Ceylon; it is exceedingly close to the female of the first three species hereafter mentioned, but is a little darker. This may be a slender clue to show that the real distributional relationship is Asiatic, but until the Madagascar species are investigated nothing can be said with any certainty. There is another undescribed species in the Cambridge collection from Rodriguez which carries the absence of colour to an extreme. It is a very slender,

small species evidently related to the former species, but it has taken on the colour scheme of a *Neurogona*, being almost entirely ochreous with black-banded abdomen. The green is confined to a narrow strip on the thoracic dorsum, a small patch on the præscutellar area, and the brilliant blue scutellum itself. It appears to be related to Becker's species *P. aberrans* from Syria. It is a remarkable fact that the large Abyssinian species, *P. flavicinctus*, described by Bigot, has developed a similar scheme of colour, being extremely like a large *Neurogona* in general facies, but with remnants of metallic colour.

In spite of the great diversity of hypopygial form possessed by these species, it appears probable that they form a more or less natural group. It is worth noting that Psilopids characterised by similarly formed heads and by the absence of acrostichal bristles occur elsewhere; for example, the European species *P. lætus* has these characters, and specimens of a still brighter form from Lagos are in the Cambridge Museum; another case is afforded by Becker's *P. longimanus* from Algeria (*Zeit. f. H. u. D.* VII. 100) which agrees very well in the leg-characters except for the inordinately long front legs in Becker's species. These *lætus*-like species are doubtless related to the Seychelles forms.

An interesting new genus, *Craterophorus*, is highly exceptional in that the male secondary characters take the form of remarkable bulbs on the base of the abdomen, correlated with unique structures at the wing base. Such sexual characters are practically always associated with the peripheral parts of the body, not with its median portion as here.

The true Dolichopodinæ include a species of the cosmopolitan genus *Tachytrechus* and a species of the genus *Paracleius*, which, although known from the tropical regions, has its headquarters in S. America. It also includes two new genera *Argyrochlamys* and *Urodolichus*. The former is quite possibly wide-spread, though not hitherto described, as it is a seashore species. The latter is a very exceptional form, as will be seen from the generic description, but appears to be the local representative of the European genus *Hypophyllus*. The Diaphorinæ are represented by a species of the cosmopolitan genus *Chrysotus*, and two obscure species of the genus *Cryptophleps*. The Hydrophorinæ include *Hydrophorus præcox* which is probably almost cosmopolitan, and a species of the Oriental section of *Sympycnus*.

Dr Hugh Scott has given me the following notes on the habits of Dolichopodidæ in the Seychelles:

"A collector of small insects in the Seychelles can hardly fail to be impressed by the Dolichopodidæ. Among the Diptera they are one of the groups which compel notice by their numbers and also by their beauty. They occur at all altitudes, some species loving sunlight and more open places, while certain others are abundant in the deep shade of the highest zones of damp endemic forest, where Diptera as a whole are little in evidence.

"Very noticeable is the habit which certain species have of settling in particular places, especially on the leaves of particular plants. This is notably the case in the Chrysosomatinæ (Psilopinæ). Howlett also remarked this habit and wrote that 'in India *Psilopus* seems distinctly the dominant genus [of the family] and its members are in some districts extremely common on broad leaves' (*Indian Insect Life*, p. 608 (1909)). At the Mare aux Cochons plateau in Silhouette (Seychelles) the brilliant metallic green *Psilopus bilobatus* was constantly seen to settle, with wings outspread and slanting a

little backward, on the broad leaves of an *Ipomœa* which climbs over trees and bushes: this was in more open places and frequently in blazing sunshine. Higher up, in the shade of the dense forests, one of the most conspicuous forms of fly was the group of duller-coloured *Psilopus*, represented by *P. indistinctus* and certain of its allies. In these slender-bodied and long-legged flies the thorax is metallic green, but the abdomen and underparts are, generally speaking, varied with yellowish, brownish and black. These insects were repeatedly seen to settle on the upper surface of the broad leaves of a low-growing endemic monocotyledonous plant, *Curculigo*, sp., or of *Stevensonia* and other small palms, under the shade of the forest trees: the body is raised high on the long legs, and (as far as I remember) the wings are held rather high above the back, though I cannot recall their position with absolute certainty. This habit was noticed again and again in many parts of the high mountain-forests of Mahé and (to a less extent) of Silhouette, at all seasons from the cooler and much less wet period in September, to the following January and February, when wet and sunless spells were experienced. The stouter-built, metallic, almost blue-black *Urodolichus caudatus* (not a Chrysosomatine) was several times remarked settling on moist places in the red-earthen paths on the plateau of Mare aux Cochons in Silhouette: these paths were exposed to bright sunshine. In the above cases the observations can be referred to particular species, but in others it is not always possible to identify with certainty which species is referred to in my journal. Thus, in the plantation at Cascade (Mahé) in the afternoon of March 1st, 1909, numbers of a metallic Dolichopodid 'varying from emerald green to bronze and yellowish green' kept settling on leaves of Liberian Coffee trees near a cowshed and a dungheap: these were almost without doubt females of *Psilopus leucopogon*. In the same plantation, on the morning of Jan. 3rd, 1909 (during a wet, gloomy spell), numbers of Dolichopodids and of a Stratiomyiid kept alighting on a damp fallen clove tree, off which we had torn some of the bark. They may have been attracted by fermenting juices in the wood, perhaps with a view to oviposition. One more example of the occurrence of some kinds in an environment of humidity and deep shade may be noted: on Jan. 12th, 1909, I recorded 'searching in recesses among boulders at the edge of the forest on the mountain-side (at Cascade), among bushes, &c., catching Dolichopodids and Nemocera in shady places.'

"Another rich type of locality for some species was afforded by open swampy places on the narrow pieces of level land between the foot of the mountains and the beach. A series of the fine and brilliant green *Psilopus leucopogon* was got in such places; some by sweeping rank herbage on patches of drained marsh at Anse Royale, Mahé (20. i. 1909), and others in the long grass at the edges of undrained marshes at Anse aux Pins (21. i. 1909). In the latter case I recorded particularly that there were very few flies (except *Stomoxys*) in the marsh itself, which contained several inches of water and a shoulder-high growth of long rushes and of a yellow-flowered Onagraceous plant (*Jussiæa*); but the marsh-edge grass was rich in Dolichopodids and other Diptera. A series of *Psilopus simplex* and *P. librativertex* came from these same coastal marshes, and one example of *P. magnicaudatus* was taken on a little bit of swampy ground near sea-level at Cascade. Most of the specimens of *Tachytrechus seychellensis* are from a coast-marsh at Port Glaud, Mahé, 5. xi. 1908.

"There are certain species also that were found on the beaches of white coral-sand: the silvery-grey *Argyrochlamys impudicus*, taken only on the beach at Long Island (Mahé, vii. 1908); and *Psilopus lasiophthalmus*, found on the same beach and at the same time, but also taken afterwards at an elevation of about 1000 feet on the plateau of the Silhouette Mare aux Cochons, far from any sand. The coloration of the latter species is peculiar; it is metallic green, but in the female the surface is dusted over with silvery grey, so that it is intermediate between bright green forms like *P. bilobatus* and the silvery *Argyrochlamys*: in the male the silver dusting is much less, and the insect is scarcely less bright green than its congeners. One is tempted to think that while the duller-coloured forms like *P. indistinctus* may be adapted to the shade of the high forests; while the bright metallic green species may be suited to the more sunlit vegetation which they frequent; while the all-silver *Argyrochlamys* conforms to the same colour-scheme as many other sand insects, both littoral and desert-haunting, of several Orders; that the intermediate coloration of the female *P. lasiophthalmus* may be suitable for the two types of locality in which the species was taken, namely sandy beach and sunlit vegetation. It should be added, however, that I did not experience, consciously at any rate, any difficulty due to cryptic coloration in seeing either the shade-loving or the bright metallic green species. The metallic green of the latter is frequently conspicuous against the non-metallic green of the leaves on which they sit. Concerning the sabulicolous forms I cannot recollect whether they were specially hard to see or not.

"Turning for a moment from the Seychelles proper: the only species of Dolichopodidæ captured in Aldabra were *Hydrophorus præcox* and *Thinophilus*, sp., both found by Fryer (at Takamaka) running on the surface of a well, almost the only fresh water on that inhospitable atoll. Dolichopodids with this habit were not taken in the Seychelles.

"From what has been said it follows that certain species were found in cultivated country near sea-level, and some only in the endemic forest at high altitudes; but some kinds occur in all types of country. It is instructive to summarise the local distribution within the Seychelles of the Chrysosomatinæ. *Psilopus leucopogon* (taken also in the Chagos Islands and Rodrigues, and known from India, Ceylon and Java) was found in the coast-marshes of Mahé, and also at nearly 1000 feet in Cascade Estate, but probably in the latter place only in the plantation, not in the wild forest. Of *P. pallidicornis*, described from the Hawaiian Islands, only three examples were taken, each at about 1000 feet, in three different islands. *P. simplex* (taken also in the Amirantes, and described originally from Java) was found only near sea-level. The foregoing are all known from other countries besides the Seychelles*, the following hitherto only from the Seychelles proper. *P. lasiophthalmus*, n. sp., as mentioned above, occurred on the beach but also at 1000 feet. *P. bilobatus*, n. sp., occurred in a low coral-island, Dennis I., an outlier of the true Seychelles, in Félicité, and in Mahé and Silhouette at elevations up to 1500 feet. The group of new species containing *P. pollicifer*, *indistinctus*, *grandicaudatus* and *amplicaudatus* is typical of the highest endemic forests, up to the loftiest peaks: these insects should almost certainly prove to be endemic. Seventy-nine examples of *P. indistinctus* and *P. pollicifer* together were got, all from high elevations and with few exceptions all

* Cf. remarks at bottom of p. 370.

from right within the forests. Even in this group, however, there are some exceptions to the high-altitude habitat: most of the specimens of *P. librativertex*, n. sp , and one example of *P. magnicaudatus* being from swampy places at low levels. The remarkable new genus *Craterophorus* was collected exclusively at high elevations, and almost all the specimens are known to have been taken in the forests, though a few may have occurred in cultivated places near them. Most remarkable is the case of *C. mirabilis*, represented by four examples, all from the summit of Mount Sebert (Bayonne Mt.) in Mahé. This was a most distinctive spot: a bare granite glacis at nearly 2000 feet elevation, in the fissures of which were patches of stunted forest growth, purely endemic and including one or two plants known in a wild state from only one single example apiece. It is worth noting also that the great majority of specimens of the presumably endemic group of *Psilopus*, and all those of *Craterophorus*, are from Mahé. This may be due mainly to the greater length of time spent in Mahé, or to my increased experience in collecting: but it may also be partly seasonal; the months spent in Silhouette, August and September, being the coolest and least wet part of the year, while those spent in Mahé are hotter, and—especially December, January, and February—much wetter."

Chrysosomatinæ.

In *Nova Acta*, Halle (104, 1919, 136), Professor Becker has given a very clear account of the vexed question of the synonomy of the group hitherto known as the Psilopinæ or Sciapinæ, and it appears to be quite certain that the best name for the sub-family is that given above. With some apparent inconsistency the present author, however, has retained the old and well-known name *Psilopus* for the insects under review. In spite of many efforts made to attain a natural division of the great mass of species appearing under the name *Psilopus*, no generic, or even subgeneric, divisions have so far been proposed that are other than highly artificial and indeed sometimes inconsistent. Excluding the species which lack the forked vein, the venation is very uniform in general character, but it exhibits certain definite types which indicate the existence of sections in the genus; these types however cannot so far be correlated with the important antennal and other characters of which the family exhibits an immense variety, some of which indeed are peculiar to it. Among the present insects some can be assigned to the genus *Chrysosoma* (*Agonosoma*) with certainty, and the last species could be allotted to the genus *Sciopus* (Zeller, emend. Becker), that is to say to the old true *Psilopus*. But in view of the present unsatisfactory state of the classification the author preferred to retain the old generic name for all the species, trusting that the descriptions would be full enough to enable the insects to be duly allotted to whatever genera future workers may succeed in delimiting in the sub-family.

9. *Psilopus leucopogon*, Wiedemann. (Pl. **27**, fig. 1 ; Pl. **29**, fig. 23.)

There can be little doubt that the above species of the *Chrysosoma* group is represented by a fairly long series in the collection. The specimens agree well with Schiner's description in *Novara Reise, Dipt.* 215, 17, but neither he nor Wiedemann mention the remarkable pit or brand on the hind tibia, though Schiner refers to a local

thickening, and both refer to the darkened base. This pit also occurs in Bigot's Ceylon species *P. armillatus*. The description given by him (*Ann. Soc. Ent. France*, t. x. 285, 6) is quite inadequate, and makes no mention of the pit, but the collection in the possession of Mr J. E. Collin has in it one of Bigot's original specimens, and this shows that *P. armillatus* is very similar indeed to *P. leucopogon*; it is a little slighter in build, and is devoid of the striking colours of the mid-tarsi, though it has a remarkable row of regularly bent tiny bristles below on the first tarsal joint of those feet. The wings have the fork of the fourth vein shorter and more bowed; the pale part of the legs is more ochreous, and the white silky fringes are present. The remarkable pit possessed by these two species appears sporadically in diverse families of Diptera; it occurs again in the Dolichopids in an undescribed Queensland species in the British Museum collection which belongs to Bigot's section *Margaritostylus*; this is probably nearly related to *P. patellifer*, Thomson, as according to Grimshaw (*Fauna Haw.* II. 1) that species also possesses a similar pit. In view of there being possibly several closely related species in the *leucopogon-armillatus* group of *Chrysosoma*, it is thought best to leave the description in full as originally drawn.

Head (fig. 1 *a*, *b*): vertex much excavate with prominent brassy tubercle; the whole is entirely brilliant blue-green, the orbital margins being grass-green. There is a single pair of black convergent vertical bristles, the place of the front one being taken by a diffuse area of fine pale hairs. The ocellars are strongly divergent but are vertical in the plane transverse to the head. The face is coloured like the vertex, but the lower part is somewhat flattened and rather silvery, as is the labrum. The orange palpi bear a long black side bristle and a smaller one at the tip; the proboscis is orange. The hind orbits are silvery and the upper half of the post-orbital row consists of very tiny black bristles which merge into the dense long white silvery hairs which form the beard. The antennæ are entirely black, the first and second joints being small, the latter with the usual long bristles above and below; the third joint is conical and about as long as the other two together with a long simple terminal arista.

The thoracic dorsum is somewhat shining, but not brightly so, and is of an intense golden green a little dusted in front. The acrostichal row consists of three pairs of very large bristles preceded by rows of tiny ones on the front of thorax. The dorsocentral rows consist of four tiny hairs succeeded by two very long stout curved bristles; the rest of the chaetotaxy is normal; all the bristles are stout, long and black. The scutellum is coloured like the thorax, half-moon shaped in profile and rounded in vertical section; it carries the normal pair of long bristles inserted about half way between base and tip, and between each and the base is a smaller bristle. The pleura is entirely suffused with silvery grey dust through which the greenish body colour shows. The wings (fig. 23) are clear with dark brown veins but are yellower just at the base. The squama consists of a tiny dark knob with very delicate white fringes. The halter is long and slender with a whitish stalk and a yellower head.

Front leg: the coxa and two-thirds of the femur are black, the rest being yellow. The coxa is covered in front with profuse white hairs, those at the tip becoming bristly; femur with long white hairs in front of which some five or six are outstanding from the rest like extremely long, fine bristles: tibia with three superior bristles, the last being a

little beyond the middle: the first tarsal joint carries two superior bristles near the middle, the basal two-thirds is remarkable in being covered beneath with a dense mat of tiny hairs, and the clothing bristles form a close posterior pectination along the same: the remaining joints are normal, and a little darkened. Lengths in mm.: femur 1·6, tibia 1·6, first tarsal 1·4, rest 1·1. Middle leg: coxa greyish with silvery hairs, femur quite black except at extreme tip; it is spindled, grooved longitudinally in front, and has a sparse fringe of long pale hairs; the tibia is pale except at the extreme tip and has two small anterior bristles; the first tarsal joint is pale with its tip quite white, but the junction with the following joint dark; below it carries a beautiful regular pectination the bristles of which are about as long as the joint is deep; the second and third joints are black with a similar pectination; fourth joint brilliant silvery with an upstanding pad of silvery hair which causes it to appear swollen; fifth joint also silvery with black claws. Lengths in mm.: femur 2, tibia 2·8, first tarsal 2·5, rest 1·2. Hind leg: coxa grey with long silvery hairs; femur all black with a double row of long straight silvery hairs; tibia pale except at tip, near the base behind is a remarkable swelling on the otherwise simple joint, which is darkened; it looks like a "brand" and when viewed posteriorly is seen to contain a long deep oval pit the margins of which are set with sensory hairs; the only bristle is a small superior one about two-thirds down; the darkened tarsi are quite simple. Lengths in mm.: femur 2·2, tibia, 3, first tarsal 1·5, rest 1·5.

The abdomen is the same in colour as the thorax but is a little more shining. At the extreme base are the usual two large bristles on the side and a profusion of white hairs; the whole venter is similarly shaggy, which shagginess extends over the sides of the basal segments. Each segment on its disc carries about six small bristles, and marginally each has about six very long curved ones. The hypopygium is shown in fig. 1 *c*; it is black with shaggy white hairs on the eighth segment, and short white pectination on the lobes.

The female differs to some extent. It possesses the second front vertical and normal dorsocentrals; the leg pectinations are much shorter; the abdomen is more dull brassy, and the leg bristles more numerous and stouter.

Size a little over 5 mm., excluding antenna and hypopygium.

Loc. Chagos: Salomon and Peros Banhos atolls, v. 1905, 4 ♂; marked "common" (T. B. Fletcher). Seychelles: Mahé, Cascade Estate, about 800—1000 feet, and marshes on the coastal plain at Anse aux Pins: Long Island, vii. 1908: 5 ♂, 24 ♀. This species also occurs in Rodriguez (1918, Snell and Thomasset), India, Ceylon, and Java.

10. *Psilopus pallidicornis*, Grimshaw, Fauna Hawaiiensis, III. 12. 2.

A single male and two females can be referred without doubt to this species. The male agrees exactly with Grimshaw's description and figures, possessing the same remarkable compressed abdomen and clouded wing tip: the frons has no hair tuft, and the presutural dorsocentrals are normal. Suspicion was aroused by the presence of so striking an insect in localities so far apart as Hawaii and the Seychelles, and the author communicated with Dr R. C. L. Perkins, F.R.S., on the question. He informed the author that one of the large Hawaiian Dolichopids had turned up in localities at a great distance from the islands, and that he considered these insects to be non-indigenous to Hawaii. He had himself

bred Dolichopids, quite probably including the present species, from damp earth in which plants were being reared for use in Hawaii. It follows that no stress can be laid on the distribution of the species, and indeed doubt is thrown on other similar cases.

The female was not known to Grimshaw. The breadth of the head is considerably less than in the male but the antennæ are exactly the same. The thorax is metallic blue-green only on the dorsum, the scutellum and the epipleura; all the sides of the dorsum, the front, and the pleura are orange. The front femur is quite devoid of the stout bristles usually found there, and the leg bristles are more developed, the mid tibia having two evident bristles of the inferior row, and the rows on the hind tibia being much stouter than in the male. The abdomen is predominantly orange like the thorax, but the second and third segments are broadly metallic on the disc, the fourth narrowly so, and the end of the abdomen almost completely æneous : it carries a pair of small black cerci.

Size about 5 mm.

Loc. Seychelles. Silhouette : plateau of Mare aux Cochons, over 1000 feet, ix. 1908, 1 ♂. Mahé : Cascade Estate, about 1000 feet, 1 ♀. Praslin, xi. 1908, 1 ♀. Also known from the Hawaiian Islands.

11. *Psilopus simplex*, de Meijere, Tijds. v. Ent., liii. 1910, p. 99.

There are about a dozen female specimens which Dr de Meijere considers are best referred to this species, at least provisionally. Amirantes: Eagle I., 17. x. 1905, 1 example. Seychelles: Dennis I., viii. 1908 (Fryer), 1 example: Mahé, coast-marshes at Anse aux Pins, i. 1909, 9 specimens. Found only in places near sea-level, among wide-spread forms of vegetation. Described from Java (Semarang).

12. *Psilopus lasiophthalmus*, n. sp. (Plate **27**, fig. 2; Plate **29**, fig. 24.)

This species differs from most *Chrysosoma* forms in having a true front vertical bristle and normal dorsocentrals present in the male. It is remarkable, indeed almost unique, in having the eyes densely pubescent, and is almost sufficiently distinct to form the type of a subgenus.

Head (fig. 2 *a*, *b*): vertex fairly excavate; frons bright shining violet-green. Face the same but more suffused with golden dust, especially when viewed obliquely; the labrum is not so long as usual, being about equal in breadth and height. The palpi are orange with a bristle pair smaller than usual, and the tongue is also orange. The front vertical is present, and behind each bristle, and on the vertical ridge, stands a pair of equal bristles, which form the base of an isosceles triangle of which the upper is the apex. The ocellars are moderately long. The hind head is blackish-green dusted behind the eyes; the post-orbital row is black and succeeded by fine, white, silky bristles which merge into the beard. The eyes are densely though shortly pubescent. The antenna is dusky orange, the first and second joints are normal, the latter with the long upper and lower bristles; the third is pointed, egg-shaped, with a simple black almost apical arista having swollen basal joints; it is about 0·9 mm. long.

The thoracic dorsum is shining green with violet reflections, especially behind and on the scutellum; there are short coppery lines between the dorsal and acrostichal rows. The acrostichals consist of two pairs of long bristles, not regularly inserted, continued by the two

rows of tiny bristles on the front of the thorax. Including the prescutellars there are four dorsocentral pairs; the other bristles are normal and all of them stout and black. The scutellum is rounded in profile and section and has only the pair of long terminal bristles, inserted as usual. The pleura is somewhat dull and dusty green. The wings (fig. 24) are slightly suffused, with brown veins, and are paler at the base. The squama has a white fringe in the form of a fan. The halter is orange with slightly darkened stalk.

The legs are all orange except the coxæ of the middle and hind pairs, and the last tarsal joints of the same, which are blackened. Front leg: coxa with pale hairs, three side bristles on anterior edge, a terminal process made up of a few stout blunt pale bristles more or less confluent: femur, spindled: tibia with a posterior bristle at the middle: first tarsal joint with a dense pad along the plantar surface: other joints simple; length in mm., femur 1·3, tibia 1·2, first tarsal 0·7, rest the same. Middle leg: femur spindled: tibia with a large anterior bristle at the upper third and a smaller one at the second third, together with a crown of one long and a few small bristles: tarsi simple; lengths in mm., femur 1·3, tibia 1·3, tarsal 1·0, rest 0·7. Hind leg: all the joints are simple, the tibia carries a small end bristle; lengths in mm., femur 1·25, tibia 1·8, first tarsal 0·9, rest same.

The abdomen is silvery at the extreme base and carries the usual long side bristles with white hairs below; the disc of the segments has the basal half of each very dark æneous purple-black, which rapidly merges into a distal æneous green part, so that the general appearance is that the abdomen is cross-banded with black. All the segments have dark bristles on the disc and sides and, exceptionally to the common rule, the marginal bristles are hardly differentiated from the discals. The hood of the hypopygium (fig. 2 *c*) is dark æneous with long pale yellow appendages. The venter is all dark.

The female is very like the male, but the front femora bear the long spines so usual in the genus.

Size, without antenna, etc., 4¼ mm.

Loc. Seychelles. Silhouette: Mare aux Cochons plateau, over 1000 feet, ix. 1908, 3 ♂. Long Island, on beach, vii. 1908, 8 ♂, 10 ♀. The latter place is a small islet the vegetation of which is nearly all non-endemic; the Silhouette locality is about at the meeting-point of cultivation and endemic forest.

13. *Psilopus bilobatus*, n. sp. (Plate **27**, fig. 3; Plate **29**, fig. 25.)

This is apparently a true *Psilopus*, although it possesses the hair tuft instead of the vertical bristle, and the evanescent dorsocentrals characteristic of many true Chrysosomatinae, but the antenna has an absolutely dorsal arista.

Head (fig. 3 *a*, *b*): very excavate with a strong tubercle; the frons is grass-green or violet-green and very shining; the hind verticals are remote from the eye-borders, and the front bristle is replaced by about seven hairs scattered over the broad triangular eye-margins. The ocellars are long and black and divergent, there is also a tiny pair of bristles on the back of the knob. The face is the same colour as frons, but a central area bounded by a curve from the antennal bases is dusted with silver, this dust being much stronger on three vertical lines on that area; the labrum is similarly dusted all over. The orange palpi have small side and end bristles; the tongue is orange. The post-orbital row of tiny

black bristles merges into the usual profuse white-haired beard; the hind head itself is black. The antennæ are all black, all three joints being roughly the same in size; the second carries the usual upper and lower bristles; the third is quite rounded, oval, and carries a simple slender dorsal arista which is about as long as the eye-depth.

The thoracic dorsum is a somewhat dull violet-green with indistinct more shining greenish stripes between the acrostichal rows and between them and the dorsocentrals. The acrostichal rows consist of three large pairs with tiny bristles in front; the first three dorsocentrals are reduced to hairs, with two large ones behind them on each side; the other bristles are normal. The scutellum resembles the dorsum and is rounded in profile and section; it only carries a single pair of large bristles. The pleura is slightly suffused æneous green. The wings (fig. 25) are very faintly suffused, with brown veins; the squama is a tiny tubercle with long black fringes. The halter is long with orange head and slightly darkened stalk.

The legs are entirely yellow, except for the black coxæ and trochanters and slightly suffused tarsi of the hind and middle legs. Front leg: coxa with pale hairs; femur with an inferior row of fine black bristles and a posterior row of fine white ones; tibia with one long inferior bristle beyond the middle, and a small one just remote from the tip; tarsi quite simple; lengths in mm., femur 1·3, tibia 1·3, first tarsal 0·8, rest the same. Middle leg: coxa pale haired; the joints practically devoid of bristles except for three tiny anterior ones on the tibia; tarsi quite simple; lengths in mm., femur 1·5, tibia 1·7, first tarsal 1·2, rest 1·4. Hind leg: coxa pale haired; femur with a row of about seven bristles on the basal half below; tibia with about five very small superior bristles and two or three inferior; tarsus with the last two joints distinctly dilated and flattened (fig. 3 *d*); lengths in mm., femur 1·8, tibia 2·8, first tarsal 1·2, rest same.

The abdomen is green or violet-green and fairly shining, each segment is more or less bordered with black which is more distinct in the violet specimens; the narrow basal segment bears the usual pair of long bristles each side with profuse white hairs below them, while similar hairs extend all along the venter. Each segment bears black bristles on the disc and sides, and carries four long marginal bristles just remote from the black borders. In the darker specimens the dark borders on the sides of the terminal segments are very wide. The hypopygium (fig. 3 *c*) is black except for the orange lobes, which are black haired.

In the female the front vertical and the normal dorsocentrals are present. The front bristles on the front coxa and the lower ones on the front femur are large as usual. The legs have the same general chætotaxy as in the male, but stronger. There are no fringes to the legs.

Size, without antenna or hypopygium, about 4 mm.

Loc. Seychelles. Dennis I., viii. 1908 (Fryer), 9 ♂, 3 ♀. Silhouette: from near coast, 2 ♂; Mare aux Cochons plateau, over 1000 feet, and near Pot-à-eau, about 1500 feet, 8 ♂, 14 ♀. Mahé: marshes on coastal plain at Anse aux Pins, i. 1909. Félicité: xii. 1908, 1 ♂. Near Morne Blanc, and Cascade Estate, both about 1000 feet. Distributed from sea-level up to the high endemic forest.

The following species form the group referred to in the introduction as remarkable in being completely devoid of acrostichal bristles, and in having simple head characters.

The head has the shape shown in fig. 5 *a*, *b* of *P. pollicifer*; these may be regarded as applying broadly to all the species. The insects are rather fragile and the great majority of the specimens have the head more or less deformed owing to shrinkage, so that it is not possible to give drawings of each species. The vertex is almost level, with a well-marked though small knob; the eye profiles of the head and face are quite continuous, and the eye-margins gradually approach till they meet below the antenna: the eyes are then either absolutely confluent along the mid-line or only separated by the narrowest margin; below, the tiny labral triangle is alone visible. The eyes are quite bare. The antennæ have the simplest structure; the second joint bears only small upper and lower bristles, the third is egg-shaped with a simple arista inserted dorsally near the lower part of the joint. The bristles present vary to some extent; the thorax is absolutely devoid of acrostichal bristles, the area between the dorsocentrals being quite smooth and shining. The venation of all the species is very similar, the principal difference arising in the degree of approximation of the ends of the third vein and the fork of the fourth; this character is subject to a small degree of variation, and hence can only be relied on for the first species. In such species as are metallic, this colour is practically absent from the abdomen. The females are so extremely close as to be almost inseparable, and indeed are probably completely so in *P. pollicifer* and *P. indistinctus*, in which the males differ in one single but quite major tarsal character. The hypopygium has two main forms; in the earlier species given below it is comparatively small, but in the last three species it is swollen to an extraordinary degree, and that of the last species is almost unique in its monstrous size, and the number and complexity of the processes.

14. *Psilopus librativertex*, n. sp. (Pl. **27**, fig. 4; Pl. **29**, fig. 26.)

Head with very brilliant grass-green vertex: in some of the better preserved specimens it is just possible to glimpse a very tiny bristle near the orbit about two-fifths down from the vertex to the antenna, which probably represents the front vertical; otherwise fig. 5 will do well for this species. The apparent post-vertical is inserted exactly in the line of the post-orbitals, and the stout ocellars point outwards and backwards. The triangle below the antennæ is silvery as is the labral triangle. The minute orange palpi have each a small black bristle, and the tongue is also orange. The hind head is black with grey suffusion; the small black bristles of the post-orbital row are succeeded by longer white ones which merge into the long sparsely distributed bristles which take the place of the usual hairy beard. The first two antennal joints are pale ochreous, the third and the flagellum are very dusky.

The thoracic dorsum, including the scutellum, is shining green with rather faint reflections of blue and gold. As said above there are no acrostichals, but there are a few bristles belonging to the tiny rows on the front of the thorax. The dorsocentrals, including the pre-scutellars, number five; the scutellum is rounded in profile and section and carries two bristles inserted half-way, which are stout and only converge a little towards the tip. The wings (fig. 26) are very faintly suffused, and the end of the third vein and the fork of the fourth are nearer than in all the other species. The squama bears a fringe of about six fairly long golden hairs; the halter is all pale.

The legs, including the coxæ, are yellowish white except for a definite suffusion on the upper surface of the last half of the hind femora, which is a very distinct feature: the tarsi are more or less dusky towards the end. Front leg: coxa with short pale hairs in front; towards the tip on the anterior surface are two nearly straight spines, these appear to be a good specific character; femur, a little spindled in the basal half; the last tarsal joint is deep black, and though scarcely larger than usual, appears to be flattened; lengths in mm., femur 0·8, tibia 0·9, first tarsal 0·85, rest 0·9. Middle leg; the only bristles present are two small superior ones at the first and last thirds of the tibia and a tiny crown to the same; lengths in mm., femur 1·0, tibia 1·5, first tarsal 1·0, rest 0·85. Hind leg: the only bristles present are on the tibia, being two small superiors, one at the middle, the other half-way between it and the tip, and a few tiny bristles of the inferior row; lengths in mm., femur 1·3, tibia 1·8, first tarsal 0·6, rest 1·1.

The abdomen is mostly blackish, the basal segment being pale with a fringe of long black hairs, four on each side, and a scattered row of pale ones below, where the pubescence is usually found. The whole abdomen is dark haired and there are no distinct marginal bristles. If the abdomen is viewed sideways, a very faint greenish shine can be seen, and the last two segments are almost as fully æneous as in the ordinary Dolichopid. In side view the sutures between the segments from first to fifth are seen to be widely banded with blackish, leaving the mid-areas ochreous. The hypopygium (fig. 4) is dark chitinous with tiny orange flaps.

The female has the face below the antenna of almost equal breadth throughout, namely the amount just below the antenna: this is the case with the other species as far as is known. The face is brilliant blue-green thickly suffused with dust. The stout coxal and femoral spines are present: the mid and hind coxæ have a single bristle outside; the colour is like that of the male. This is the only female clearly separable by its venation.

Size, excluding antenna, etc., just over 3·5 mm.

Loc. Seychelles. Mahé: marshes on coastal plain at Anse aux Pins, i. 1909, 6 ♂, 2 ♀; Cascade Estate, about 1000 feet, 2 ♂, 2 ♀.

The next two species are practically undistinguishable from one another except for the very aberrant front tarsal joints of the first species, and some slight differences which will be given under the second species. The description was drawn up point by point with both species under comparison, to ensure accuracy. The body characters are the same as are the hypopygia, and the lengths of the leg joints practically agree within the limit of error of the measurements, the only appreciable difference being that the first tarsal joint of the front legs of the first species occupies a little more of the total length of the tarsus, which has the same length in both species*. As a consequence of the close affinity of the males, it is impossible to separate the females.

15. *Psilopus pollicifer*, n. sp. (Pl. **27**, fig. 5; Pl. **29**, fig. 27.)

Head as figs. 5*a* and *b*. The frons is silvery, as is the facial triangle above and the labral one below. The small front vertical bristle bends forward and the hind one is just at

* Compare a quite analogous difference separating two forms of Phalacrid beetles, *Nesiotus tropicus* and *N. similis*, found in the Seychelles. In this case the differentiating character lay in the female sex, and in the hind tarsus. See pp. 237–9 of this volume.—H. Scott.

the angle of the eye; the divergent ocellars point a little backwards. The orange palpi bear a small bristle, the tongue is also orange. The antennæ are all dullish orange with the structure described above (p. 374). The hind head is black and dusted, with a tiny black post-orbital row succeeded by the long white post-oral bristles.

The thoracic dorsum is polished shining green including the acrostichal area; there are four dorsocentrals including the pre-scutellars. The scutellum is like the thorax; rounded in profile and section with a single pair of side bristles which project sideways, that is to say, are somewhat divergent; they are inserted midway along the sides. The pleura is dullish black. The wings are as shown in fig. 27, and are a little smoky: the squamal hairs are long and of a golden brown colour, spread out like a half closed fan; the halter is orange.

The legs, including all the coxæ, are quite pale. Front leg: coxa haired and ending in a long thin thorn sharply hooked at the end; femur sharply spindled in the basal half, the distal half very thin and delicate, with a pair of fine thorns beneath at the base: tibia thin like the last half of femur: first tarsal joint long, with a regular distant pectination on the apical half (fig. 5*c*): the last tarsal joint has a very remarkable structure (fig. 5*d*), it is dilated and twisted, and carries a small side process like a thumb; lengths in mm., femur 1·1, tibia 1·1, first tarsal 1·55, rest 0·7. Middle leg: coxa with a few pale hairs on the front, the tip ends in a regular dense tuft of pale hairs that have the appearance of a sea anemone; femur simple and but slightly spindled at the base; tibia with a tiny bristle on the upper third and a single crown bristle; tarsus simple; lengths in mm., femur 1·1, tibia 2·1, first tarsal 1·55, rest 1·1. Hind leg: coxa with outer bristle; tibia with a few tiny bristles of the superior row; lengths in mm., femur 1·6, tibia 2·6, first tarsal 1, rest 1·3.

The whole abdomen is blackish with a suspicion of shininess (in side view) here and there; pale on sides and venter except just at the tip. The basal segment is strongly fringed on the sides with long golden bristly hairs; the other segments bear similar hairs on the sides which get smaller towards the end of the body. All the dorsum is sparsely haired with dark hairs, and there are no true marginal bristles. The hypopygium is shown in fig. 5*e*; it bears tiny orange flaps.

The female has the eyes separated as in the previous species; it has the usual stout front coxal and femoral spines: the pleura is all orange.

Size, less antennæ, etc., about 4·5 mm.

Loc. Seychelles. Mahé: Cascade Estate, and Forêt Noire district, both about 1000 feet; Mare aux Cochons district, 1500—2000 feet; 6 ♂.

16. *Psilopus indistinctus*, n. sp.

As stated above this species agrees with the previous description except for the following points: the front tarsus, while bearing the same pectination below the first joint, has the last joint absolutely simple and undifferentiated; the thin end of the front femur and the tibia are not quite so delicate and slender; the first tarsal joint is shorter in proportion. The size of the species is also about 4½ mm.

Loc. Seychelles. Mahé: cultivated country at about 1000 feet; Cascade Estate, about 1000 feet; high forest of Morne Blanc and Pilot; forest between Trois Frères and

Morne Seychellois, and the Mare aux Cochons district, both 1500—2000 feet, xii. 1908—i. 1909. There are 34 ♂. The localities given above under *P. pollicifer* and *P. indistinctus* refer only to the *males*. There is also a series of 39 *females* of the two species together, it being impracticable to separate them by ordinary methods in this sex. These females are from all the localities in Mahé in which the males were taken, including also two specimens from the slopes of Morne Seychellois itself, over 1500 feet, 4. ii. 1909 : and there are also 5 females from Silhouette (Mare aux Cochons plateau and the high forest above, 1000—2000 feet, ix. 1908). Both species were found always at high elevations and in all parts of the endemic forests up to the highest peaks.

The three following species form a natural subsection and are remarkable for the very aberrant swollen hypopygium ; except for differences in form of the latter the first two are closely related, and the description of the first will apply in most particulars to the second: the third is abundantly distinct.

17. *Psilopus magnicaudatus*, n. sp. (Pl. **27**, fig. 6.)

Head: all the specimens have the head somewhat shrivelled and the eyes pitted, but figs. 5*a* and *b* will apply very well except that the triangle just below the antennæ is much shorter, being scarcely 1½ times as high as the length of its base at the antennal level. The vertex is very brilliant shining blue-green; the damaged condition prevents certainty as to the bristles, but the front verticals appear to be absent, and the hind ones stand at the end of the post-vertical rows; the ocellars are like those of the preceding species. The orange palpi and tongue are also as shown in fig. 5. The antenna differs inasmuch as the third joint is perceptibly smaller and more pointed, and the second one is somewhat larger, being about 1½ times as long as the third ; in colour it is all blackish brown.

The thoracic dorsum, together with the scutellum, is very polished shining blue-green, the acrostichals are entirely absent and there are four dorsocentrals including the prescutellars ; the scutellum is rounded as in the previous species and carries a single side pair of long divergent and somewhat upstanding bristles. The pleura is orange. The wings are as in fig. 27 and are somewhat suffused : the squamal fringes are golden brown and the halteres orange.

The legs including all the coxæ are pale except for a faint darkening on the top of the hind femur and on the hind tibia. Front leg : coxa with a few scattered black bristles ; femur with a row of some five conspicuous sloping black bristles beneath on the basal two-thirds ; tibia simple ; tarsi clothed with dense short irregularly arranged bristly hairs, more conspicuous below ; lengths in mm., femur 1·1, tibia 1·0, first tarsal 0·8, rest 1·1. Middle leg : coxa with a few black hairs ; femur with a row similar to those on the front leg but stouter ; tibia with a long basal anterior bristle, a smaller middle one, three small bristles of the posterior row, and a small crown ; lengths in mm., femur 0·9, tibia 1·4, first tarsal 0·9, rest the same. Hind leg: coxa with a single outside bristle, femur with no special bristles; tibia with somewhat stronger bristle rows than usual, hind row just visible; tarsus simple; lengths in mm., femur 1·5, tibia 2·0, first tarsal 0·6, rest 1·2.

The abdomen is all suffused with dullish black with the incisures very narrowly pale ; it is covered with short black bristly hairs, and the marginal bristles are very slightly

longer than the others. The remarkable hypopygium is shown in fig. 6; it is very shining chitinous with yellow tips.

The female of this species is necessarily almost inseparable from that of the next one. If the antennal colour agrees with that of the males, namely with dark basal joints in *magnicaudatus* and orange in *grandicaudatus*, one can determine two female specimens as belonging to this species. They also agree with the males in having the hind legs perceptibly more reddish brown than do the other examples. If this separation be correct, they differ from the males in having the eyes narrowly separated by a parallel black face, and possess the usual large front femoral bristles; exceptionally the other leg bristles are not larger than in the male. The colour of the insect, including the frons, is the same brilliant violet-green as in the male.

Size, excluding antenna, etc., $3\frac{3}{4}$ mm.

Loc. Seychelles. Silhouette: from the plateau of Mare aux Cochons and the forest above, 1000—2000 feet, ix. 1908, 2 ♂. Mahé: Cascade Estate, about 1000 feet, 1 ♂ and 1 ♀; marshy ground near sea-level at Cascade, 20. ii. 1909, 1 ♀.

18. *Psilopus grandicaudatus*, n. sp. (Pl. **28**, fig. 7; Pl. **30**, fig. 28.)

The above description of the last species will equally well apply to this, except for the following points: the antenna is much paler, being practically orange with a slightly darkened third joint. The pleura is rather blackened, but the wings (fig. 28) are a little less suffused. The front femur has not the regular bristles below, but has very irregular rows of variously sized bristly hairs. The middle femur is devoid of the row of bristles, and the femur itself is a little longer. The hind femur has a moderately conspicuous row of bristles along its anterior side. The hypopygium is quite different (fig. 7) and even more aberrant, being more pedicillate, quite pale chitinous, with the upper toothed sclerites darker. There is one male in which the appearance of the hypopygium is even more complex; it looks as if the (apparent) anterior part of the hood had opened showing further complexes slightly protruding. This male is not otherwise absolutely identical in every detail, but must at present be placed with the other specimens. The separation of the female from that of the previous species has already been considered. The females assigned to this species agree with the males in their violet-green colour including the frons, the head is like that of the last species, and the leg bristles are quite the same.

Size, excluding the antenna, etc., $3\frac{1}{2}$ mm.

Loc. Seychelles. Silhouette: Mare aux Cochons plateau and forest above, 1000—2000 feet, ix. 1908, 2 ♂, 1 ♀. Mahé: country above Port Glaud, 500—1000 feet, 1 ♀; near Morne Blanc, about 1000 feet, 1 ♀; Cascade Estate, 800—1500 feet, 1 ♂ 6 ♀; Mare aux Cochons district, 1500—2000 feet, i. 1909, 1 ♀. Praslin: Côtes d'Or Estate, ix. 1908, 1 ♀. This appears to be also an endemic forest form.

19. *Psilopus amplicaudatus*, n. sp. (Pl. **28**, fig. 8.)

This species attains the high water mark of hypopygial complexity and has in addition unusual leg bristles.

The whole insect is practically entirely yellow, except for its metallic blue-green frons, the area between the dorsocentrals, the hind part of the dorsum, and the scutellum, which are somewhat thinly but brilliantly shining greenish; this colour is absent outside those limits. Head very much like fig. 5, but shrunken in both the specimens; the sub-antennal triangle is a little smaller than shown, the labral one is very silvery; the palpi and tongue like those of the other species; apparently there is only the hind post-vertical bristle concurrent with the post-orbital row, and the ocellars; the hind head is not visible owing to the shrinkage. The antenna is slightly dusky orange and has the same form as that of the last two species, with a smaller and more coned third joint than that shown in fig. 5.

The thorax is quite devoid of acrostichals and bears four dorsocentral pairs including the prescutellars; the other bristles are as in the previous species. The wings have a venation like that of the preceding species. The squamal fringes when compared with the other thoracic bristles are golden brown, but appear nearly black against the pale body: the halter is the same in colour as the body.

Front leg: coxa with a few tiny bristles at base and three stout terminal black ones; femur with a somewhat spindled basal half, quite bare; first tarsal with the clothing bristles forming a tiny black inferior fringe on the basal half; rest of joints simple; lengths in mm., femur 1·25, tibia 1·4, first tarsal 1·25, rest 1·4. Middle leg: coxa bare; femur with about five very strong black diverging bristles on the basal half inferiorly; tibia with three of the superior row, a few tiny ones of the inferior, and two or three of the crown, all of them black; first tarsal with a similar small inferior row; rest simple; lengths in mm., femur 1·4, tibia 2·3, first tarsal 1·4, rest the same. Hind leg: coxa with one external bristle; the femur is remarkable in carrying an extremely strong row of six large black curved bristles on the anterior surface extending along the middle two-thirds of its length; there is a short row of inferior bristles below the first three bristles of the above row; tibia with three of the superior row and a single one of the superior-anterior row inserted just beyond the first of the other row; tarsi all simple; lengths in mm., femur 1·6, tibia 2·2, first tarsal 0·9, rest 1·8.

The abdomen is somewhat broadly browned along the axial line, the base is slightly swollen at the angles and carries on each side two thin bristles. The dorsum is covered with tiny dark bristles, but there are no true marginals. The enormous hypopygium is shown in side view in fig. 8. It is probably the most complex structure of its kind that has yet been observed. If the insect is oriented so as to look into the hood, perpendicular to the plane of fig. 8, each of the sclerites there shown bears accessory spikes and teeth which nearly meet in the median plane, forming an organ of very extreme complexity.

The female is very like those of the previous species in form; the thorax is shining on the absolute disc as in the male: the face is narrowly parallel and brilliantly silvery. The ordinary leg bristles in this species are much more developed than in the male.

Size, without antenna, etc., $3\frac{3}{4}$ mm.

Loc. Seychelles. Silhouette: highest forest, over 2000 feet (near Pot-à-eau), 12, viii. 1908, 1 ♀; Mare aux Cochons plateau and forest above, 1000—2000 feet, ix. 1908, 2 ♂, 2 ♀.

CRATEROPHORUS, gen. nov.

This genus includes the remarkable forms alluded to in the introduction as having the male characters on the base of the abdomen. The species offered considerable difficulty in deciding the sub-family to which they must be assigned. The balance of probability is that they must be placed in the Chrysosomatinæ. They have certain characters common to nearly all that sub-family, and others that are found in the same in certain cases. The Chrysosomatinæ are pre-eminent in the great variety of male characters that they exhibit, and three out of the four species now under consideration bear exceptional but correlated characters. On the first segment of the abdomen is a pair of spherical bulbs which are hollow, and from the base of each arises a rod like the pistil of a flower, which can be seen through a circular hole on the top of each. These bulbs are lengthened downwards so that they appear to be borne by the epiphragma running up the hind coxa, but on dissection they are seen to be really part of the first abdominal segment (fig. 16 *b*). In most Psilopids a more or less evident swelling exists on the sides of the base of the abdomen which very usually carries some conspicuous bristles. This formation is found in the females of the present genus. Further in *Psilopus alulifera*, Walker, from Singapore, the base of the abdomen is ridged and hairy, so that the above characters are not inconsistent with placing the genus in this sub-family.

In addition, however, to the above quite unique character, the males possess others. The squama is highly modified: instead of being a mere papilla bearing longish hairs as in the females, it is apparently mobile, having a long stalk and a chitinised head which bears a row of most remarkable stiff bristles, which are suddenly bent at right angles at the tips. The wings also bear an extra lobe at the base, absent in the females, and in the family in general, which lobe has a straight chitinised margin, bearing a perfectly regular row of exactly equal small stiff bristles, which are in close contiguity to those on the squama when the wing is stretched out in the position of flight. The two sets of bristles have a curious resemblance to some sort of musical apparatus. In this genus the male wing is also modified in outline (fig. 29), being strengthened by the formation of a triangular projection to the hind margin. This assemblage of characters is quite unique as a whole, and in respect to the first three characters is unique in each of its parts. It must be acknowledged that this prodigality in secondary male characters has had some influence on the author in deciding the position of the species.

The characters possessed in common with nearly all the Psilopids are: the non-touching eyes, the well-marked post-orbital row extending half-way down the head and there succeeded by dense bristly hairs behind the mouth forming a sort of beard, the form of the palpi with stout end bristles, the long legs, the well rounded and arched scutellum. Characters found in many Psilopids are the simple antennæ in both sexes with a dorsal arista, the somewhat irregular abdominal bristles with no large marginals, the absence of acrostichal bristles, and the strap-like paranal lobes. The range of variation in the head from forms with a deep head and level vertical ridge to those with wide heads and deeply excavate vertex is also found in *Psilopus* (sens. lat.). The venation is, however, entirely

aberrant, being somewhat like that of *Medeterus*, the third and fourth veins are curved and the fork of the fourth vein is absent. Similar differences occur in other genera of the sub-family; thus *Mesorhaga* has a vein bent up as in *Paracleius*. *Lichwardtia* has a fourth vein like that of *Dolichopus griseipennis*, while in *Anchineura* the two veins are straight and simple and there is no fork. Thus the aberrant venation is not felt to be an insuperable difficulty in the way of placing the species in the present sub-family.

The principal points in the diagnosis of the genus are as follows: Head: the faintly pubescent eyes are separate on the face; the vertex is either quite level or much excavate; the post-orbital row is long above and ends about half-way down, where it is succeeded by dense bristly hairs round the mouth, the palpi are somewhat bat-shaped with a few bristles and a long end one, the antennæ have small sub-equal joints, the second being somewhat globular, the third transverse oval; the long arista is dorsally inserted. Thorax: entirely devoid of acrostichal bristles; five dorsocentral pairs in straight lines with a small accessory sixth in front; scutellum arched and rounded in profile, with a single long pair of bristles; wings normally with a venation somewhat as in *Medeterus*; legs long and quite devoid of macrochætes. Abdomen: bristles rather irregularly distributed with no large marginal bristles; the males always with the associated characters described above on abdomen, etc.; in the females with three stout bristles each side on base; the hypopygium free, usually large, with strap-like paranal lobes. Type, the following species.

20. *Craterophorus mirus*, n. sp. (Plate **29**, fig. 16; Plate **30**, fig. 29.)

Male: the frons (fig. 16*a*) is triangular in outline, black, with coarse silvery pollen, and with the vertical ridge quite regular without any sign of hump. All the bristles are golden brown when viewed with side illumination; the divergent ocellars are inserted near the hind ocelli; the slightly convergent vertical bristles are inserted just remote from the eye-margins with their bases nearly collinear with those of the ocellars; the upper bristles of the post-ocular rows end in a pair which are much longer than the others and considerably more remote at their insertions, which bristles can be regarded as an outer post-vertical pair. The hind-head is entirely slightly shining slaty-black and the post-ocular bristles, which are pale in side light, get smaller as they go down the eyes; they extend about half-way down, where they are succeeded by abundant pale bristly hairs which extend all round the mouth margin. The eyes are just perceptibly pubescent, the hairs being very short indeed, and pale. In such specimens as have the head comparatively little shrunken, the eyes just touch in the middle of the face, and the front facets are distinctly larger than those on the hind part of the eyes. The epistoma is very small and slightly silvery; the tongue and palpi are yellow, the latter embracing the tongue and bearing a few scattered black bristles of which one at the tip is longer and more conspicuous. The antennæ (see fig. 17, the next species) are quite small and are entirely yellow except for the black arista. They are contiguous at the base; the first joint is very small; the second is slightly swollen above, where it bears an evident bristle; the third is of flattened oval form with a terminal dimple and pubescent tip; the arista arises dorsally just at the proximal corner of the dimple; the

basal joints are somewhat stout and carry a few tiny bristles; the flagellum is long and tapering and is shortly pubescent all round, the hairs getting sparser and longer towards the tip. In side view the abundant pale hairs extending from the neck to the tongue are very prominent.

Thorax: the dorsum is slightly brassy with greenish or reddish reflections depending on the direction of incidence of the light, and covered with a fair amount of pollen of a silvery appearance, which is more dense on the front of the thorax, and also forms a stripe between the dorsocentral bristles which extends as far as the fourth bristle, and narrows somewhat from front to back, where it suddenly stops. The dorsocentral rows are very slightly divergent both in front and behind, and the bristles are all collinear; there are five true dorsocentrals including the prescutellars, but an extra smaller pair is inserted just in front of the row and very close to the true first bristle; these bristles are all golden brown. There is no sign of acrostichal bristles. The rest of the chætotaxy calls for no remark except that the post-alar bristle is quite long. The pleura is entirely pollinated with grey. The scutellum is greenish brassy and is pollinated; it is somewhat arched in section and is rounded in profile; the single pair of terminal bristles is inserted somewhat nearer the tip than the base; the bristles are long and are very slightly curved inwards. The notopleura is large owing to the space required for the two bulbs, and is much the same in colour as the thorax. The remarkable squama (fig. 16 *b*) is yellow with its margin intensely black, and bearing six of the stout bristly hairs which are all suddenly twisted round at the tips. The yellow halteres have long oval heads and long stalks. The wings are shown in fig. 29 *b*, and have sharp angulations to the hind margin; they are clear with brown veins, of which the fourth is the stoutest and starts off from the third with a little callosity. The extra lobe has a darkened margin and it carries about twenty of the regular slightly curved bristles referred to above. The legs are entirely pale yellow including the coxæ; they are long, the hind femur and tibia being each nearly as long as the abdomen; the hind tarsus is about as long as the femur and has the second joint the longest. The front and middle coxæ bear a few pale bristles, and the hind one has a single one outside, but apart from these the legs are quite devoid of any bristles other than the very regular tiny clothing bristles; these are a little stouter on the tarsi, but there is no sign of the remarkable foot structure of the next two species.

Abdomen: the dorsum of the first segment is practically entirely covered by the two bulbs (fig. 16 *b*) which are blackish in colour; with an axial illumination, the dusky dorsum is seen to be very faintly greenish, and with side light it is duller and paler at the base: the venter is entirely yellow. All the bristles are pale and rather feeble without any regular arrangement of bordering bristles on most of the segments. The hypopygium (fig. 16 *c*) is brownish yellow and thinly chitinised so that it is imperfectly transparent in places, and carries a few scattered hairs. The eighth segment is apparently quite amalgamated with the hood and is not very clearly defined. The terminal paranal lobes are strap-like and covered with hairs which are pale except towards the tip, where they are black. On close examination it is seen that the lobes are quite united for a little distance from the base, but then become two separate strips, which are so closely applied face to face that it is only in one or two specimens that they can be seen to be distinct.

Female: closely resembling the male except for the secondary sexual differences. The head is very much the same, the eyes nearly touching in much the same way. The colour is exactly the same, but the abdomen is slightly less pale and duller. The basal segment is slightly ridged, and carries two or three large bristles in the place where the knobs are in the male. The wings are perfectly normal as shown in fig. 29 *a*.

Size, excluding hypopygium, a little over $1\frac{3}{4}$ mm.

Loc. Seychelles. Mahé: Cascade Estate, 800—1500 feet, 8 ♂, 22 ♀; cultivated country at about 1000 feet, 1 ♀; near Morne Blanc, about 1000 feet, 1 ♀. Despite the occurrence of 1 specimen in cultivated ground, this is almost certainly a forest insect, the bulk of the examples being from Cascade, and having been taken doubtless in the luxuriant forests that rise behind that estate.

21. *Craterophorus mirabilis*, n. sp. (Plate **29**, fig. 17.)

The second species is represented by a single male and two females; it stands almost midway between the other two. The wing venation is practically identical in both sexes with that of the previous species, with which it agrees in general appearance; but it has the remarkable feet and hypopygium of the following species. Head: the eyes are widely separate and the front view is quite adequately given by fig. 9 *a*, belonging to the next species. The whole head and face from vertex to mouth edge is dark grey with minute dull silvery pollen, but with side light the underlying colour is seen to be blue-black. The silvery pollen forms two dense patches, one on each side of the clypeus. The eyes are brick-red and pubescent, especially below; the facets of the lower part are distinctly larger than those of the rest of the eye. The palpi are orange, somewhat bat-shaped, and rather hairy with a stout terminal spine; the white beard is very prominent. The head bristles are all brown in side view; the ocellars are straight and divergent and are seated midway between the ocelli; the comparatively large convergent verticals are inserted nearly in line with the ocellars; the post-orbital row increases in length regularly from half-way up the eye to the top, where the bristles are very long, the last and more remote bristles being especially long and simulating a second pair of verticals. The antennæ (fig. 17) are very dusky orange, almost black, with a form very like that of the first species, the somewhat swollen second joint bears longer bristles above and below, and the small transverse-oval third joint is dimpled at the tip, where it is very hairy. The arista is inserted close to the edge of this dimple, with normal basal joints and a uniformly tapering and finely pubescent flagellum. In side view the eye hides the rest of the head, and the white bristly beard extends from the level of the neck to the oral margin. The hind head is like the frons.

Thorax: the dorsum is metallic green in front and bluish behind with green reflections. It is all slightly pollinated especially in front, while two somewhat evanescent stripes, parallel to the dorsocentral rows, show up from a deficiency of the pollen. There are five dorsocentral pairs diverging to the last or prescutellars which are quite long; in front of each row is an accessory smaller bristle; the acrostichals are quite absent. The scutellum is rounded in profile and section and is coloured like the hind part of the thorax; it bears two approximating end bristles inserted about half-way between the tip and the hind angles. The pleura is somewhat blackened with greenish reflections on the mesopleura, and

excessively faint silvery reflections. The wings have the same shape and venation as the first species but are just a little longer in proportion to their depth; they are very slightly darkened and have brown veins. The thoracic squama and the pectinate lobe on the wing are practically the same as in that species. The halteres are dark orange with long oval heads. The legs are entirely yellow except for the greyish slightly silvery coxæ. The front and mid coxæ have a few pale bristles, and the last one has the usual bristle outside. There are practically no true macrochætes; the clothing bristles are very regular and are upright and especially strong on the front tarsus, which has the remarkable form found in the next species (fig. 9 *b*), the only difference being that the feet are a little smaller, and that there are apparently only three of the very large bristles on the back of the flattened last joint. The first joint of the hind tarsus is about two-thirds the length of the next.

Abdomen: the general structure is almost exactly as in the previous species, but the colour of the whole (including the bulbs) is fairly shining metallic green with a blackish tone; the bulbs do not quite meet in the centre line. The hypopygium is similar in structure to that of the next species, and quite different from the previous one; it is provided with strap-like appendages as shown in fig. 9 *c* but they are relatively smaller, and the whole structure is not relatively so long: it is unfortunately impossible to give a figure.

Female: as regards the general colour the female is very like the male but is a little more dusty. In the single good specimen the eyes are also prominent, though less so than in the male, but the other specimens have the head deformed. The face and frons are coloured as in the male but the face is somewhat more silvery. The wings are as shown in fig. 29 *b* for the first species. In the place where the male bulbs are found, the abdomen is just perceptibly swollen and at that place are two or three exceptionally stout bristles.

Size, a little over 2 mm.

Loc. Seychelles. Mahé: from scrubby endemic forest-vegetation on the summit of Mount Sebert, 1800—2000 feet, i. 1909, 1 ♂, 3 ♀. This was one of the most distinctive localities in the endemic forest: stunted endemic forest-growth rising from fissures in a "glacis" of bare granite, and certain species of plants known in a wild state only from single, or from very few, specimens, occurring in the vicinity.

22. *Craterophorus permirus*, n. sp. (Plate **28**, fig. 9; Plate **30**, fig. 30.)

This species is the most aberrant of all and is unfortunately only represented by two males. Head: the frons is all shining green covered with fine adpressed silvery pubescence, which forms a pollination strongest alongside the eyes, although the excessively narrow true eye margins are black. In front view, fig. 9 *a*, the vertex is deeply concave with a prominent hump; the swollen eyes are minutely pubescent, the hairs being longer below. The face is shining green like the frons, but is very faintly roughened: the face and frons run into one another, being indistinctly separated by a bulge across the face just below the antennæ. The silvery dust is stronger on the clypeus which has a very dense silver patch each side close to the eyes. The palpi are yellow with a few small dark bristles, and a very stout terminal one; the proboscis is also yellow. The ocellar bristles (broken in both specimens) are inserted just in front of the hind ocelli and are stout and divergent; the verticals are inserted close to the eye in the upper angle of the face, and, though quite

short, are stout; they point forward. The post-ocular row is very prominent and its last bristle on the top is much longer than the rest, more remote at the base, and forms a large outer vertical; all the bristles are blackish. The white beard is very striking in this view. In side view the eyes completely hide the rest of the head. The antennæ are all black or nearly so; the shape is as shown and is very much the same as in the second species, with a densely pubescent arista. The post-ocular bristles attenuate to the middle of the head where they are succeeded by the dense white bristly hairs that cover the lower part of the head.

Thorax: the dorsum is bright shining æneous green with bluish and violet reflections; there are five large dorsocentral bristles on lines somewhat diverging to the last or prescutellar pair; they are brown in side view, the acrostichals are quite absent. The scutellum is rounded in section and profile and is coloured as the thorax; the long and slightly convergent end bristles are inserted midway between the centre and the hind angles. The pleura is black with minute silvery pubescence, the mesopleura being somewhat greenish. The notopleura is large and coloured like the thorax but a little duller, and has a pronounced rib at its base below the scutellum. The wings are shown in fig. 30. They are clear with brown veins: the curved second and third veins are very aberrant, these being the stoutest; the thoracic squama is close to the wing base and is all black, as is the rest of the base of the wing; it bears a fringe exactly similar to that in the first species, consisting of about eight stout bristles which are sharply bent at the tip. The extra lobe of the wing is all black and bears a pectination just like that of the first species; in the present species the close approximation of the two sets of bristles is very apparent. The veins at the wing base are exceptionally stout. The halteres are very dark orange with long oval heads and fairly long stalk. The legs are long, entirely yellow except for a slight greyish silver on the base of the coxæ, a darkened posterior side to the spindled front femora, and slightly infuscate feet. The front and mid coxæ have a few bristles, and the hind one the usual outside one. The clothing bristles are very regular, but the only sign of macrochætes is a faint row of four tiny true bristles on the hind tibia. The front feet (fig. 9 *b*) have the remarkable form found in the second species; the pads are pectinate at the ends with dense long silvery hairs: all the spines are black. The middle feet are quite normal, but the hind pair have the last joint very slightly flattened like the feet of the first species.

Abdomen: the dorsum is blackish green with brighter green and blue reflections, these being more evident at the base and tip. The two pitted bulbs are smaller in proportion than in the other species, being inserted quite on the edge of the segment and leaving a considerable part of it visible; the hole is larger than in the other species. The clothing bristles are rather irregular and do not form very definite marginal rows. The hypopygium (fig. 9 *c*) is dark shining orange, and with its appendages is of great length, extending back practically to the base of the abdomen. The paranal straps are yellow with profuse long yellow hairs; they are well separated distally.

Size, without the hypopygium, $2\frac{3}{4}$ mm.

Loc. Seychelles. Mahé: Cascade Estate, 800—1500 feet, i.—iii. 1909, 2 ♂.

Neurogoninæ.

23. *Neurogona angulata*, de Meijere, Tijd. v. Ent., lix. 1916, p. 228. (Pl. **30**, fig. 31.)

There are 12 females which agree very well with de Meijere's description and figures. Dr de Meijere considers that they are referable to his species but differ in some small respects. His specimens have a conspicuous dull grey spot on the hind part of the thoracic dorsum which is absent in the Seychelles specimens. These females have slightly more dusted pleuræ, and the front coxal bristles are less numerous and more yellow. The unusual form of the female antenna is remarkable; it differs widely from that of the ordinary species, having a third joint of the form found in Dolichopodinæ.

Loc. Seychelles. Mahé: Cascade Estate, 800—1500 feet, 1908—9. Described from Java (Semarang).

Dolichopodinæ.

Paracleius, Loew.

With the exception of *P. prædicans* (Walker) from Celebes and *P. maculatus* (de Meijere) from Java, this genus appears to be confined to Central and South America, so that it is of interest to find that another species occurs in the Seychelles. It is represented by 3 males and 11 females. The genus has been discussed by Aldrich in the *Biol. Centr.-Americana* and the present species agrees with his criteria as well as with Loew's definition of the genus (*Mon. Dipt. N. Amer.*, 3, II. 97, 1864). The species must be closely related to the above mentioned *P. maculatus*, described by Dr de Meijere in *Tidj. v. Ent.*, lix. 232. A specimen has been examined by him, and he states that it is identical in colour with his species, but that *P. maculatus* differs from the Seychelles species in that the lamellæ are somewhat different in shape and are black; the middle femora have the hairs beneath a little longer; the third antennal joint is yellow only on the base beneath. It is thought well to give a detailed description of the species since it is but the second of the genus so far found in the Old World.

24. *Paracleius solivagus*, n. sp. (Pl. **28**, fig. 10; Pl. **30**, fig. 32.)

Male: head, viewed from the top; the frons is seen to be depressed below the level of the narrow eye-margins; it is brilliant opalescent green. The ocellar hump is small, bituberculate, bronzy green in colour, with the ocellar bristles inserted on the tubercles directly in front of the hind ocellus; these bristles are divergent and bent backwards, the vertical bristles are inserted close to the eyes collinearly with the ocellars, and are directed forward and inward and cross at the tips. The post-verticals are much thinner than the others and are inserted well down the back of the head, their bases being slightly nearer than those of the vertical bristles; they converge to the centre. The back of the head is black, much suffused with silver dust; the four upper bristles of the post-ocular fringe are black, the top one being the longest; the lower bristles are white. The breadth of the head across the eyes is about $2\frac{1}{2}$ times the maximum axial length. In front view the face is excessively silvery from below the base of the antennæ; it is narrow (fig. 10*a*), and the eye boundary is quite uniform in curvature with no sudden change at the level of the antenna. The clypeus is small and does not reach the level of the bottom of the eye by about its own breadth. The overall depth and breadth of the head are about equal. The

eyes are densely clothed with silvery white pubescence which gets longer from top to bottom; the facets are all of nearly equal size. The palpi are small and dark orange in colour, and the tongue is black. In side view (fig. 10*b*) the face nowhere projects beyond the eyes except just at the mouth margin, and the eye profile is an almost perfect arc of a circle, while the back margin is slightly undulating. The lower white post-orbitals extend over the oral opening. The antennæ are entirely pale orange with a blackish arista; the first joint is simple and haired above; the second is of the usual calyx-like shape with a border of tiny bristles, a longer one above and two similar ones below; the third joint is smooth; the arista is fairly stout and rather short in proportion; it is curved at the flagellar junction and the flagellum is minutely pubescent towards the tip.

Thorax: the dorsum is very brilliant, and the general colour is best appreciated with an illumination falling in the direction from scutellum to head. It is then seen to be of a brilliant blue-green with a bright copper-green line between the acrostichal rows; the whole dorsum has similar coppery reflections especially round the dorsocentral and other bristles. The acrostichal rows extend from the level of the front dorsocentral pair to a little before the scutellum. The whole of the dorsum beyond a transverse line passing through the front dorsocentral pair and the humeral bristles appears (in this illumination) to be of a deep velvety black: behind this, but on the blue-green basic colour, is a silvery belt which is interrupted by the dorsocentral rows; this is succeeded by a similarly interrupted belt of velvety black, which consequently forms two large broad spots extending from the third dorsocentral bristles to the base of the wings. Just before the scutellum is another black velvety band, the front margin of which is V-shaped, the hind margin extending to the scutellum. Where these superposed bands do not occur, the basic colour (as stated above) is bright blue-green. The outline of the thorax converges slightly from the wing bases, its sides merging into those of the scutellum. The latter is trapezoidal in form, bright green in colour, more brassy on the margin, and with the sides velvety black. Including the prescutellars there are six dorsocentral pairs, which form uniformly diverging lines; there are also about six pairs of stout acrostichal bristles, which are also slightly divergent and extend to the level of the fifth dorsocentral pair. The humeral bristle is upright as usual, with a large post-humeral bristle inserted close behind it; there are three supra-alars, one just in the top of the cross furrow, with the others on the inner boundary of the black side spots; there is also a large post-alar bristle and two notopleurals. The scutellum has a large bristle on each of the extreme angles, which bristles converge slightly towards the tips; just at the base of each is a smaller bristle, and a still smaller convergent pair lies on the tip. The pleura and epimeron are dull black with very faint dull green reflections; there is a fairly long prothoracic bristle and the usual row of bristles over the neck. The prothoracic spiracle is dull orange with a front row of protecting bristles. Wings shown in fig. 32; they are rather smoky, especially towards the costal margin, but the space between the third and fourth veins is somewhat glassy; there is a distinct notch where the fifth vein approaches, without attaining, the margin; the veins are dark brown. The squama consists of a small orange scale with about eight long black curved fringing hairs. The halteres are yellow.

The legs are yellow except that the mid and hind coxæ are darkened, the mid tarsi are infuscate, and the hind ones black. The legs are covered with fine black clothing-bristles

which are arranged in regular rows except on the femora; these bristles are longest on the hind legs. The chætotaxy is as follows: front leg: coxa with about four bristles in a row on the anterior margin; femur with two or three weak posterior bristles at the end; tibia with antero-superior and postero-superior rows of three each, inserted in pairs on the middle third, the anterior row being the stoutest, also a crown of very small bristles; tarsus with no bristles, simple, the first joint about equal to the remainder. Middle leg: coxa stoutly bristled in front; femur with anterior bristle at base, a large pre-apical and a long inferior row of six bristles extending from the base for about two-thirds of the length: tibia with an antero-superior row of three bristles, a postero-superior row of four, the first, second and fourth of the latter row forming pairs with the former row, the upper pairs being much the smaller, a single inferior bristle in the middle and a crown of five bristles the inferior of which is the longest: tarsus with the usual small terminal bristles, the first joint not quite so long as the next two. Hind leg: coxa with a bristle outside; the femur is flattened sideways and the clothing-bristles on the edges are very long and simulate bristle rows; there is a stout antero-superior pre-apical bristle and a tiny brown spot outside at the tip. The tibia has antero-superior and postero-superior rows of four bristles, which stand nearly opposite one another, the proximal ones being the smallest; just beyond towards the tip is a single bristle inserted between these rows; the crown consists of about three bristles. The tarsus has a first joint of a length about half that of the second and equal to the third, and the joints have the usual basal bristles.

Abdomen: in dorsal view this tapers with somewhat concave boundaries from the very broad epimeron to the tip, the epimeron being about $2\frac{1}{3}$ times as broad as the last body segment. The abdomen is covered with long bristles, longer on the margins, and longest on the last segment: on the sides of the first segment, close to the epimeral boundary, is a short row of stout bristles. The colour is metallic green with golden reflections, but there is a continuous black median line on the last four segments, together with cross black lines that include the segmental borders: the basal segment is much darkened dorsally. On the sides the black cross bands are much widened, and between them the sides are very silvery. The hypopygium (fig. 10 *c*) has its right-hand side smooth and rather dull, black except at the tip: the left-hand side has a large eighth segment which almost covers the base, black, a little silvery, and covered with long hairs especially on its distal portion; the ninth segment is more broadly orange than on the opposite side. The penis is very stout, long, and orange with a black tip. On the (true) lower angle of the ninth segment is an elongate process on each side which is orange and haired at the tip. The paranal lobes are regularly oval and shell-shaped, they are yellow with a few small black bordering bristles. The inner lobes are more closely approximate than usual, and thus almost completely hide the inside appendages, which are entirely pale and appear to be stout cylinders in form.

Female: this sex closely resembles the male in all essential characters; the breadth of the face is about one-sixth of the maximum eye-breadth.

Length, without hypopygium and antenna, 5 mm.

Loc. Seychelles. Silhouette: plateau of Mare aux Chochons, about 1000 feet, ix. 1908, 1 ♂. Mahé: Cascade Estate, 800—1500 feet, 1908—9, 2 ♂, 11 ♀.

TACHYTRECHUS, Walker.

A single species of this genus was found which cannot be referred to any of the described species from Africa or Asia. It has immaculate wings and the front legs are of the simplest *Dolichopus* form. It would appear to be a rather primitive and undifferentiated form of the genus. The general chætotaxy is on the whole normal and will not be given in detail except for the legs. The species, which is evidently one of the African type, is unknown to Dr de Meijere.

25. *Tachytrechus seychellensis*, n. sp. (Pl. **28**, fig. 11; Pl. **30**, fig. 33.)

Male: in top view the head closely resembles that of the European species *T. notatus*, except that the bristles are far less strong. The frons is slightly greyish green and is covered with golden pollen, especially on the broad eye-margins. The eyes are clothed with excessively close, short, silky pubescence. In top view the usual internal tooth on the long first antennal joint is visible. In front view (fig. 11 *a*) the face is narrowest just below the antennæ, and widens uniformly to the end of the epistoma, contracting again below; the boundary between the epistoma and the clypeus is curved, as is the margin of the latter, which does not reach the bottom of the eye by an amount a little short of its own breadth. The face is all covered with bright grey-gold pollen, and from the oblique aspect in which the frons is now seen, this pollen appears also to cover the broad frontal eye-margins. The palpi are small and black, the tongue is also black. In side view no part of the head or face is visible. The antenna (fig. 11 *b*) has an orange first joint, which is nearly as long as the second and third joints together, hairy above; the second joint is small, orange in colour, fringed marginally with bristles; the third joint is a small oval and is all black; the arista is also black, and is bent at the point of junction between the almost bare flagellum and the thickened basal joints. The hind head is brassy above merging into a bluer part below; it is suffused with silvery grey pollen. The upper post-orbital bristles are black and the lower quite white, not yellowish as in *T. notatus*, and the diffuse bristles above the hind part of the oral opening are also pure white.

The thoracic dorsum is olive green, rather brassy, and often with violet reflections: it is covered with diffuse golden pollen. The acrostichal bristles are rather unusual in form, as are the dorsocentrals; instead of being short and stumpy the latter are fairly long and slender; the acrostichal bristles are of the same character, and are also far less in number than in normal forms of the genus, being scarcely twice as many as the dorsocentrals; furthermore they do not run over the front of the thorax. While the general chætotaxy is normal, it is rather under-developed. The scutellum is of the usual trapezoidal shape, and is of the same colour as the thorax but it is generally slightly more brassy at the tip; the usual approximating end bristles are accompanied by a small accessory bristle just behind each. The pleura is densely covered with the finest dark silver-grey dust, but faint traces of metallic reflections can be seen; the dust extends over all the coxæ and the epimeron. The prothoracic stigma is bordered with bright orange pubescence, so that it forms a conspicuous spot on the side, a very usual character in the African species; the usual black velvety spot lies above the wing base. The wings (fig. 33) are normal in venation, with the usual costal thickening near the base: there is no sign of any spots or

any darkening of the cross veins; the veins are black, and the wings are quite glassy but orange at the base. The squama is tuberculate with pale pubescence, and about a dozen long black fringing bristles. The halter is all dull orange.

The legs are orange except for (1) the darkly dusted coxæ, (2) the greater part of the fore and mid tarsi, (3) the whole of the hind tarsi and tip of the hind tibia, which are blackened. Front leg: coxa bristled in front; the femur, which tapers uniformly from base to tip, is devoid of clothing-bristles below, and has no long bristles, possessing only one or two very small bristles below at the tip; the tibia has three superior, two postero-superior, and two longer inferior bristles which are opposite the lower two superior ones; it has also a small crown: the tarsi are quite simple with pulvilli and pads similar to those of the other feet, the joints being rather stout but in no way modified; the first joint is about equal in length to the next two, and all bear the usual small basal bristles and pads of small silvery hairs on the plantar surfaces. Middle leg: the coxa bristled, the bristles on the side being the longest; femur as in front legs but not spindled in shape; tibia very slightly dusky at the tip and very bristly; superiorly there are two especially long bristles, about the terminations of the first and second thirds of the length, forming two pairs with the similar antero-superior bristles; below each of these rows are about three smaller bristles; inferiorly there are two rows of from seven to eight bristles which increase in length from base to tip, where they merge into the crown of five large bristles, the lower pair of which is the longest: the tarsi are like those of the front feet, except that the first joint has a long inferior bristle near the base, and the small basal pairs are stouter. Hind leg: the coxa has the usual outside bristle; the femur has clothing-bristle rows all over, three superior bristles on the last third, a true anterior pre-apical: the tibia has two superior rows, the anterior consisting of five bristles, the posterior of six, the first four of these rows form pairs, but the fifth of the anterior row lies between the last two of the posterior row; inferiorly there is a row of seven bristles lengthening from quite small ones at the base to the normal size near the tip: there is also a crown of three stout bristles outside and below, and a superior bristle rather remote from the tip; the tarsi are simple, the first and second joints being about equal, and each a little shorter than the other three joints taken together; the inferior basal bristles are stout.

Abdomen: laterally compressed, bright green, the distal half of each segment being more coppery than the proximal; it is covered with bristles, the marginal ones being the longer, and those on the last body segment being very long. In side view the lower half of each segment is largely silvery, as is the cap formed by the eighth segment on the side. The hypopygium (fig. 11 *c*) is black and somewhat suffused with silvery dust, its end is extremely shiny, and striated at the tip near the insertion of the inner laminæ, which are small, black and pointed, with a median paired appendage between them; more ventrally there is a small papilla with hairs on it. The paranal lobes are black and nearly circular except for the short stalks, and are fringed with long black hairs which are longest at the posterior outer corner: the (true) ventral surface is somewhat rufous. The female closely resembles the male, the face being only a little broader in the female.

Length, 5½ mm.

Loc. Seychelles. All the specimens from cultivated places at sea-level. Mahé: coast-marsh at Port Glaud, 5. xi. 1908, 8 ♂, 2 ♀. Long Island, vii. 1908, 1 ♂, 1 ♀.

ARGYROCHLAMYS, gen. nov.

This genus is founded for a very interesting species from the sandy sea shore of Long Island, Mahé, 3 males and 1 female. Like so many sand haunting species it has a greyish general appearance. It resembles a rather overgrown stout Psilopid of the *contristans* type, but it is almost undoubtedly a true Dolichopine; in this opinion Dr de Meijere concurs. The most striking points are the widely separated eyes in both sexes, the exposed genital appendages in both male and female, and the exceptional venation. The points that may be emphasized as delimiting the genus are as follows: the eyes are widely separate in both sexes; the venation is aberrant as shown in fig. 34; the second vein is unusually short, the third vein is widely arched so as to bring it close to the second for the greater part of its length, but curving forward after the costal junction of the second vein to run into the costa a little before the tip; the fourth vein recalls the form in *Psilopus*, but the lower fork of the latter is absent; the legs are quite simple and the hind ones have no upper bristles on the first tarsal joint; the hypopygium is non-pedunculate and much like the regular Dolichopid form, but the hood is small, so that the unsymmetrical internal appendages are visible; the paranal lobes are strap-like; the female has its chitinous genital complex entirely exposed. Another character lies in the exceptional development of the epimeron and the fringing hairs to the squama, which together form a sort of cage containing the halter.

26. *Argyrochlamys impudicus*, n. sp. (Pl. **28**, fig. 12; Pl. **30**, fig. 34.)

Head, top view: the whole vertex, frons, etc. are densely pollinated with silvery grey; the ocellar hump is well marked off from the vertex by side furrows, but in front is continuous with the frons. The ocelli are rather large, and bright chestnut brown. The head bristles are all black; the ocellars are inserted on tiny dark circular spots between the ocelli; they are straight, divergent, and seated a little outside the centre line from the side to the front ocellus: a very small pair of fine convergent bristles stands a little behind the hind ocellus. The vertical bristles are almost straight and converge a little; they are inserted almost in line with the ocellars and stand on tiny blackish spots just remote from the eyes. Unlike the other main bristles, the post-verticals are white as is the post-orbital fringe; they are inserted rather far down the back of the head, and somewhat closer together at the base than are the verticals. The wholly white post-orbital row has the first four or five bristles gradually diminishing in size, the upper bristle being nearly as stout as the post-verticals. The eyes are densely covered with short silky hair, which is perceptibly longest in front.

Front view (fig. 12 *a*): the frons and face get narrower from the vertex to the clypeus, being about one-third the total face breadth at the antennal level and about two-thirds narrower at the clypeus. The side boundary is nearly straight, though there is a perceptible sinuosity at the level of the antennæ. The whole face, like the frons, is densely covered with silvery pollen. The clypeus is very short with a rounded slightly swollen tip, and is demarcated from the epistome by two very small side slits. The palpi are very small, orange, with black hairs, and the tongue is also orange and hairy. The antennal bases are

seated in well-marked contiguous pits; the antennæ (fig. 12*b*) are almost entirely orange, except that the distal half of the third joint is slightly dusky. The first joint is obconical with a distinct internal tooth, it is somewhat silvery with a few scattered hairs on the upper surface; the second joint is of the normal calyx-like shape, fringed with black hairs which are short at the side, longer at the top, and with the three lower hairs more stout and bristle-like; the third joint is of the normal Dolichopid form, ovate, with a slightly rounded tip; the dark dorsal arista is inserted just at the junction line of the two colours of the third joint, its basal joints long, stout and rather curved; the flagellum is entirely bare throughout, and tapers uniformly to a fine point; its total length is about $1\frac{1}{2}$ times that of the whole antenna. The back of the head is all covered with silver grey pollen: the post-orbital row is very regular nearly to the sides of the mouth, but is there succeeded by numerous long white bristly hairs behind the same.

The thoracic dorsum is entirely covered with very bright silver pollen and has a slight, but evident, concavity before the scutellum. The latter has a rounded boundary between it and the thorax, and its edge is an almost exactly parallel curve, so that the shape is that of a parallelogram with the long sides formed of curved arcs; the pollen on it becomes slightly reddish on the margin. The thoracic chætotaxy is very similar to that of *Dolichopus*, the bristles are all black and less stout. In *Dolichopus*, if all the bristles from the prescutellar pair to the front of the thorax are regarded as being dorsocentral, it will be seen that the pair just ahead of the prescutellar pair is very often more closely inserted than the others: in this species this point is much accentuated. Starting from front to back we first have four pairs gradually increasing in length, then comes the larger fifth pair inserted much closer together, only a little outside the range of the acrostichal rows; finally there is the sixth pair on the normal diverging lines of the fourth, and this pair is the stoutest of all. The acrostichal rows start with tiny bristles on the front which get longer till they end beyond the fourth dorsocentral pair; the true acrostichal bristles number about six. The other thoracic bristles are normal. The scutellar bristles are stout and cross at the ends, and are inserted about midway between the side margins and the centre; just outside each is a tiny accessory bristle. There are about three or four white bristles on each side of the neck. In front of the prothoracic stigma is a bunch of long fine silky hairs; there are the usual small prescutal bristles (in Oldenberg's sense), but much sparser than usual. The whole pleura is smooth and silvery like the dorsum. The wings are as shown in fig. 34; they are slightly milky, the veins all orange, but the costa is closely margined with a double row of very tiny black bristles. The sudden bend of the fourth vein is accompanied by a knot at the point of bending. The squama is large and scale-like, and has a beautifully ribbed margin and a fringe of many long curved pure white hairs; the epimeron is exceptionally large and membranous, and the yellow halteres lie on it: they have curiously flattened knobs, and the long squamal hairs bend over to the boundary of the epimeron and form a perfect protecting cage for the halter.

The legs are entirely yellow except for (1) the base of the mid and hind coxæ which are slightly brownish, (2) the last two joints of the mid tarsi which are slightly dusky, (3) the distal fifth of the hind tibia and all the hind tarsal joints (except the extreme base of the first joint) which are dark brown. The bristles are mostly very fine, sometimes quite

inconspicuous, especially so in the male. Front leg: coxa with stout bristles at base and tip and many small ones: femur with only longish clothing-bristles, longest behind, and bare below: tibia with about three antero-superior, two of the postero-superior row and the last of an inferior row, all very small; a crown of about five tiny bristles: tarsus with simple joints which are just perceptibly swollen distally, the first joint about as long as the next two together, these being about equal. Middle leg: coxa bristly; femur with bristle rows in front, bare behind, the lowest row forming a fine inferior ciliation, a fair sized pre-apical bristle in front: tibia with three small antero-superior bristles, the lower just below the middle; three small postero-superior bristles, the top two nearly opposite those in the former row, the last much further down than the other of that row; two inferior, the lowest being opposite the last bristle of the latter row; a crown of five of which the inferior one is long and stout; tarsus with first joint about $1\frac{1}{2}$ times the second, the other joints getting regularly smaller and smaller towards the end; each joint has a tiny terminal crown instead of the usual basal pair. Hind leg: coxa with outside bristle; femur with stout clothing-bristles in front, but bare behind; these bristles form a fairly conspicuous ciliation superiorly and inferiorly on the basal half, and antero-inferiorly all along the femur; there is also a stout superior pre-apical: tibia with four antero-superior and four postero-superior bristles all on the pale part, a fifth postero-superior bristle is on the dark part just short of the true crown; anteriorly there is a crown of two bristles: tarsus with the first joint about three-fourths the length of the second and a little shorter than the third, all the joints with tiny terminal crowns. The end of the tibia and that of the first tarsal joint carry pale combs.

Abdomen: dorsal aspect, conical in outline with very slightly convex sides, the clothing-bristles stout and regular, more upright on the sides of the first and second segments, and with the marginal rows especially long, except on the first segment. The general colour is somewhat submetallic blackish green with silvery reflections, but each segment is margined with a white edge carrying very conspicuous tiny dots on which stand the marginal bristles: the boundary between the white margin and the dark part is not sharp, and between the two the white band is brownish yellow. The hypopygium is non-pedunculate (fig. 12*c*), the seventh segment on the right-hand side being scarcely visible; the hooded ninth segment is compact, stout and very chitinous, the ventral part being shining black, the dorsal somewhat dusted with pale pollen. The large scale-like eighth segment largely hides the ninth on the left side; it is blackish with silvery pollen, and carries a few long scattered hairs. The small pale tenth segment carries the long strap-like paranal appendages which are about as long as the ninth segment; these are yellow, and are covered externally with bristly hairs, but the marginal hairs are paler, and the long end ones are curved at the tip. The internal clasping pieces are here quite exposed and visible, appearing as if the floor of the hood had been swollen up so as to bring them into view. The appendages are as follows: the most proximal are a pair of hooks, of which the right one is nearer the base than the other, these are shining black; more distally is a single horny orange spike with a basal papilla; still more distally is a pair of brown rods arising from the tip of the swollen base, and with the ends showing well beyond the horny edges of the hood; each has at its base a few hairs. Finally we have the bent penis,

whose tip protrudes between the last mentioned rods. It will be seen that the female has a similar condition as regards the externality of these sclerites, and the two conditions appear to be correlated.

The female is much like the male, the face being a little broader, and in the single specimen present the abdomen is much more extensively orange, the greater part of the first segment, the whole of the second, and the marginal stripe of the third segment being of that colour; the last segment is entirely dark. The extruded genitalia (fig. 12*d*) are nearly as remarkable as in the male; there is a stout dorsal median process furnished with three strong black teeth on each side at the top; below the base of this is a large central papilla and short rods, all bearing fine hairs; then on each side is a curiously twisted and flattened chitinous rod which appears to arise from well inside the abdomen.

Length, excluding hypopygium, $4\frac{3}{4}$ mm.

Loc. Seychelles. Long Island (a coconut-planted islet near Mahé), vii. 1908, 3 ♂, 1 ♀; taken on the beach.

Urodolichus, gen. nov.

There are three species which belong to the Dolichopodinæ owing to the possession of such characters as the double acrostichal row, the complete post-ocular fringe, the single coxal bristle on the hind legs, etc., characters which fairly fall within the definition of the European genus *Hypophyllus*. The superficial appearance of both male and female is strongly reminiscent of the corresponding sexes of *Porphyrops* as they have the same brilliant purplish tone of colour, and the male paranal flaps are strap-like and hairy. Apart from the above characters the genus is well separated by the following points: The eyes are hairy and in the male are entirely holoptic below the antenna, which has a small rounded third joint with a very long dorsal arista. The venation is fairly distinct as shown in figs. 35 and 36, the third and fourth veins being somewhat curved, and though on the whole parallel, yet they converge somewhat at the tips. The genitalia can best be understood from the diagrammatic representation in fig. 13*e*, which gives a rough outline of the true dorsal view of the type species. The hypopygium is very pedicillate, the seventh segment (VII) being long and fairly slender, in one species excessively so. The eighth segment (VIII) is as usual twisted to the right, and is very hairy, though all hairs are omitted from the diagram. The hood of the ninth segment (IX) appears to be continued by two hinged flaps (*H*), which in the first species bear two smaller internal flaps which are apparently closely adherent to the main ones; in the second species these are not separate, and only appear as indistinct ridges, while in the third species there is no sign of the small accessory flaps being separate, except as lobes on the tip, and the main ones are much smaller. The paranal lobes (*A*) are long and strap-like and very much haired. In the first species they are very long and curved, in the second they are fairly long but straight, while in the third they are much shorter and are somewhat bat-shaped at the ends. The general chætotaxy offers no special features. Type, the following species.

27. *Urodolichus porphyropoides*, n. sp. (Plate **28**, fig. 13; Plate **30**, fig. 35.)

Head, top view: the breadth is greater than that of the thorax, the profile of the eye is flattened, so that the total eye-breadth is more than three times the axial depth. The

eyes are densely covered with very short pale pubescence. The frons is all bright steel blue with a small round ocellar hump: the ocellar bristles are inserted close together between the ocelli and are bent outwards and backwards; behind the hump on the vertical ridge is another pair of very tiny bristles. The vertical bristles are inserted close to the eye and bend somewhat forwards, converging at the tips. A small pair of post-vertical bristles is inserted on the hind head in such a way that the several distances between their bases and those of the vertical bristles are equal. Front view (fig. 13 *a*): the eye-profile is regularly circular, the horizontal and vertical diameters being nearly equal; the face forms a pointed triangle continuous with the frons, and is covered with pale blue dust. The eyes are touching for about one half the face depth, and all the facets are about the same size. Just above the palpi the small narrow clypeus is silvery; the palpi are small, black and hairy, and the black hairy tongue just protrudes beyond the eye-margin. Side view (fig. 13 *c*): the depth is about three times the axial width, and the eyes cover the whole side of the head, hiding even the ocellar hump. The first antennal joint is smooth and black; the second is also small and black, and is strongly saddle-shaped when detached, the third joint being held by its side flaps; it has small bordering bristles, longer above and below; the third joint is small and rounded, brownish in colour: the first joint of the black arista is stout but quite small; the next is slender and bare, merging into the microscopically pubescent flagellum. The back of the head is bronzy black with slight silvery reflections and is somewhat hollowed out. The black post-orbital row is very regularly spaced and continues almost down to the mouth margin, while the latter is provided with many long stout brownish hairs behind.

Thorax: the dorsum is quadrate and entirely steely blue-black; just in front of the scutellum is a rather narrow transverse furrow, so that the hind thoracic boundary is in the form of a well-marked ridge, which is somewhat brassy: the scutellum is trapezoidal in outline, with a uniformly rounded hind margin, and is coloured as the thorax though slightly duller. The humeri and front of the thorax are much stained with orange pollen, and the latter carries many small prescutal clothing-bristles. The chætotaxy consists of long black bristles; the acrostichal rows are, however, short but stout, and get a little longer behind, where the rows diverge somewhat. The dorsocentral bristles number 2 + 4, the front pair is small, but the bristles get progressively longer, so that the last or prescutellar pair is quite long, and converges over the scutellum; the lines of insertion diverge as usual, but the fifth pair is a little outside the range instead of inside. The upright humeral bristle is accompanied by a few long hair-like ones in front, and stands on the bright silvery part of the notopleura as do the two notopleural bristles, which are rather close together; there are also a presutural, a post-humeral, three supra-alar (the first in the notch) and a long post-alar standing on the angle of the well-developed post-alar callus. There is the usual row of bristles over the neck, and a clump of brown hairs inserted between the neck and the long dark orange-bordered stigma, overhanging the latter. The stout prothoracic bristle stands in a clump of similar hairs. The notopleura is silvery above, but like the dorsum behind; the rest of the pleura is smooth blackish green with faint silvery reflections. The scutellum bears an end-pair of long somewhat converging bristles, which are inserted about midway between the centre and the extreme basal angles; between

each and the base is a smaller bristle, perfectly parallel to the main one. The metanotum is shining black on the top and bright silvery brown on the sides. The wings are as shown in fig. 35; they are mostly clear, but are slightly smoky towards the costa; the veins are brown, and the extreme wing base is orange. The venation is as figured, the second, third and fourth veins being long, and the latter pair converging a little at the tips. The squama has the form of a small tubercle and carries a fringe of about ten long curved black hairs, the middle ones being the longest. The halteres are entirely bright orange.

The legs are almost entirely dark orange. Front legs: coxa almost black and very hairy, with a row of four or five long bristles on the anterior edge; femur dark orange, but somewhat paler towards the tip, covered with erect clothing-bristles which are longest on the upper side and short but very close and regular below: tibia with two bristles of the superior and inferior rows, the latter smaller than the former and inserted lower down, a small crown on the end: tarsus orange with first joint almost as long as the rest together, the clothing-bristles on the anterior edge forming a highly characteristic row of very regular almost hooked bristles, the other joints simple. Middle leg: coxa black and very hairy with dense stout bristles towards the end, and a single long stout bristle outside about the middle; the trochanter has a similar bristle at the tip; femur blackened and somewhat channelled, covered with close dense little bristles above, a fringe of longish hairs below, longest basally, and an anterior pre-apical bristle; tibia very dusky orange with an upper and middle pair of bristles on the anterior side, and a large accessory bristle close to the top pair; three or four bristles of the inferior row, and a crown of stout bristles; tarsus very dusky, with the joints in about the same proportion as in the front legs. Hind leg: coxa black and bare with an outside bristle at the base; femur like the middle one but larger, and with a longer and more regular fringe, the hairs having a length of about $1\frac{1}{4}$ times the depth of the femur; a single outside pre-apical bristle towards the tip; tibia blackened orange with the clothing-bristles longer and more upright beneath and behind, five or six of them a little longer than the rest, and representing the inferior row; about five rather stout bristles of the superior row; a basal and middle bristle of the anterior one, the last being the largest of all, a crown of three bristles, upper long; tarsus with the first joint about two-thirds the second and about equal to the third, with the normal clothing and basal bristles, and tiny combs at the tip of the first tarsal joint; there is a similar one on the tip of the tibia.

Abdomen: steely blue-black with the distal margins of the segments brassy; these brassy margins become narrower from base to tip, and carry short bordering bristles. The dorsum is covered with small depressed bristles, but the basal segment is nearly bare centrally, and has long black bristly hairs at the sides; similar upright bristly hairs occur thickly on the sides of the two succeeding segments, but those on the other segments are shorter and adpressed. The hypopygium (fig. 13 *d*) is complex, and the general description has been already given from the true dorsal aspect. When fully extruded the pedicel is about as long as the complete ninth segment and is rather smooth, dark, and with a few hairs. The small eighth segment is very considerably turned to the left and looks like a small hairy scale attached to the side. The ninth segment is rather shining dark orange, and strongly chitinised at the basal angle, where there is a fine long hair. The two flaps

attached to the end are roughly triangular in shape, dark orange and somewhat hairy; two smaller flaps are attached to these each side of the mid-line as mentioned before. From the tip proceed the two very long curved paranal lobes in the form of almost black pointed straps fringed with dark brown hairs, which are very long inside. In fig. 13 *e* is shown a view of what is seen in looking obliquely inside the hood. One of the rounded triangular flaps is shown seen normally, the other is seen on edge; the curved hairy paranal lobes are also shown. The complex of internal chitinous hooks is quite clearly seen from this aspect, but cannot be fully indicated in any single view. Apparently the genitalia as described are not fully exposed at first. One of the male specimens has practically the whole of the organs still hidden in the groove of the abdomen, and the only part that is free is the extreme end of the hood and the paranal straps, which protrude about midway down the venter; it is only in a quite mature insect that the complete hypopygium is freely exposed on its pedicel.

Female: this sex resembles the male in general facies and colour, the legs and their bristles are slightly stouter, the remarkable hooked fringe on the front tarsus is absent, and the fringes on the other legs are practically reduced to the ordinary clothing-bristle size. The head (fig. 13 *b*) has a broader vertex, and the face is quite wide, furrowed longitudinally from antenna to clypeus, the latter being divided from the epistoma by a curved boundary. The whole face is dark blue, densely pollinated with silver. The mouth parts have somewhat the appearance of *Porphyrops*; the palpi are large, triangular, black and densely pollinated; they are also covered with short sparse bristly hairs. The labrum is large and sac-like, the breadth of the head being a maximum at its level; it is black with a fringe of pale hairs. The aristal pubescence is slightly more pronounced than in the male, and the third joint is slightly smaller.

Length, excluding hypopygium, about 5 mm.

Loc. Seychelles. Mahé: Cascade Estate, about 1000 feet, 6 examples.

28. *Urodolichus caudatus*, n. sp. (Plate **28**, fig. 14; Plate **30**, fig. 36.)

This species resembles the former in its general characters, but is rather smaller, very much blacker in colour, and with a very different hypopygium. A fairly full description is given to avoid confusion.

Male. Head, top view: the trapezoidal frons is somewhat sunk, and is blue-black with bright green tone, the bristles as in the last species. Front view: the ocellar hump is slightly lower, the facial triangle is less produced below the antennal base and less sharply pointed, and the eye-boundary from the vertex is less curved: it is of the same colour as the frons and is somewhat depressed. The eyes touch for a proportionately longer space, and are covered with very fine short pale hairs. The clypeus is black, and the palpi are very dark orange and hairy and hide the black tongue. Side view: very much like the last species, the first two antennal joints black, the third dark orange, the arista black; the flagellum is perceptibly pubescent, the hairs being longer and more distant towards the tip. Thorax: the dorsum is black with a faint bluish tone and very obscurely pollinated. The prescutellar furrow is not quite so pronounced as in the last species, and the scutellum is slightly more rounded in profile. The chætotaxy is practically the same but the acrostichal

bristles are finer, the large scutellar pair is somewhat nearer the basal angles, and the hind pair is smaller. The pleura is black as is the metanotum, which is somewhat dusted with silver. The wing venation (fig. 36) is very much the same as in the last species, but the wings are more smoky, especially from the costa to the second vein; the veins are brown. The squama has six or seven black hairs, and the halteres have yellow knobs and brownish stalks.

The legs are predominantly brown orange with dark brown coxæ. The bristles are very much the same as in the last species but apparently there is but a single mid inferior bristle on the middle tibia and only about two on the hind tibia. The first joint of the hind tarsus is about half the length of the next and equal to the third. The peculiar hooked ciliation of the front foot is present only as an ordinary bristle row at the base.

Abdomen: very much as last in respect to bristles, etc., but somewhat violet-black with faint greenish reflections; the paler margins are very narrow. The hypopygium (fig. 14 *a*, *b*) differs considerably. The pedicel is nearly as long as the rest and is shining, black haired above. The eighth segment is somewhat dorsally placed and is dark and hairy. The ninth is black and shining, and the flaps are bright yellow with a border of hooked hairs: the small accessory flaps appear to be amalgamated with the larger ones. The orange paranal straps are considerably shorter, nearly straight, and excessively hairy; these hairs are black on the true dorsum and longest on the sides; on the ventral surface they are dense and pale. Inside the hood the angle at the insertion of the flaps is produced into a point carrying spines; centrally there is a triangular lobe below which lies the penis; the whole inside of the hood is orange. As in the last species the terminal flaps and straps are often the only part of the hypopygium that is seen, and then they project about midway down the venter.

The female differs from the male in its somewhat stouter build. The face is moderately broad, narrowest midway, with a well-marked clypeo-epistomal line; the face is dark but pollinated with yellow dust, and with a well-marked median depression. The palpi are triangular, grey and hairy, as is the large labrum.

Size, excluding hypopygium, $4\frac{1}{2}$ mm.

Loc. Seychelles. Silhouette: plateau of Mare aux Cochons, over 1000 feet, ix. 1908, 9 specimens, settling on moist places on the red earth paths. Mahé, 5 specimens: near Morne Blanc; Mare aux Cochons district, 1500—2000 feet, i.—ii. 1909.

29. *Urodolichus gracilis*, n. sp. (Pl. **28**, fig. 15.)

The third species is unfortunately represented by but a single male, and that is slightly discoloured, and has its face somewhat depressed from shrinkage; but it is so abundantly distinct that it should be readily recognisable. The actual colour is a rather dull black, and there is little doubt that the perfect specimen would have a somewhat similar colour scheme to the last species. The vertex is but little excavate, and the hump consequently not much developed; the bristles are as in the previous species but finer. The eyes are covered with minute pale hairs, but a difference arises in the fact that the eyes only touch for some four or five facets, and all the facets on the lower part of the eyes are somewhat larger than the upper ones. The small palpi are brown-black and hairy. The

antennæ are like those of the previous species in structure, but the third joint is clear orange, and the flagellar pubescence is more pronounced; the hind head is black. The thoracic chætotaxy is as in the last species, but the acrostichal rows are very much smaller and more closely set, and the accessory scutellar bristles are very small and inconspicuous; the scutellum is more rounded. The wings cannot be drawn as they are much over-arching, but the venation resembles that of the last species except that the third and fourth veins are more undulated and closer at the tips; the papilliform squama has a fringe of about five long hairs; the halteres are all bright orange.

The legs, including the coxa, are entirely bright orange. Front leg: coxa with about five anterior bristles, the upper one the stoutest: femur with a sparse inconspicuous inferior pectination; tibia quite devoid of macrochætes; tarsus quite simple, first joint about as long as the rest of the foot. Middle leg: coxa somewhat haired with one large bristle outside; femur with excessively faint inferior basal ciliation and a pre-apical bristle in front at tip; tibia with one superior basal bristle, one basal and one middle bristle of the anterior row, one mid-inferior bristle and a crown of about five bristles; tarsus simple. Hind leg: coxa with one small bristle outside at base; femur with the lower clothing-bristles forming an inconspicuous sparse ciliation; tibia with the upper and middle bristles of the antero-superior row and three of the postero-superior row, a few fine bristles of the inferior row can be seen among the general clothing-bristles; a crown of about four bristles; tarsus with the first joint about half the length of the second joint and equal to the third; the first joint and the tibia carry small combs at the tip.

Abdomen somewhat shining brown-black with the clothing-bristles much as in the last species. The pedicel of the hypopygium (fig. 15 *a*, *b*) is as long as the exceptionally long hood of the ninth segment; it is flattened, hairy, and orange-brown in colour. The eighth segment is a small hairy oval inserted more dorsally than usual. The hood of the ninth segment is very long, smooth, brown-orange, and parallel sided; the flaps are very different from those of the last species; in dorsal view they are short, lancet-shaped, and the accessory small flaps are represented by two little lobes on the mid-line of the segment, which give the boundary an emarginate edge; between the main flaps and these small lobes arise the paranal lobes, which are reduced to small straight straps with bat-shaped ends. All these appendages are yellow, and the paranal lobes are covered dorsally with stout black hairs. On looking inside the hood it can be seen that its edges are strongly chitinised and bear stout hairs: the base is produced into a small central lobe carrying a long hair on each side at the angle. The long penis curls up from the bottom of the hood to the level of the tip of the tenth segment. The whole hypopygium is so very long that when bent up against the venter its end would almost attain the level of the base of the thorax.

Length, excluding hypopygium, 3½ mm.

Loc. Seychelles. Mahé: cultivated country at about 1000 feet, xi.—xii. 1908.

Diaphorinæ.

30. *Chrysotus seychellensis*, n. sp. (Pl. **30**, fig. 37.)

The collection contains a considerable number of both sexes of a *Chrysotus* which is of the normal European form. It is not known to Dr de Meijere and does not agree with any of the well-known species. It is one of the section in which the eyes are perfectly holoptic, and the whole legs, except the femora, are pale yellow.

Male. Head: the vertex and frons are entirely green with a somewhat matt surface, the hump being slightly reddish. The face has the eyes absolutely touching with no sign of the narrowly compressed eye-margins continuing down the centre, as is so usual in the genus, the facets being truly contiguous; hence the facial triangle, which is the same in colour as the frons, is very small; the tiny brown palpi just protrude from the small mouth triangle. The antennæ are entirely black with the first joint dusted with grey. The third joint has its front profile quite rounded, even more so than in *C. neglectus*, with about the same ratio of transverse depth to axial length as in that species, but with no sign of a dimple at the insertion of the arista: the latter is similarly pubescent, but is considerably shorter, being only about two-thirds as long as the maximum vertical diameter of the eye. The bristles are quite normal; the post-ocular row is black.

The thoracic dorsum (as well as the scutellum and abdomen) is entirely coppery green with the usual reflections, and the chætotaxy calls for no remark except that the acrostichal bristles are about one-third the length of the dorsocentrals. The pleura is black and the mesopleura has fairly bright green reflections, the metanotum being similar to it. The wings are as figured (fig. 37). The squama is yellow with three or four long golden brown bristles: the halter is entirely bright yellow.

The legs differ in colour from those of the European species. Front leg: the coxa is dark with grey-green pollination, and in a side light the hairs on it are golden brown, but may be called dirty white from other aspects; inside, the coxa is much paler, and the trochanter is also pale. Outside, the femur is dingy yellowish, but behind it is slightly tinted with metallic black as in an extremely diluted form of *C. gramineus*; it is pale at the tip; the tibia and tarsus are entirely whitish yellow, and except for the small bristles on the outer side of the tibia, there are no outstanding bristles. Middle leg: the coxa is like the front one with a few stout golden bristles, and the trochanter is likewise pale; the femur is similar to the front one, but has the debilitated metallic shine on both back and front; there is a stout pre-apical bristle behind; the tibia is like the front one but carries two anterior bristles, the smaller about the middle, the stouter midway between that and the top of the tibia; there is also a crown of which the two lower bristles are the longest; the tarsus is like the front one. Hind leg: the coxa is like the others except that it has only the usual single bristle; the trochanter is the same; the femur is also like the middle one, but carries three stout bristles outside on the last fourth; the tibia is like the mid one but among the clothing-bristles stand two of the antero-superior row on the middle third, and two of the postero-superior row, one at the end of the first third, the other at the end of the second third; there is also a small crown at the tip. The tarsus is entirely

pale and somewhat more densely haired than those of the other legs, but there is no outstanding ciliation on any of the legs.

The abdomen is somewhat more coppery than the thorax, the marginal bristles are a little longer than the others; the venter is pale and carries the usual pair of tiny lobes.

Female: the same in colour as the male; the face is slightly curved at the sides and is about one-eighth as wide as the maximum head breadth, it is the same in colour as the frons, but somewhat more dusted; it carries a shallow longitudinal sulcus from just below the antenna to about half-way down the face; the palpi are black-brown and hairy. The legs are much stouter with stronger bristles; the submetallic blackening of the femora is much more intense and the pale tips of the same are reduced to the knees only.

Size 1½ mm.

Loc. Seychelles. Silhouette: Mare aux Cochons plateau and forest above, over 1000 feet, ix. 1908. Mahé: marshes on coastal plain at Anse aux Pins, i. 1909; coastal marsh at Port Glaud, 5. xi. 1908; near Morne Blanc; Cascade Estate, 800—1500 feet; Mare aux Cochons district, 1500—2000 feet, i. 1909. Anonyme Island: i. 1909. The distribution appears general, from the non-endemic vegetation at sea-level to the humid endemic forest at high altitudes.

CRYPTOPHLEPS, Lichtward, Termeszetrajzi Füzetek, XXI. 1898, p. 491.

In the collection are two species of small dark Dolichopids, which appear to be most satisfactorily placed in the above genus. They are quite devoid of acrostichal bristles, the costa stops short at the third vein, the main veins are closely approximate, and all the cross veins are practically absent. In the paper cited above a figure of the venation of the type species *C. kertészii* is given, and, on comparing it with that of one of the present species (fig. 38), it will be seen that the main difference is that in the former the fourth vein is abruptly broken and the front part is isolated and carried nearer the costa, parallel to the first, while in the latter a similar displacement occurs, but the two portions are joined by a small curve. Similar differences in venation, however, occur in the related genera *Asyndetus* and *Meringopherusa*, so that this is not a matter of more than specific importance. Further, in one of the two species the cross vein, which is said to be quite absent in *Cryptophleps*, is present as a mere "ghost" of its self; this wing is shown in fig. 38. The cross vein's "ghost" occurs between the fourth and fifth veins. In some of the males of both species the heads are rather shrivelled and in one of the species the exact form of the palpi cannot be seen, but in the other they agree with the form described for the genus.

31. *Cryptophleps ochrihalteratus*, n. sp. (Pl. **29**, fig. 18; Pl. **30**, fig. 38.)

Head (fig. 18*a*): vertex and frons fairly flat, all dull granulated black with practically no hump. The ocellar bristles are long, divergent and bent backwards; the large subparallel verticals bend forward; they are inserted very close to the eyes and in a line with the ocellars. The eyes are minutely pubescent, especially in front, and their margins on the vertex are completely absent up to the level of the antenna, where they suddenly appear in the form of densely golden-pollened bands which extend over the face to the epistoma, their edges being just separate on the middle of the face; when the head is

shrivelled, the eyes practically touch; the triangular spaces thus left below the antennæ and above the mouth are black. The epistoma is slightly concave on its margin and is marked off from the slightly depressed clypeus. The tongue is dark and the palpi are in the form of large flattened somewhat silvery discs carrying a few tiny scattered black hairs. In side view (fig. 18*b*) a pair of small post-vertical bristles can be seen behind the vertex: the post-orbital row is black and merges into long pale bristly hairs round the mouth. The antenna is entirely black, the first joint small; the second also small with marginal bristles, longest on the top; the third is triangular with a hairy tip, and the dorsally inserted arista is thick at the base, tapering to the tip and haired. The thoracic dorsum is all dull black and granulated; the four long dorsocentral bristles lie on almost parallel lines and the acrostichal bristles are completely absent; the rest of the chætotaxy is normal. The scutellum is like the thorax; it is flattened on the top and carries a pair of converging bristles inserted midway between tip and base. The pleura is faintly greyish but is also granulated in texture. The wings are as in fig. 38; they are slightly darkened costally and there is a "ghost" of the cross vein. The halteres are entirely orange with a large knob.

The legs are all black-brown, the coxæ and femora being very faintly silvery greyish; all the clothing-bristles are stout and in very regular rows. All the tarsi carry well-developed white pads, which are of about equal size on all the feet, and white empodia. The ends of the pads are densely pectinate and the empodia are conical in form; there is no sign of true claws, and the dorsal side of the flattened last tarsal joint bears stout bristles. The front coxa is bristled in front. The mid tibia carries two bristles of the anterior row, the smaller about midway, the other half-way between it and the base; it also carries a crown of which the lower bristle forms a spur. The hind coxa has the usual bristle, the femur bears an inferior row of about ten fine bristles, the last being long; the tibia resembles the middle one but the crown is small.

The abdomen is like the thorax in colour and texture but is very slightly shining. The last segment carries a small round knob with the usual four bristles of *Diaphorus* but very much finer.

The female resembles the male, but has a much broader face which is all granulated like the frons; the palpi are black and smaller than in the male, and there are no foot pads.

Size a little over 2 mm.

Loc. Seychelles. Mahé: near Morne Blanc, about 1000 feet, x.—xi. 1908, 1 ♂, 1 ♀; Cascade Estate, about 800 feet, 1 ♂.

32. *Cryptophleps nigrihalteratus*, n. sp. (Pl. **30**, fig. 39.)

While this species is easily separable from the first, the general description applies closely except for the following points. The head of the male was so contracted round the mouth margin that it was not possible to see the palpi, but one would judge that the oral orifice is considerably less open than in the former species. The whole insect is somewhat less granulate in texture. The venation differs as shown in fig. 39, the "ghost" being absent. The inferior fringe on the hind femur is stouter, the foot pads are considerably smaller, and the halteres are entirely black.

Sizes as in last species.

Loc. Seychelles. Mahé: near Morne Blanc, about 1000 feet, x.—xi. 1908, 11 examples.

Campsicneminæ.

ACROPSILUS, Mik.

It is of considerable interest to find this mid-European genus in the Seychelles. So far it was known only from a single European species, *Acropsilus niger*, Loew., from Hungary and Denmark, since discovered by the author in North Cornwall. There is a series of specimens in the collection which agree almost absolutely in the generic characters with that species, though the Seychelles species is much more robust and is abundantly distinct.

33. *Acropsilus errabundus*, n. sp. (Pl. **29**, fig. 19; Pl. **30**, fig. 40.)

The Cambridge collection fortunately contains the Cornish pair of the rare European species referred to above, and as this is the only other member of the genus, the close relationship between the two species could be readily seen. They agree in the structure of the head, having the eyes practically touching below the antennæ in the male, and somewhat separated in the female. The front eye-facets are much enlarged in both species, and the antennæ are quite similar except for a longer arista in the Seychelles specimens. The venation and bordering ciliation are very similar, and they are both absolutely devoid of any sign of acrostichal bristles. The Seychelles insect differs in its yellow legs, which are vastly longer than in *A. niger*, and the hypopygium is much more developed, though quite similar in general structure. The creature is also much larger, being about 2·3 mm. long without the antenna instead of just about 1·5 mm. Unfortunately the insect being of delicate structure, the head of every specimen is more or less shrunken and deformed, and hence no satisfactory figure can be given.

Head: the vertical ridge is gently convex, with the ocellar tubercle only slightly prominent. The whole of the vertex and frons is æneous green-black, with the hump but little differentiated; the frons is trapezoidal in outline, being narrowed towards the front. The large black ocellar bristles are inserted between the ocelli, and are fairly straight, divergent and pointing forward. The vertical bristles are similar and are inserted absolutely on the edge of the eye and just remote from the vertical ridge; they converge a little and are directed forward. The vertex is just overhung by another very tiny pair of bristles, but there is no sign of true post-verticals on the black hind head. The face contracts sharply at the level of the antennal bases so as to leave a black facial triangle which is roughly equilateral, the eyes then practically touch for about five facets, and the face diverges again below, the lower part of the same being hidden by the conspicuous black-brown hairy palpi. The enlargement of the eye-facets is quite exceptional and extends over all the front part of the eyes: these are densely covered with very short inconspicuous hairs. The antennæ are almost the same as those of *A. niger*, with a small pointed third joint, somewhat shorter than the second, which itself bears a few hairs above: they are black, the third joint being densely covered with brown pubescence: the arista is distinctly dorsal and its point of insertion is marked by a dimple in the edge of the third joint: the flagellum is nearly as long as the thoracic dorsum and is hairy, the hairs getting thinner towards the tip. The post-ocular bristles are distinctly visible above and are black.

Thorax: the dorsum is shining bluish-black with an extremely sparse golden pollination, and bears no acrostichal bristles whatever, being quite smooth. There are five dorsocentral bristles, if we include a small one on the front of the thorax and the prescutellars; these are practically collinear, the lines diverging a little behind. There are also a large humeral bristle, a smaller post-humeral, a presutural, three supra-alar (the last large) and a large post-alar. The pleura is somewhat shining black with a silvery lustre, and the scutellum is rounded in profile, rather flattened on the disc which is slightly roughened and dark black-brown in general colour, with a more shining central line; the bristles are inserted about half-way between the centre and the base, they are long and stout and just cross at the tips. If the scutellum is viewed so as to see its under surface, this is found to be somewhat hollowed out, and the metanotum bears a small central papilla which is normally hidden by the scutellum. The metanotum itself is similar in texture to the pleura and its distal border is formed by a ridge which extends as a well-marked epiphragma over the hind edge of the hind coxa. The wings are shown in fig. 40: they are very slightly darkened and have brown veins; the costa is bristled as usual and the rest of the wing is beautifully ciliated round the margin. The thoracic squama consists of a small tubercle bearing a few black hairs. The halteres are yellow with the stalk very slightly darkened above.

The legs are remarkable for their length, and it may be of interest to give the lengths of the principal joints to compare with that of the insect, which is 2·3 mm., the wings being 2 mm. The front coxa is 0·7 mm. long and the other joints are as given in mm. in the table below.

	Femur	Tibia	First tarsal joint	Second tarsal joint	Third to fifth tarsal joints	Total
Front leg	1·05	1·12	0·88	0·50	0·77	4·32
Middle leg	1·05	1·65	0·66	0·53	0·66	4·55
Hind leg	1·05	1·65	0·18	0·74	0·80	4·42

The legs are entirely pale orange except for the mid coxa, which is very slightly darkened on the side. On the front leg the coxa bears pale hairs which are more bristly towards the tip; the rest of the leg has nothing but the clothing-bristle rows. All the femora are somewhat spindled. The middle leg has a tiny pre-apical bristle on the femur, and the tibia has the top and mid bristle of the posterior row and a small crown, the lower bristle of which forms a spur. All the tarsi bear the usual pair of bristles at the base of each joint. The hind coxa bears a small bristle outside, and the femur has a tiny pre-apical bristle, the tibia has an ill-defined row of three inferior bristles standing among the clothing-bristles, two small bristles of the posterior row, and a small terminal crown. On the first tarsal joint which (as seen in the table) is very short, the bristles form two elegant rings, and the terminal comb is well developed.

The abdomen is brown-black, slightly shiny, with the margins of the segments narrowly but sharply paler: the venter is quite pale: the abdomen is conical in plan with the first segment bordered by the epimeral ridge; it has moderate bristles, somewhat stouter

marginally. The hypopygium is large and of the form shown in fig. 19, with a curiously angled pedicel and with white, pale-haired, pointed paranal lobes.

The female differs from the male by its stouter build with stronger bristles on the shorter legs. The face does not meet below, and is blue-black in colour. The clypeus carries about six stout hairs, and the palpi are like those of the male.

Loc. Seychelles. Mahé: Port Victoria, xii. 1908, 1 ♂; marshes on coastal plain at Anse aux Pins, i. 1909, 13 ♂, 3 ♀; marshy ground near sea-level at Cascade, 20. ii. 1909, 1 ♀. Appears to be confined to places at sea-level, where the vegetation is entirely non-endemic.

Sympycnus, Loew.

In the *Tijdschrift voor Entomologie* for 1916, vol. LIX. p. 244, Dr de Meijere describes several species which he refers to this genus, but which for the most part have the eyes touching below the antennæ and very often have the first and second joints of the hind tarsi both short, with the second joint bearing an extraordinary appendage. There is a species in the collection which can well be referred to *Sympycnus*, but is not quite so aberrant; the face is fairly wide below the antennæ, and the first joint only of the hind tarsus is very short. The general appearance of the insect is not very reminiscent of the ordinary European forms, as it is more delicate and far less bristly, but the differences are not sufficient to warrant the erection of a new genus for a single species.

34. *Sympycnus violaceus*, n. sp. (Pl. **29**, fig. 20; Pl. **30**, fig. 41.)

Male. Head: the vertex and frons are quite smooth and polished, violet in colour with greenish reflections. In profile the top edge of the vertex is gently convex with the ocellar hump but little prominent; the hump itself is dark, matt, with chestnut ocelli. The ocellar bristles are inserted midway between the ocelli and are long and divergent, set upright on the frons, and but slightly curved: there is a pair of tiny bristles on the back of the hump. The vertical bristles are inserted just at the upper eye-margins close to the vertical ridge. The insects are very delicate, and the heads have mostly shrunk a good deal; but one can just see that there is a pair of post-verticals inserted a long way down the back of the head. The post-orbital rows, as well as all the above bristles, are black. The face is continuous with the frons and narrows a little from the antennæ to the epistoma, but the eyes are separated by a distance of at least one-third the width of one eye. The surface of the face is slightly depressed and is polished violet; the palpi are brown and hairy. The eyes are clothed with dense stubbly hairs which are considerably longer than is usual with eye pubescence. The antennæ are conspicuously large, and in form are very like those of *S. annulipes*, except that the third joint is more perfectly triangular in outline, though the extreme tip is slightly more rounded; all the joints are blackish brown; the second joint has small marginal bristles, and the third is entirely and densely pubescent. The basal joints of the arista are long, and the flagellum is very pubescent from base to tip, the hairs are unusually stout, being longest proximally, where they are longer than the cross diameter of the basal joints.

Thorax: the dorsum is entirely polished and violet in colour, the colour being very strong. There are five pairs of dorsocentral bristles, including the prescutellars, and these

are all collinear, the lines of insertion diverging a little behind. The single rowed acrostichal bristles extend from right over the front of the thorax to a little beyond the second dorso-central pair; they are quite conspicuous and increase in length from front to back. The humeri are somewhat orange and carry a large bristle, and the rest of the thoracic bristles are normal. The pleura is all somewhat dull orange; the squamæ are in the form of small tubercles with a fringe of some five black hairs. The scutellum is fairly rounded in profile, quite flat dorsally and is of a true brassy colour and somewhat shining; the end bristles are inserted about midway between the base and the tip, very long, and nearly meeting at the tips. The metanotum is large with its axial length much more than usual; it is smooth and grey-orange in colour. The wings are as shown in fig. 41, and have extremely elegant bordering ciliation to the wing margin; the veins are pale brown. The halteres are dull orange and of a remarkable form, the heads being large and regularly ellipsoidal with a very short stalk.

The legs are entirely yellow and very long. The coxa is as deep as the pleura, the femur somewhat spindled and about as long as the abdomen. The front tibia is about as long as the femur, and the tarsi about $1\frac{1}{2}$ times as long with the first joint nearly as long as the next two together, these being about equal. The mid-tibia is longer than the femur and the tarsus is about as long as the tibia, with the joints much in the same proportion as those of the front feet. The hind tibia is also about $1\frac{1}{2}$ times as long as the femur, but the tarsus is only about two-thirds the tibial length. The first joint (fig. 20) is very short; on its inner side it bears two combs, the distal one of which forms a complete hood, from which issue some long curved hairs, and the base of the joint carries two very long fine hairs hanging down below; the second joint is quite normal and is about $2\frac{1}{4}$ times the length of the first; the third, fourth and fifth are progressively smaller. As regards bristles, each femur has a very thin pre-apical bristle, each of the mid and hind coxæ carries a single fine bristle; the middle tibia has an anterior bristle pair near the base; the hind tibia has a row of two very fine inferior bristles, and a superior row of three slightly stouter bristles. The clothing-bristle rows are very neatly ranged, and are all golden when viewed obliquely.

The abdomen has the first segment with its base about twice the breadth of the narrowed end of the metanotum, and the outline tapers thence to the tip; the second segment is about twice as long as the others. The colour is greyish orange, the bristles are small, even the bordering ones are conspicuously long only on the first segment. The genitalia are of the form usual in the genus, being very small and inconspicuous.

Female. This sex is notably larger and stouter; the legs are relatively shorter and more powerful, and the middle tibia carries two outer bristles in a row as well as the basal pair. The hind tarsus has a similar first joint, but lacks the curved hairs and the long basal pair. The palpi are larger and more orange. The third joint of the antenna is much smaller than in the male, being only about as long as the two first joints together.

Size. Male about $1\frac{1}{3}$ mm. Female about $1\frac{3}{4}$ mm.

Loc. Seychelles. Mahé: near Morne Blanc, x. 1908, 1 ♀; Cascade Estate, between 800 and 1500 feet, i.—iii. 1909, 6 ♂, 5 ♀; Mare aux Cochons district, 1500—2000 feet, i.—ii. 1909, 1 ♂, 3 ♀. All the specimens are from places at moderate or high elevations, either in or near the endemic forests.

35. *Campsicnemus*, sp.?

There are a single male and four females of an undescribed species of this genus, but unfortunately the male has lost the middle and hind legs and is otherwise imperfect, so that it is impossible to describe the species.

Loc. Seychelles. Silhouette: forest above Mare aux Cochons, over 1000 feet, ix. 1908, 1 ♀. Mahé: Cascade Estate, about 1000 feet, 1909, 1 ♂; marshy ground near sea-level at Cascade, 20. ii. 1909, 1 ♀; marshes on coastal plain at Anse aux Pins, i. 1909, 1 ♀; Mare aux Cochons district, 1500—2000 feet, i. 1909, 1 ♀. This curious distribution, in the coast-marshes and in the mountain-forests, indicates the possibility of two species being included under the females.

Medeterinæ.

36. *Medeterus grisescens*, de Meijere, Tijd. v. Ent. LIX. 1916, p. 259. (Pl. **30**, fig. 42.)

There are two males and four females which are referred by Dr de Meijere to this species. They agree very well indeed with the published description, but the thoracic dorsum of the female has not the conspicuous brown band there referred to, or at least it is far less conspicuous than the description would lead one to expect. In any case this is probably nothing but a local variation. Seychelles, Mahé: Cascade Estate, about 1000 feet. Described from Java (Batavia, etc.). This species occurs in a collection recently received by the author from Ceylon.

37. *Medeterus*, sp.?

There is a single specimen of the female of another species which must be fairly close to *M. longitarsis*, de Meijere, *l.c.*, p. 262. It differs somewhat in the degree of convergence of the second and third veins. Seychelles, Mahé: Cascade Estate, about 1000 feet, iii. 1909.

Hydrophorinæ.

38. *Hydrophorus præcox*, Lehm.

Two males and a female, collected in Aldabra, appear to belong to this species: they are slightly less robust than European specimens, but are quite inseparable therefrom. Aldabra: running on the surface of the water of a well at Takamaka (almost the only fresh water in the atoll), xi. 1908 (Fryer). Also found in Rodriguez (Snell and Thomasset, 1918), Europe, West and South Africa.

39. *Thinophilus*, sp.

There is a single female specimen which appears to belong to this genus. Aldabra: running on the surface of the fresh water in a well at Takamaka, xi. 1908 (Fryer). See note under *Hydrophorus præcox*.

Pipunculidæ.

PIPUNCULUS, Latreille (*Dorylas*, Meigen, 1800, emend. Kertesz).

The collection includes five species of this genus, and it is somewhat remarkable that they fall into the five sections represented among our British species, including one of the *zonatus* group, one of the *vittipes*, one of the *campestris*, one of the *confusus*, and one of the *sylvaticus* group. In two cases the resemblance to British species is, apart from size, extraordinarily close, and can be seen almost at a glance. It is unfortunate that most of the published descriptions of exotic species do not contain any information as to their relationships to the main European sections; such information would be of the greatest assistance in identifying these insects, which in many cases are so extraordinarily close one to another.

40. *Pipunculus*, sp. (Pl. **30**, fig. 43.)

The first species, that belonging to the *zonatus* group, is represented by two females only, and it is thought best not to give it a name. In Kertesz's table given in the *Ann. Mus. Nat. Hungarici*, 1912, p. 285, it comes in the neighbourhood of Perkins' species *cruciator*, and indeed the description and figure of that species as given in the Reports of the Hawaiian Sugar Planters' Experimental Station, Bulletin I. part 4, agree in broad outline with the specimens, though it is clear that they refer to a different species. Hence a description will be given in the hope that it may be possible to fit in a male from other or later work. The description will be made with reference to an ordinary female of *zonatus*, which, like the present species, has the hind femora brilliantly shining behind.

Head: frons and face identically the same, the first two antennal joints brown-black, the third joint somewhat more acuminate, the actual joint being orange with the acumination about the same length as the joint itself, but silvery. The facets of the eyes and the hind eye-margins are the same in size. The thoracic dorsum is dull black with an olive green tone; the extremely fine hair lines are slightly pollinated with a rusty coloured pollen. The prothorax carries the same silvery spots, but the humeral knobs are clear yellow; the scutellum is just a little less swollen, but carries the same faint ciliation. The whole of the pleura and metanotum are similarly, but more brightly, dusted with silver. The venation is as shown in fig. 43. The halteres are orange, with the extreme base of the stalk black.

Structurally the legs are practically the same, including the femoral serration which occurs also on the front legs, but the claws are longer than the pads. The colour is quite different as the tibiæ are all orange though a little dusky and silvery in front; the tarsi are clear orange but for the dusky last joint; all the femora are blackened except at the extreme knees, and have slight silvery dust especially behind; the last pair are brilliantly shining behind.

The abdomen has the same sort of pattern with a russet dorsum and silver side spots; the latter are very like the figure of *cruciator* (*l.c.*, Pl. V, fig. 1) except that the spots encroach a little less on the rest of the dorsum. The terminal part differs from that of *zonatus*; the bulb is devoid of the longitudinal sulcus; the aculeus is much flattened at the base and is long and bright orange. The lengths of abdomen, bulb and aculeus

are about 2·2, 0·33 and 0·77 mm. respectively. The venter has a similar broad black band extending along the membranous part.

Length, without ovipositor, about $4\frac{3}{4}$ mm.

Loc. Seychelles. Silhouette: plateau of Mare aux Cochons, over 1000 feet, ix. 1908. Mahé: Cascade Estate, 800—1000 feet.

41. *Pipunculus semiopacus*, n. sp. (Pl. **30**, fig. 44.)

This species is represented by a single pair. Unfortunately the male is just a little rubbed, but there is no doubt that it belongs to the short winged section of the *vittipes* group, having a similar facies and abdomen, including the small orange protuberances on the venter, the non-carinate but non-rounded third antennal joint, and other characters in common. It appears to be related to Kertesz's species *P. fumipennis* and *P. sauteri*.

Male. Head: the long dull black narrow vertical triangle extends from the ocelli nearly half way down to the frontal triangle; the latter is brilliantly shining silver; the eyes are reddish. The antennæ have all the joints yellow, the second bristled below, the third silvery at the tip which is very slightly carinate, the spike being about one-fifth the length measured along the outline of the third joint from the extreme tip to the insertion of the arista. The small first joint of the arista appears to be orange; the second is elongate and swollen at the base, and together with the flagellum is black. The face is all bright silvery; the hind head is black with silver dust on the lower part of the hind margins of the eyes.

The thoracic dorsum is dullish black, but may be slightly rubbed or discoloured. The humeral scales are strongly developed and are orange with a bright silver triangular spot inside each. The dorsum is practically bare except for the usual extremely fine hair rows, but is somewhat more hairy on and behind the humeri. The scutellum is similar to the thorax but is exceptionally hairy, the hairs being black, especially long on the hind margin. The metanotum is pollinated with grey, with two shallow flat tubercles on each side which are more highly pollinated than the rest and are very conspicuous, appearing like side spots. The pleurae are entirely covered with grey pollen. The venation is as figured (fig. 44), and the sharp line of demarcation at the boundary of the stigma should be noted. It is not a true vein as is described in Perkins' species *P. heterostigmus* but is a marked feature of the insect. The halteres are entirely orange.

Legs: all the femora have double rows of serration; those on the front and middle pairs extend all along the femur but are quite small; those on the hind pair extend along the distal half and are quite stout; the hind pair are shining behind. The hind tibia is a little curved, with a stout row of clothing hairs of an orange colour, which are especially long on the front side, and one of which stands out almost like a small bristle. In colour the legs are mainly orange, but the two front pairs have the femur slightly dusky and silvery behind; the last pair has a darkened ring occupying about two-thirds the length, which just leaves the knees orange. All the tibiæ and tarsi are orange, and the dorsum of the last tarsal joints carries exceptionally strong bristly hairs; the claws have the usual black tips.

The abdomen has the first segment with its basal portion consisting of a slightly

depressed dull brown arc which leaves the rest of the segment slightly dusted; it carries about five stout bristles on each side. The second segment is lightly dusted on its upper half, but its lower half and all the other segments are of a fairly shining black with a suspicion of rusty pollination; they are more hairy than usual. The second to fifth segments bear the usual silver side spots, which are biggest on the fifth segment, which itself is about one-fourth longer than the previous one. The hypopygium is about half the axial length of the fifth segment, and has a large shallow depression on the tip. The venter bears two small somewhat silvery orange lobes at the level of the third segment.

Female: vertex and frons entirely silver-grey except for the actual tubercle itself which is shining: the margins are bordered with a line of excessively minute but distinct black dots. As in members of this section, the eyes are nearer together at the ocelli, and again at the level of the antennæ, than midway, so that the frontal eye-margins are gently curved; the face is black with profuse silver pollen all over. The antenna has its basal joints large and black, not pale as in the male; the third joint is thickly covered with grey pollen and is sharply pointed though not strictly acuminate. The arista has both the basal joints about equally swollen and long-oval in form; both those joints and the flagellum are black. The hind head has the eye-margins swollen, especially so above, and these are entirely covered with grey pollen, though the absolute hind head is black.

The thoracic dorsum is entirely dull black, but with an illumination directed from the scutellar direction it is possible to see three faint lines that are a little darker than the rest. The humeral tubercles are well developed and are pollinated in grey exactly as are the hind eye borders; in front of each is a pollen patch; the post-alar calli are stout. The pleura is covered with dark grey pollen which is especially strong just above the noto-pleural suture. The wings have the same dark margin to the stigma as the male, and the halteres are also orange.

The legs have the coxæ and femora all black except for an orange tip to the latter; the femora are all shining beneath, the hind pair being also shining behind, the others being there slightly silvery. The tibiæ are orange, a little darker behind, the last pair having a distinct dark ring on the distal half which just leaves the tip orange. The tarsi are all orange except for the slightly darkened last joints; the pads are about as long as the claws. On the distal half of the under side of the mid and front femur there is a fine serration, and the hind femur carries a double row of similar but longer serrations in the same place. The notopleura is all grey with distinct silvery side spots. The abdomen has its dorsum somewhat olive black, and is very slightly shining. The first segment bears the same arched brown basal part as does the male, which leaves the rest of the segment silvery in the form of two triangular side spots connected by a narrow thread. The second segment is nearly all silvery, and the three following bear the normal well-marked silvery triangular side spots. The last segment is large, being about twice the depth of the previous ones which are equal, and is fairly silvery except just in the middle. In side view the third to fifth segments appear banded, the basal third being olive brown, the rest grey-silver. The bulb of the ovipositor is a long-oval and very shining black, the aculeus is orange, about as long as the bulb and in profile is excessively curved like a sabre. The lengths of abdomen, bulb and aculeus are about 1·4, 0·4, 0·44 mm. respectively.

Length, without hypopygium, about 4½ mm.

Loc. Seychelles. Silhouette: plateau of Mare aux Cochons, over 1000 feet, ix. 1908. Mahé: marshy ground near sea-level at Cascade, 20. ii. 1909.

42. *Pipunculus depauperatus*, n. sp. (Pl. **30**, fig. 45.)

This species is extraordinarily like a small depauperated form of the well-marked group which includes *campestris*, Latreille (sens. Verrall nec Becker). It possesses the same short rounded third antennal joint, the same type of head and eye, and the same alternate banding of the abdomen in dull and shining bands on the segments. It differs in size, being about 2¼ mm. long with a wing length of about 2¾ mm. against corresponding values of about 4 mm. for *P. campestris*. The simplest method of description is to compare it with that species, bearing in mind this difference in size.

Male: the head in profile is slightly longer axially than in depth, with the same puffed out silvery hind margins to the eyes; these are of the same reddish colour, and the facets are also very slightly larger in front than behind, in fact only just perceptibly so. The antenna is the same in structure with a similar large swollen basal joint to the arista, though the second joint is quite thin; the third joint is just as regularly rounded at the tip. The frons differs somewhat in that the triangle above the antennæ is all shining with silvery margins, and not dull with a grey triangle over the base of the antennæ. The face is very similar, but is practically all shining black. The hind borders of the eyes are dusted with silver.

The thoracic dorsum is the same with the same kind of rusty pollen, the hairs are excessively fine and very sparse, and the scutellum is the same in form with similar sparse hairs to those on the dorsum; the pleura is also similar.

The legs differ slightly in colour; they are orange with very slightly darker tone on the femora and the main part of the tibiæ, but not truly darkened in those places. The hind femur is not thickened nor is the tibia so much bent as in *P. campestris*, and the very stout rows of spines which occur beneath the legs in that species are replaced by small toothed serrations. The most striking point is the almost complete absence of the plentiful pale hairs on the legs. The tarsi are all yellow, but have the same long hairs on the last joints. The venation is as shown in fig. 45, the stigma often being faint as is not uncommonly the case with *P. campestris*.

The abdomen is all black with the margins of each segment shining, the rest almost velvety, and almost the whole of the last segment shining, and is very like that of *campestris*, except for the margins being slightly broader than is usual in that species, and that there is practically no sign of grey side spots. The hypopygium is similar in outline, with a similar, though smaller, orange pit in the middle.

Female: this sex is even more like that of *campestris*. The head differs in that the vertex is more shining black with dusted side margins and is not dull; the third antennal joint differs considerably in as much as it is not pointed, but perfectly rounded at the tip as in the male. The outline of the abdomen in vertical view is less curved, and there are no grey side spots. The ovipositor has a more spherically shaped bulb and the orange aculeus is shorter, less stout, and almost straight. The lengths of abdomen, bulb and aculeus are about 0·9, 0·25, and 0·33 mm. respectively.

Length 2½ mm.

Loc. Seychelles. Silhouette: high forest above Mare aux Cochons, 1000—2000 feet, ix. 1908. Mahé: from near Morne Blanc, about 1000 feet, x.—xi. 1908; Mare aux Cochons district, about 1500 feet, i.—ii. 1909; Cascade Estate, 800—1500 feet, i.—iii. 1909.

43. *Pipunculus confusoides*, n. sp. (Pl. **30**, fig. 46.)

This is an exactly parallel case to the last, as the insect is even still more like a depauperated form of the British species *P. confusus*. Again its most striking difference is that it is still smaller in proportion, being just under 2½ mm. long with wings of about the same length, instead of having those dimensions about 4½ mm. This species will also be described by comparison with its related species, *P. confusus*.

Male: the head is the same with the non-touching eyes, the silvery face and lower part of frons, the very sudden constriction forming the rostrate end of the third antennal joint, and the similar slight disparity between the hind and front eye-facets. The thorax and scutellum are almost identical, even to the tiny hairs on the latter, but the dusting is less. The legs have similarly darkened femur and ringed tibia, but only the last tarsal joints are darkened. The venation is as shown in fig. 46.

The abdomen is not so cylindrical in section, but is slightly flattened and is different in appearance owing to its being somewhat suffused with rusty pollen; the hypopygium is a little less asymmetrical. The orange ventral laminæ so characteristic of this section of the genus are smaller than in *confusus*, and are not inserted quite so far up the venter; this is largely due to the less robust build of the insect, the final abdominal segments being considerably less well developed in proportion than in *confusus*.

Female: this sex agrees very closely indeed with *confusus*, having the same exceptionally rostrate antennæ and a similar long basal joint to the arista; the anterior eye-facets are enlarged in exactly the same way. The legs also are the same both in form and in colour. The abdomen is not shining, but is dusted with a somewhat grey-bronze pollen and no hairs can be seen; it differs considerably in the form of the ovipositor. In *confusus* the bulb is long, and the very straight orange aculeus reaches nearly to the base of the second abdominal segment. In the present species the bulb is much shorter and is rounded, the orange aculeus is not absolutely straight and is quite short, reaching about half-way along the third segment. The lengths of abdomen, bulb and aculeus are about 1·0, 0·25 and 0·5 mm. respectively.

Size about 2½ mm.

Loc. Seychelles. Mahé: near Morne Blanc, about 1000 feet; Cascade Estate, about 1000 feet; marshes on coastal plain at Anse aux Pins, i. 1909. Anonyme Island (a small coconut-planted islet near Mahé), i. 1909. One example from each locality.

44. *Pipunculus sylvaticoides*, n. sp. (Pl. **30**, fig. 47.)

There is a single male and three females of a species belonging to the group that includes *sylvaticus*, Meigen, *nigritulus*, Zett., and *pilitarsis*, Verrall, and there can be no doubt that *P. æneiventris*, Kertesz (*Ann. Mus. Nat. Hung.* I. 469) is another member of the section. Unfortunately the head of the male has become detached and in fixing it to the block the antennæ have been distorted, and the head colour destroyed, but the specimen agrees extremely closely with Kertesz's description. He did not know the female of *aeneiventris* so it is thought best to append some remarks on the present specimens.

They bear a very close resemblance to the well-known species *P. sylvaticus*, the main difference being that they are smaller, being somewhat more than two-thirds the size of that species. As regards the male the whole appearance is extraordinarily like that of *sylvaticus*, but the venation is different as shown in fig. 47, from which it will be seen that the second vein ends much further back along the costa. The hypopygium is also different; instead of being somewhat quadrate in outline as seen from above it is distinctly rounded, smaller, and with a smaller depression on the end. In respect to limb colour, clothing-bristles, etc., the resemblance is almost absolute, so that no further description is required. The difference between this species and the description of *æneiventris* is principally in the fact that the femora are not black quite to the tip, and the tiny bristles at the tip of the hind femora are not to be seen.

The female also resembles that of *sylvaticus* very closely but the following points, as well as the venation, differentiate it. The antennæ are somewhat less rostrate. The orange aculeus extends only about as far as the end of the third abdominal segment instead of nearly to the base. The legs are identical in colour, etc., in all respects except for the tarsi; these are longer and more slender, being about as long as the tibia instead of considerably shorter; the separate joints are produced above backwards in the same way as in *sylvaticus*. The characteristic pair of bristles at the base of the front femora is absent. The abdomen is faintly shining purplish black. The lengths of the abdomen, bulb and aculeus are about 1·13, 0·28 and 0·28 mm. respectively.

Length about 2 mm.

Loc. Seychelles. Silhouette: marshy plateau of Mare aux Cochons, about 1000 feet, ix. 1908, one example. Mahé: near Morne Blanc, about 1000 feet, x.—xi. 1908, two specimens.

Syrphidæ.

Specimens of each species of the Syrphidæ were examined by Dr Mario Bezzi. With the exception of a new species, *Eristalodes seychellarum*, they are all widespread. Dr Bezzi reported on them in his *Syrphidæ of the Ethiopian Region*, British Museum, 1915.

45. *Melanostoma annulipes*, Macquart, var. *mauritianum*, Bigot: Bezzi, *op. cit.* p. 21.

Loc. Seychelles. Silhouette: high damp forest near Pot-à-eau, about 1500 feet, viii. 1908, two examples. Mahé: high forest of Morne Blanc, 1500—2000 feet, x.—xi. 1908, two specimens; Cascade Estate, 800—1500 feet, i.—iii. 1909, six specimens.

M. annulipes is widespread in Africa.

46. *Xanthogramma ægyptium*, Wiedemann: Bezzi, *op. cit.* p. 37.

Loc. Seychelles. Silhouette: high damp forest, about 1500 feet, viii. 1908. Mahé: Forêt Noire district and Cascade Estate, both about 1000 feet, x. 1908—iii. 1909, seven specimens. Long Island (a cultivated islet near Mahé), vii. 1908. Coetivy: ix. 1905, four examples. Chagos: Peros Banhos Atoll, 25. vi. 1905, two examples. Common throughout the Ethiopian Region.

ERISTALODES, Mik, 1897 ; Bezzi, *op. cit.* p. 87.

47. *Eristalodes seychellarum*, Bezzi, *op. cit.* p. 91, fig. p. 92.

Loc. Seychelles. Silhouette : high damp forest near Pot-à-eau, about 1500 feet, viii. 1908, one example. Mahé : Cascade Estate, about 1000 feet, 1908—9, 1 ♀ ; 1914, 1 ♀ (Thomasset) ; also the type (♀).

Three larvæ of an Eristaline were found in the water and humus between the leaf-bases of a growing endemic *Pandanus*, in the forest above Mare aux Cochons (Silhouette), considerably over 1000 feet, 22. ix. 1908. As no other Eristaline fly was taken in the islands, and as the adults of *E. seychellarum* were, like the larvæ, all found in the endemic forests at high elevations, there is very little doubt that these larvæ are larvæ of *Eristalodes seychellarum.*

VOLUCELLA, Geoffroy.

48. *Volucella obesa*, Fabricius.

Many specimens of this cosmopolitan species from Seychelles and Chagos. Seychelles : Silhouette, from the coast at La Passe, from the plateau of Mare aux Cochons, over 1000 feet, and from the forest near Pot-à-eau, about 1500 feet, viii.—ix. 1908 ; Mahé, Cascade Estate, Forêt Noire district, etc. ; Praslin, 1905. Chagos : Diego Garcia Atoll, 2. vii. 1905.

EXPLANATION OF PLATES.

The lines of measurement beneath certain of the figures always represent 1 *mm., unless otherwise stated.*

PLATE 27.

Fig. 1. *Psilopus leucopogon*, Wied.; *a*, head, front view; *b*, head, side view; *c*, hypopygium.

Fig. 2. *Psilopus lasiophthalmus*, n. sp.; *a*, head, front view; *b*, head, side view; *c*, hypopygium.

Fig. 3. *Psilopus bilobatus*, n. sp.; *a*, head, front view; *b*, head, side view; *c*, hypopygium; *d*, tarsus, terminal segments. Line represents 0·2 mm.

Fig. 4. *Psilopus librativertex*, n. sp.; hypopygium.

Fig. 5. *Psilopus pollicifer*, n. sp.; *a*, head, front view; *b*, head, side view; *c*, tarsus of front leg; *d*, last tarsal joint of front leg (line represents 0·1 mm.); *e*, hypopygium.

Fig 6. *Psilopus magnicaudatus*, n. sp.; hypopygium.

PLATE 28.

Fig. 7. *Psilopus grandicaudatus*, n. sp.; hypopygium.

Fig. 8. *Psilopus amplicaudatus*, n. sp.; hypopygium.

Fig. 9. *Craterophorus permirus*, n. sp.; *a*, head, front view; *b*, terminal segments of tarsus, front leg (line represents 0·5 mm.); *c*, hypopygium.

Fig. 10. *Paracleius solivagus*, n. sp.; *a*, head, front view; *b*, head, side view; *c*, hypopygium.

Fig. 11. *Tachytrechus seychellensis*, n. sp.; *a*, head, front view; *b*, antenna (line represents 0·5 mm.); *c*, hypopygium.

Fig. 12. *Argyrochlamys impudicus*, n. sp.; *a*, head, front view; *b*, head, side view; *c*, hypopygium; *d*, extruded genitalia, female.

Fig. 13. *Urodolichus porphyropoides*, n, sp.; *a*, head, front view, male; *b*, head, front view, female; *c*, head, side view, male; *d*, hypopygium; *e*, diagrammatical representation of end of male abdomen.

Fig. 14. *Urodolichus caudatus*, n. sp., hypopygium; *a*, ventral view; *b*, side view.

Fig. 15. *Urodolichus gracilis*, n. sp., hypopygium; *a*, ventral view; *b*, side view.

PLATE 29.

Fig. 16. *Craterophorus mirus*, n. sp.; *a*, head, front view; *b*, dorsal view of thorax and first three abdominal segments; *c*, hypopygium. Line in *b* and *c* represents 0·5 mm.

Fig. 17. *Craterophorus mirabilis*, n. sp.; antenna. Line represents 0·2 mm.

Fig. 18. *Cryptophleps ochrihalteratus*, n. sp.; *a*, head, front view; *b*, head, side view. Line in both represents 0·5 mm.

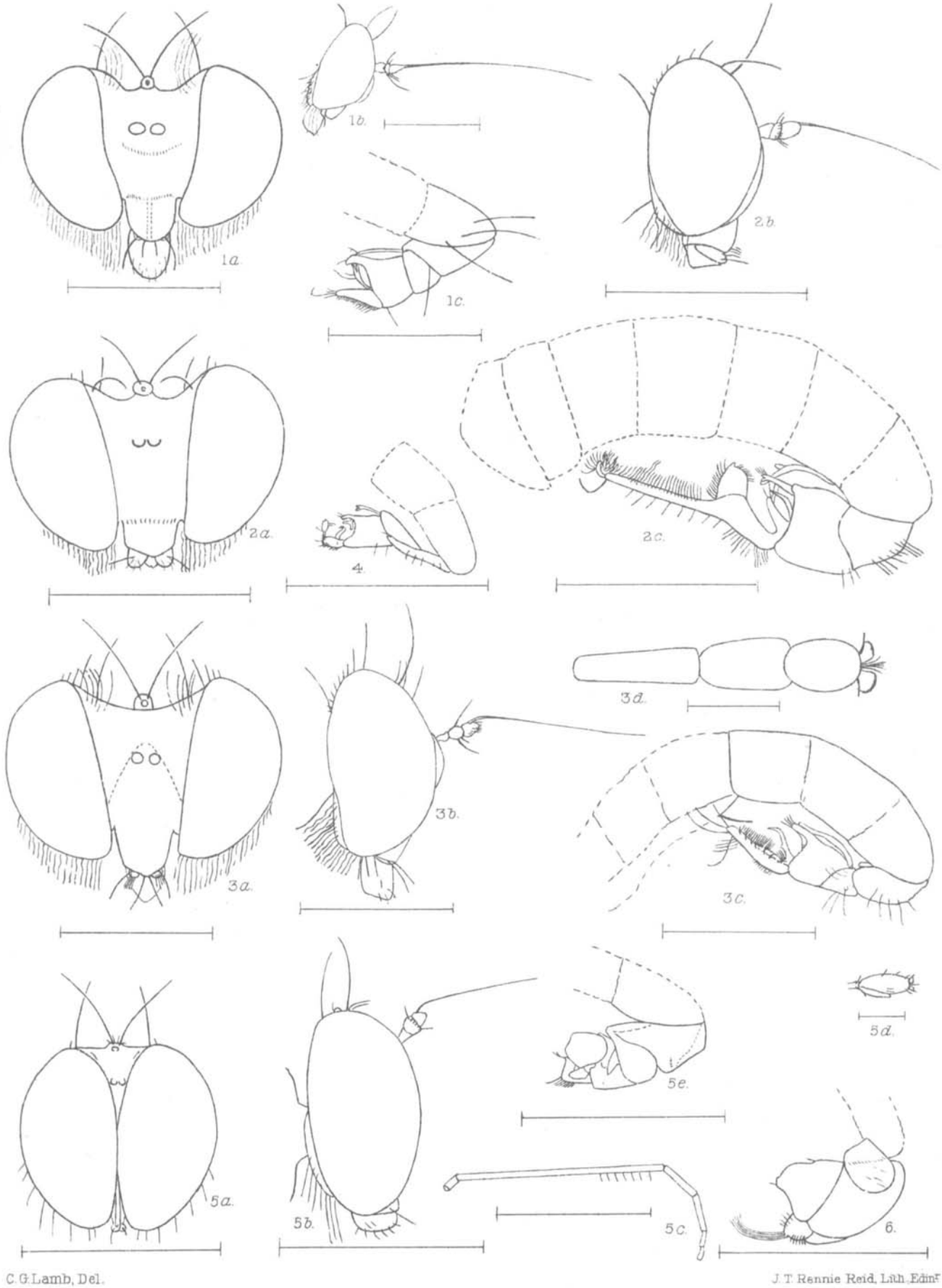
Fig. 19. *Acropsilus errabundus*, n. sp.; hypopygium.

Fig. 20. *Sympycnus violaceus*, n. sp.; apex of hind tibia and basal segment of tarsus. Line represents 0·2 mm.

Figs. 21—27. Wings of: 21, *Asilid*, genus and species?, × 6. 22, *Scenopinus balteatus*, n. sp., × 30 23, *Psilopus leucopogon*, Wied., × 7. 24, *Psilopus lasiophthalmus*, n. sp., × 15. 25, *Psilopus bilobatus* n. sp., × 13. 26, *Psilopus librativertex*, n. sp., × 25. 27, *Psilopus pollicifer*, n. sp. × 15.

Plate 30.

Figs. 28—47. Wings of: 28, *Psilopus grandicaudatus*, n. sp., × 20. 29, *Craterophorus mirus*, n. sp.; *a*, female; *b*, male; × 30. 30, *Craterophorus permirus*, n. sp.; male, × 20. 31, *Neurogona angulata*, de Meijere, × 15. 32, *Paracleius solivagus*, n. sp., × 17. 33, *Tachytrechus seychellensis*, n. sp., × 15. 34, *Argyrochlamys impudicus*, n. sp., × 20. 35, *Urodolichus porphyropoides*, n. sp., × 15. 36, *Urodolichus caudatus*, n. sp., × 18. 37, *Chrysotus seychellensis*, n. sp., × 30. 38, *Cryptophleps ochrihalteratus*, n. sp., × 35. 39, *Cryptophleps nigrihalteratus*, n. sp., × 25. 40, *Acropsilus errabundus*, n. sp., × 30. 41, *Sympycnus violaceus*, n. sp., × 40. 42, *Medeterus grisescens*, de Meijere, × 22. 43, *Pipunculus*, sp.?, × 10. 44, *Pipunculus semiopacus*, n. sp., × 14. 45, *Pipunculus depauperatus*, n. sp., × 18. 46, *Pipunculus confusoides*, n. sp., × 20. 47, *Pipunculus sylvaticoides*, n. sp., × 25.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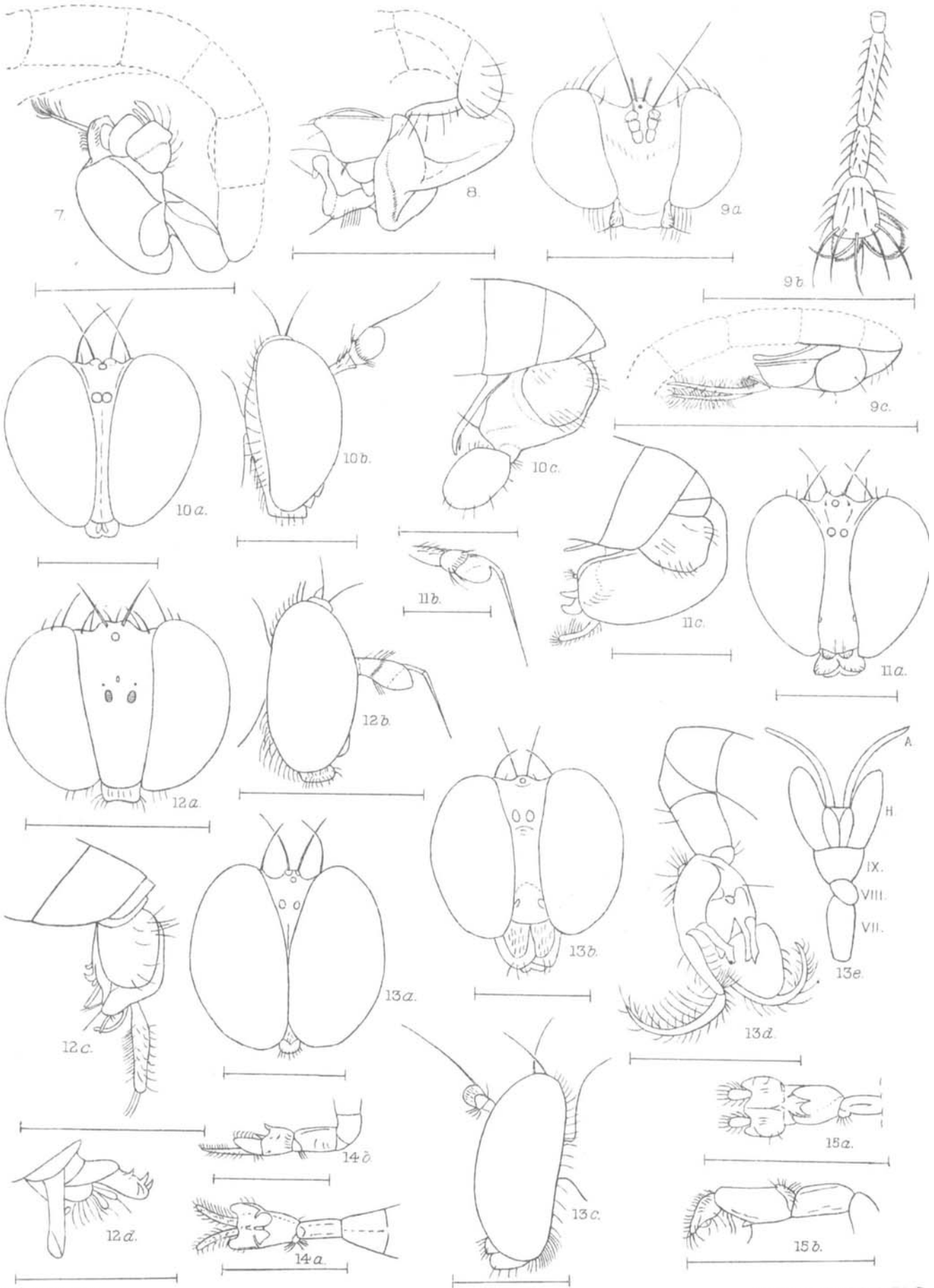
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VII.
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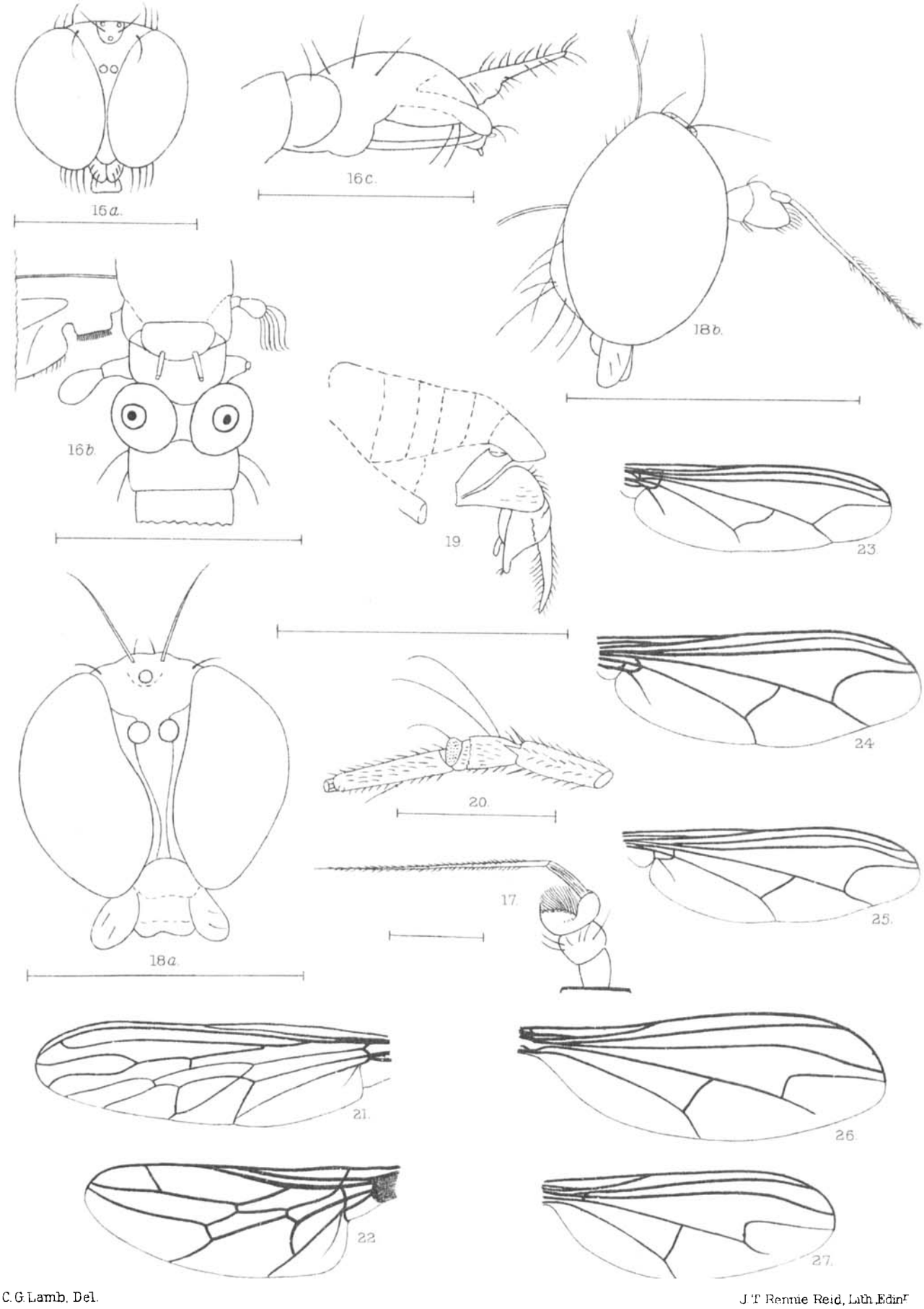
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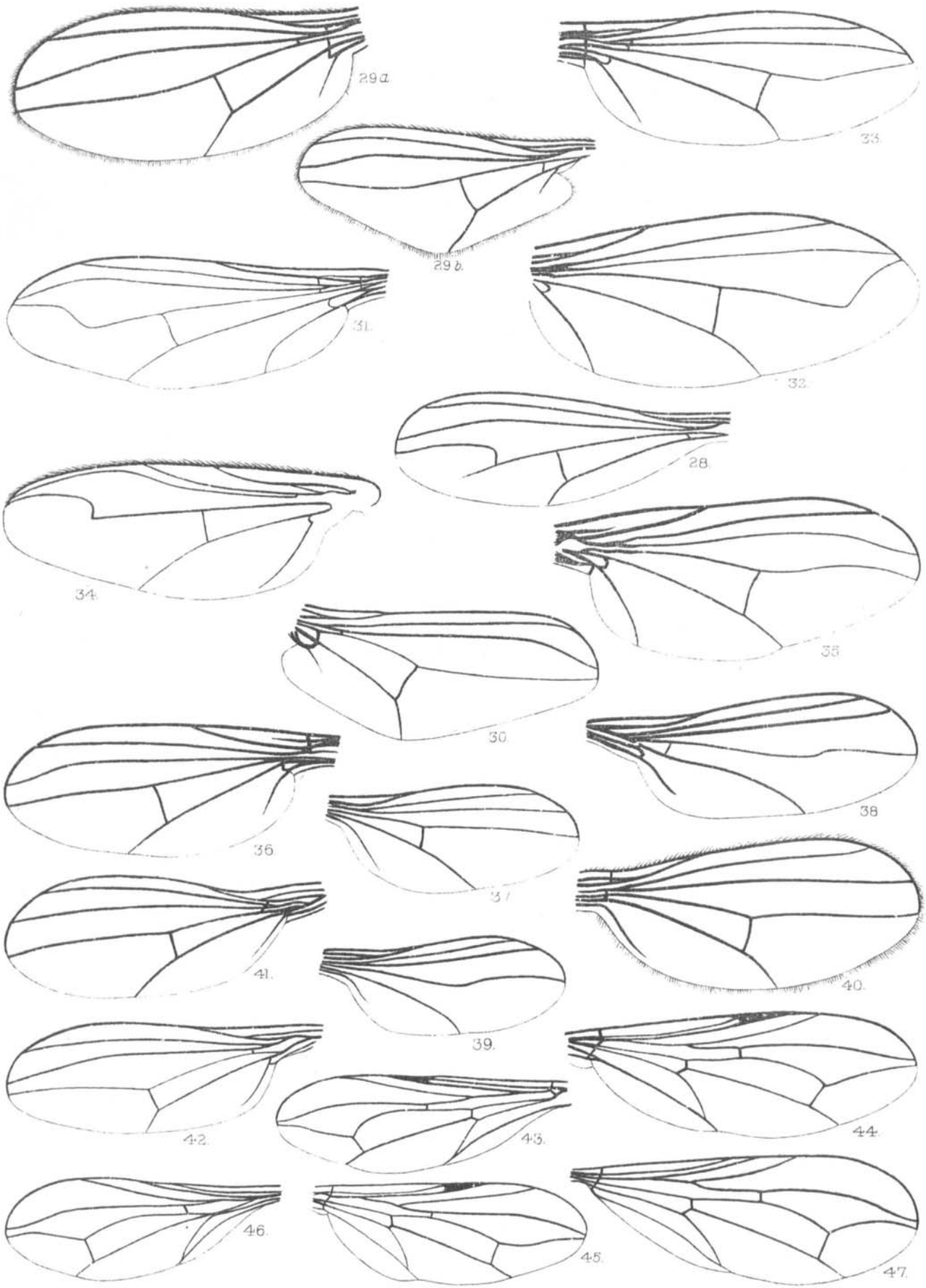
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