A SYNOPSIS OF THE ADULT MOSQUITOS OF THE AUSTRALASIAN REGION.

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In two previous papers (Bull. Ent. Res. xii, p. 263, 1921 and Ind. Jl. Med. Res. x, pp. 249 and 430, 1922) the writer has published revisions of the mosquitos of the Palaearctic and Oriental regions, using for the classification of the genera certain small characters, chiefly in the thoracic chaetotaxy, which are applicable alike to both sexes. In the present revision of the Australasian species the same characters are applied.

Our knowledge of the mosquitos of this region is still rather incomplete, especially as regards the early stages, very few of the larvae having been described, although a good many of the species have been reared. The number of species at present known is also smaller than might be expected in view of the much larger Oriental fauna, so that it is probable that a good many species await discovery.

As regards Australia and New Guinea the greater part of our present knowledge is due to Dr. T. L. Bancroft and Messrs. G. F. Hill and F. H. Taylor, on whose collections this review is mainly based. To Mr. Hill especially the writer is indebted for ready assistance and the loan of the majority of Taylor's types from the Australian Institute of Tropical Medicine. Further valuable material has been received at different times from Lt.-Col. R. Alcock, F.R.S., Drs. J. H. Ashworth, F.R.S., S. L. Brug, A. G. Carment, J. B. Cleland, F. W. O'Connor, and E. W. Ferguson, and from Messrs. A. E. Brookes, J. W. Campbell, C. L. Edwards, T. R. Harris, D. Miller and R. Veitch.

In this revision all species endemic to the region are discussed, and also all other species which have been found on the mainland of Australia or Papua. In addition to these, a number of other Oriental species have been recorded from the Moluccas, Celebes and the Timor group, but not from further east. Of these I simply give the list, which will doubtless be increased by future collecting :—

Anopheles (*Anopheles*) ***hyrcanus***, Pall. Celebes, Sunda Is.
Anopheles (*Anopheles*) ***barbirostris***, v.d.W. Celebes, Buru, Ceram, Sumba, Timor.
Anopheles (*Anopheles*) *barbirostris*, var. *pallidus*, Swell. Ceram, Amboina.
Anopheles (*Anopheles*) *aitkeni*, Theo., var. *insulae-florum*, Swell. Amboina.
Anopheles (*Myzomyia*) *vagus*, Dön. Celebes, Amboina, Sumba.
Anopheles (*Myzomyia*) *subpictus*, Grassi. Celebes, Moluccas, Sumba.
Anopheles (*Myzomyia*) *ludlowi*, Theo. N. Celebes, Sunda Is.
Anopheles (*Myzomyia*) *minimus* var. *aconitus*, Dön. Sumba.
Anopheles (*Myzomyia*) *fuliginosus*, Giles. Sumba, Timor, Sunda Is.
Anopheles (*Myzomyia*) *maculatus*, Theo. Alor.
Anopheles (*Myzomyia*) *leucosphyrus*, Dön. N. Celebes.
Anopheles (*Myzomyia*) *punctulatus* var. *tesselatus*, Theo. Celebes and Moluccas.
Megarhinus amboinensis, Dol. (*lewaldi*, Ludl.). Amboina.
Aëdes (*Stegomyia*) *annandalei*, Theo. Buru.
Aëdes (*Aëdes*) *umbrosus*, Brug. Celebes.
Aëdes (*Aëdes*) *butleri*, Theo. Celebes, Ceram, Saparoea.
Lutzia fuscana, Wied.. Celebes.
Culex fuscocephalus, Theo. Celebes, Timor.
Culex malayi, Leic. Timor.
Culex castrensis, Edw. Timor.
Culex sinensis, Theo. Celebes.

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According to the researches of Swellengrebel and Rodenwaldt it would seem that the mosquito fauna of Celebes, the volcanic Sunda Is., and to a large extent of the Moluccas, has much more affinity with that of the Oriental region than with that of Australia and New Guinea ; Wallace's line, therefore, does not hold for this group of insects.

As regards the general features of the fauna it may be remarked that the genera *Topomyia, Harpagomyia, Mimomyia, Orthopodomyia, Haemagogus, Heizmannia* and *Pardomyia,* and the subgenera *Leicesteria* and *Acalleomyia,* all of which are represented in the Oriental region, are apparently absent ; while some other genera and subgenera, particularly *Anopheles* and *Stegomyia,* are comparatively poor in species. The Pacific islands on the whole support an extremely poor mosquito fauna—in regard to species, though individuals are only too numerous. Even in New Zealand there are no representatives of any of the endemic American genera, such as *Sabethes, Goeldia, Psorophora, Deinocerites* and *Carollia.* The only suggestion of any affinity between the Australasian and Neatropical faunas seems to be in the presence in both areas of species of *Ochleratotus* of the *taeniorhynchus* group ; when the mosquitos of Patagonia are better known, it may be possible to make a more instructive comparison between the two regions. On the other hand, the genera *Bironella* and *Opifex,* two of the most interesting genera of mosquitos, are endemic in the Australasian region.

Of the 145 species dealt with, no less than 67 belong to the genus *Aëdes* in the broad sense ; about 25 species spread into the Oriental region, leaving the total number of known endemic species at about 120.

Tribe ANOPHELINI.

Genus **Anopheles,** Mg.

Subgenus **Anopheles,** s. str.

As is the case in other parts of the world, the Australasian species of this subgenus are not very closely related. Four are known.

Anopheles (Anopheles) stigmaticus, Skuse.

Anopheles stigmaticus, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1758 (1889).
Anopheles corethroides, Theobald, Mon. Cul. iv, p. 35 (1907).

A dark brownish species, without any ornamentation of the wings or legs, except that the hind femora are rather conspicuously pale yellowish on the basal three-fourths, leaving the apical fourth and a narrow dorsal line blackish. There are no close-lying white scales on the head. The male hypopygium of Theobald's type is in some respects rather peculiar. It has only one basal spine on the side-piece, which is set on a distinct tubercle (as in the Palaearctic *A. algeriensis,* Theo.). The claspettes are conical, pointed, not lobed, with one long slender bristle at the tip, and one shorter one below it ; the aedoeagus is moderately long and slender, with about six pairs of very long and slender leaflets.

Taylor was probably incorrect in stating that there are scales on the mesonotum, as in Theobald's types there are only long and short hairs ; in other respects these types answer completely to Taylor's and Skuse's descriptions.

NEW SOUTH WALES : Blue Mts. (*Masters*). S. QUEENSLAND : Burpengary and Alderley (*Bancroft*).

Anopheles (Anopheles) aitkeni var. **papuae** (Swellengrebel).

Stethomyia culiciformis var. *papuae,* Swellengrebel & Swellengrebel-de-Graaf, Geneesk. Tijd. Ned. Ind. lx, p. 11 (1920).

This form is known only from the larvae. Assuming the adult to resemble typical Oriental *A. aitkeni,* Theo., it differs from *A. stigmaticus* in possessing small white

scales on the vertex, and in having the hind femur only indefinitely paler towards the base, gradually shading to darker apically ; also, the male hypopygium has two strong basal spines to the side-piece.

W. PAPUA : Kohas-Kaimana (*Swellengrebel*).

Anopheles (Anopheles) atratipes, Skuse.

Anopheles atratipes, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1755 (1889).

A black species, except for having some lighter areas on the veins in the lower half of the wing, and a distinct ochreous spot in the fringe at the tip. There are aggregations of black scales at the bases of the two fork-cells, at the base of the third vein, and at the base of the fork of the fifth vein, but none in the middle of the sixth. The scales of the palpi are outstanding at the base, but appressed on the last three segments.

NEW SOUTH WALES : Berowra (*Skuse*) ; Milson I. (*Cleland*). QUEENSLAND : Burpengary, etc. (*Bancroft*).

Anopheles (Anopheles) bancrofti, Giles.

Anopheles bancrofti, Giles, Handb. Gnats Ed. ii, p. 511 (early 1902).
Anopheles pseudobarbirostris, Ludlow, J.N.Y. Ent. Soc. x, p. 129 (Sept. 1902).
Anopheles barbirostris var. *bancrofti,* Taylor, Proc. Linn. Soc. N.S.W. xl, p. 176 (1915), etc.

A species with some general resemblance to *A. atratipes,* but readily distinguishable by the presence of two very small pale areas on the costa, dark fringe at the extreme tip of the wing, absence of a spot of black scales at the base of the fork of the fifth vein, and presence of such a spot in the middle of the sixth vein ; also, in the female, by the uniformly shaggily-scaled palpi, and the ventral scale-tuft on the last abdominal segment. From the Oriental *A. barbirostris,* v.d. Wulp, the most obvious distinction is in the presence of numerous more or less scattered pale scales on the femora and tibiae. *A. pseudobarbirostris,* Ludlow, from the Philippines, has legs similar to those of *A. bancrofti,* and also agrees in hypopygial structure ; *A. barbirostris,* however, shows differences in the hypopygium which are almost certainly of specific value. The distinctions are as follows :—

A. bancrofti, Giles. Leaflets very small and short, the longest less than a third as long as the aedoeagus, the rest much shorter. Basal spines of side-piece on a large prominence, each with a well marked tubercle at its base, spines about equal in length and both stout, with the tip suddenly narrowed and curved. Club very slender, almost like a blunt-ended spine, the two spines of which it is composed sometimes partly separated.

A. barbirostris, v.d.W. Leaflets much longer and darker, two or three pairs being fully half as long as the aedoeagus. Basal spines on a small prominence without tubercles, both rather slender, especially the outer one, which is longer than the inner and nearly straight. Club stout, distinctly enlarged apically.

A. bancrofti is widely spread and plentiful in many parts of Queensland and the Northern territory ; it is perhaps the species recorded as *A. barbirostris* by Brug & Haga from Papua. The larvae have been described by Cooling (Proc. R. Soc. Queensland, xxxiii, p. 166, 1921).

Subgenus **Myzomyia,** Blanch.

The three or four species of this subgenus occurring within the region are all very closely related, and belong to Christophers' group *Neoanopheles,* with numerous small pale spots on the wings and numerous white spots and rings on the legs.

Anopheles (Myzomyia) amictus, Edw.

Anopheles amictus, Edwards, Bull. Ent. Res. xii, p. 71 (1921).

Differs from the next three species chiefly in having numerous scales on all the abdominal segments except the first; the palpi and proboscis are coloured as in *A. annulipes,* but the long black spots on the first longitudinal vein are mostly broken up into small dots. There is a slight but apparently good distinction in the hypopygium between this and the next species: in *A. amictus* the claspette bears two or three very short hairs apart from the apical hair, whereas in *A. annulipes* there is only one accessory hair which is fully half as long as the apical one. This is probably the northern representative of *A. annulipes,* though I believe it to be a distinct species.

QUEENSLAND: Townsville and Palm Island (*Hill*); Townsville (*Dodd, Taylor*). NORTHERN TERRITORY: Port Darwin.

Anopheles (Myzomyia) annulipes, Walk.

Anopheles annulipes, Walker, Ins. Saund., Dipt. i, p. 433 (1856).
Anopheles musivus, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1754 (1889).

The abdomen bears scales on the last segment only. Proboscis either entirely dark or with an ill-defined pale ring beyond the middle. Female palpi with the antepenultimate segment black on the basal half, white on the apical half. The first longitudinal vein always has several long black areas below those on the costa.

Widely distributed over the whole of southern and western Australia. Northern records are doubtful; all specimens I have seen from Townsville and further north are *A. amictus* or possibly *A. mastersi.*

Anopheles (Myzomyia) mastersi, Skuse.

Anopheles mastersi, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1757 (1889).

As described by Skuse, this differs mainly if not solely from *A. annulipes* in having the proboscis entirely pale on the apical half. I have seen a few specimens which have such a proboscis, some with a scaly abdomen like *A. amictus* and some with scales at the tip only as in *A. annulipes.* These may be merely varieties of the other two species, though it is quite possible that one or more Australian species of this group await satisfactory definition.

NEW SOUTH WALES: Blue Mts. (*Skuse*). QUEENSLAND: Eidsvold (*Bancroft*). Other records doubtful.

Anopheles (Myzomyia) punctulatus, Dön.

Anopheles punctulatus, Dönitz, Insectenbörse, xviii, p. 372 (1901).
Anopheles farauti, Laveran, C.R. Soc. Biol. liv, p. 908 (1902).
Nyssorhynchus annulipes var. *moluccensis,* Swellengrebel & Swellengrebel-de-Graaf, Bull. Ent. Res. xi, p. 89 (1920).

A much smaller species than *A. annulipes,* differing also in having a distinct ring of black scales near the end of the outer half of the antepenultimate segment of the female palpi; this ring being sometimes quite broad and connected with the black of the basal half, leaving only the tip of the segment white. As in *A. amictus* the dark areas of the first longitudinal vein are more or less broken up into dots, but as in *A. annulipes* the abdomen has scales at the tip only. In the var. *moluccensis,* which seems to be much commoner than the type form, though occurring side by side with it, the proboscis is mainly pale on the apical half, instead of all dark. The occurrence of this variation seems to support the conclusion that *A. mastersi* may be only a similar variation of *A. annulipes.*

PAPUA: Stephansort (*Dönitz*); Friedrich-Wilhelmshafen and Erima (*Biró*); Sariba and Cape Nelson (*Dr. R. Fleming Jones*); Kaimana (*Swellengrebel*). MOLUCCAS: Halmaheira, Ternate, Batjan, Sula, Buru, Ceram, Amboina, Saparua and Banda Is. (*Swellengrebel*). SOLOMON Is.: Tulagi (*G. C. H. Davies*); Tulagi, Marovovo and Rere (*Dr. A. G. Carment*). NEW HEBRIDES: Faureville, Vaté (*Laveran*); Malakula (*Ridsdale*).

Genus **Bironella,** Theo.

Although this genus is certainly very closely related to *Anopheles*, it differs from all the members of that genus in the following particulars:—(1) Upper fork-cell extremely short, as in *Megarhinus*; (2) vein Cu_1 distinctly wavy near the base; (3) side-piece of male hypopygium with a long curved basal arm; (4) larva with extremely long and slender anal gills. It also differs from most *Anopheles* in the absence of spiracular bristles, though these bristles are also absent in some species of the subgenus *Myzomyia*.

Bironella gracilis, Theo.

Bironella gracilis, Theobald, Ann. Mus. Nat. Hung. iii, p. 69 (1905); Edwards, Bull. Ent. Res. xiii, p. 98 (1922); Brug & Haga, Bull. Soc. Path. Exot. xv, p. 305 (1922).

A uniformly dark species, which apart from the generic characters might be confused with *A. stigmaticus*, Skuse.

PAPUA: Muina (*Biró*); Pionnierbivak (*de Rook*).

Tribe CULICINI.

In accordance with the classification adopted in my papers on the Palaearctic and Oriental mosquitos, all genera other than Anophelines are included in this tribe. The Australasian genera may be distinguished by the following key, which is adapted from the one previously given (Ind. J. Med. Res., x, 1922, p. 250) to the Culicine genera of the world.

1. Proboscis rigid, stout on the basal half, apical half slender and recurved; *r-m* cross-vein with a right-angled bend ... *Megarhinus*
   Proboscis flexible, apical half not slender and recurved; *r-m* cross-vein straight 2
2. Vein *An* (sixth vein) ending below or immediately before the base of the fork of *Cu* 3
   Vein *An* ending well beyond the base of the fork of *Cu* 4
3. Wing-membrane without microtrichia ... ... *Uranotaenia*
   Wing-membrane with numerous microtrichia ... ... *Hodgesia*
4. Upper sternopleural bristles reduced to a single one, or absent; small spiracular bristles present ... ... *Rachionotomyia*
   Several upper sternopleural bristles present... 5
5. Pulvilli absent 6
   Pulvilli present 14
6. Spiracular bristles present ... ... *Theobaldia*
   Spiracular bristles absent 7
7. Post-spiracular bristles absent 8
   Post-spiracular bristles present 10
8. Terminal antennal segments short and stout ... ... *Aëdomyia*
   Terminal antennal segments long and slender 9
9. Wing-scales very broad; male proboscis greatly swollen at tip ... ... *Ficalbia* (*Etorleptiomyia*)
   Wing-scales not very broad; male proboscis not swollen at tip ... ... *Taeniorhynchus* (*Coquillettidia*)

10. Wing-scales all very broad ... ... *Taeniorhynchus* (*Mansonioides*)
At least some of the wing-scales quite narrow 11
11. Head with hairs replacing the upright scales ... ... *Opifex*
Head with the usual upright forked scales on the nape (if only a few) ... 12
12. Cross-vein *m-cu* slightly outside *r-m* ... ... *Mucidus*
Cross-vein *m-cu* normally well inside *r-m* 13
13. Proboscis rather stout and somewhat recurved in repose; male claspers with a row of spines ... ... *Armigeres*
Proboscis more slender and not recurved in repose; male claspers without row of spines ... ... *Aëdes*
14. Several lower mesepimeral bristles ... ... *Lutzia*
At most one lower mesepimeral bristle ... ... *Culex*

Genus **Megarhinus**, R.-D.

The Australasian species of this genus are surprisingly few in number; all the three endemic forms belong to the same group, and might perhaps be regarded as local developments of the widely-spread Oriental species *M. splendens*, Wied. This species, with its near allies, differs from the other members of the genus in being much less restricted as to its larval habitat, and even seems to be on the way to becoming a semi-domestic species.

Megarhinus speciosus, Skuse.

Megarhina speciosa, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1722 (1889).

Readily distinguished from its allies by having the front tarsi of both sexes (not only those of the female) largely white towards the base, and the long hairs at the sides of the sixth abdominal segment mostly yellow instead of black. Larvae usually in tree-holes.

NEW SOUTH WALES: Sydney (*Masters*). QUEENSLAND: Widely distributed. NORTHERN TERR.: Darwin (*Strangman*).

Megarhinus inornatus, Walker.

Megarhinus inornatus, Walker, Proc. Linn. Soc. viii, p. 102 (1865); Edwards, Bull. Ent. Res. xiv, p. 5 (1923).

Scales of scutum rather brilliantly metallic, especially at the sides. First segment of hind tarsi of female with a white ring.

PAPUA (*Walker*); Itikinumu (*Dodd*). NEW BRITAIN: Rabaul and Mambung River (*Hill*). BURU (*Toxopeus*).

Megarhinus subulifer, Dol.

Megarhinus subulifer, Doleschall, Nat. Tijd. Ned. Ind. xiv, p. 382 (1857).
Megarhinus immisericors, Walker, Proc. Linn. Soc. iv, p. 91 (1860).

Differs from *M. inornatus* in the duller almost brownish scales of the scutum (at least over the middle) and the absence of a white ring on the first hind tarsal segment of the female. It is probably only a variety of the Oriental *M. splendens* Wied., which differs only in the markings of the underside of the abdomen.

AMBOINA (*Doleschall*). CELEBES (*Walker*).

Genus **Uranotaenia**, Theo.

Of this genus eight species are at present known from the Australasian region, six of which belong to the first section, with a line of broad blue or white scales in front of the wing-base, the other two (*nigerrima*, Taylor, and *papua*, Brug) falling into the second section, which does not possess these scales.

Uranotaenia nivipes (Theo.).

Anisocheleomyia nivipes, Theobald, Entom. xxxviii, p. 52 (1905).
Uranotaenia albofasciata, Taylor, Proc. R. Soc. Vict. xxxii, p. 164 (1920).

Very distinct from the other Australasian species by the largely white-scaled wings, the scales at the tip of the wing being all pale, and by the whitish yellow front of the scutum and upper half of the pleura, contrasting strongly with the rest of the thorax, which is dark brown. I have previously regarded this as identical with the Oriental *U. nivea*, but there are some small differences: in the Australian form the upper half of the pleura is more conspicuously whitish, and the scales in the upper corner of the sternopleura are white instead of black. A paratype of Taylor's species was compared with Theobald's type and found identical.

QUEENSLAND: Townsville (*Taylor*); Deception Bay (*Bancroft*).

Uranotaenia albescens, Taylor.

Uranotaenia albescens, Taylor, Trans. Ent. Soc. 1913, p. 705 (1914).

This is very similar to the Oriental *U. argyrotarsis*, Leic., but may be regarded as distinct, since it has the basal half of the third hind tarsal segment dark, whereas in the Oriental form the whole of the last three hind tarsal segments are white. A female paratype shows that, as in *U. argyrotarsis*, there is a narrow and continuous blue stripe across the pleura from the neck to the base of the abdomen, the stem of the fifth vein (*Cu*) as well as the extreme base of the first vein (*R*) is clothed with white scales, and the first three and the fifth abdominal targites are largely white scaled.

QUEENSLAND: Townsville, Cairns (*Taylor*).

Uranotaenia tibialis, Taylor.

Uranotaenia tibialis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 839 (1919).

I have examined a female of this species determined by Taylor and find that it is in nearly all respects similar to *U. albescens*, but the abdomen is entirely dark above. Taylor describes the male as having an apical scale-tuft on the front tibia, which certainly does not occur in the allied *U. argyrotarsis*, Leic.

QUEENSLAND: Cairns (*Taylor*).

Uranotaenia pygmaea, Theo.

Uranotaenia pygmaea, Theobald, Mon. Cul. ii, p. 254 (1901).

Resembles the last two in its thorax and wings, but the abdomen has a rather narrow whitish band at the apices of each of segments 2–6, and the hind tarsi are dark to the tip.

QUEENSLAND: Burpengary, Deception Bay and Enoggera (*Bancroft*).

Uranotaenia atra, Theo.

Uranotaenia atra, Theobald, Ann. Mus. Nat. Hung. iii, p. 114 (1905).
Uranotaenia cancer, Leicester, Cul. of Malaya, p. 215 (1908).
Uranotaenia propria, Taylor, Trans. Ent. Soc. 1913, p. 704 (1914).
Uranotaenia cairnsensis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 839 (1919).

Differs from the last three species in having no white scales on the wings, and in having only a central patch, not a continuous narrow stripe of blue scales on the pleura. Apart from this the species may easily be known by the remarkable modification of the front tarsi of the male. The pubescence of the antennal flagellum of the

female is evenly spread along the segments. I have examined specimens of Taylor's *U. propria* and *U. cairnsensis* and find them to agree with the Oriental form.

The species is a breeder in crab-holes, though not confined to such places.

PAPUA: Muina (*Biró*). QUEENSLAND: Townsville (*Priestley*); Cairns (*Taylor*).

Uranotaenia antennalis, Taylor.

Uranotaenia antennalis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 840 (1919).

Agrees with the last species in having no white scales on the wings and no continuous line across the pleura, but all the blue scales of the thorax are replaced by silvery white, and the fine pubescence of the antennal flagellum is confined to the tips of the segments. The proboscis is longer than the abdomen, the latter being all dark above. The tips of the tarsi were said to be pale, but this was not the case in the paratype examined.

QUEENSLAND: Cairns (*Taylor*).

Uranotaenia papua, Brug, Bull. Ent. Res. xiv, p. 437 (1924).

Uranotaenia papua, Brug.

A small obscure species without any special ornamentation; the thorax uniformly brownish ochreous; the proboscis very short. It is nearly allied to the Oriental *U. brevirostris,* Edw., and *U. moultoni,* Edw.

N. PAPUA: Pionnier-Bivak (*de Rook*).

Uranotaenia nigerrima, Taylor.

Uranotaenia nigerrima, Taylor, Trans. Ent. Soc. 1914, p. 203 (1914).

Although without special ornamentation of scales, this species is quite sharply marked off from the other Australasian forms by the two pairs of large velvet-black spots on the thoracic integument, which are quite conspicuous even though the rest of the thorax is very dark brown; these spots are situated on the proepimera and on the scutum just in front of the wing-bases. Taylor's description does not mention them, but they are present in his type, though hidden by shrivelling due to immaturity.

U. nigerrima is very closely allied to the Oriental *U. bimaculata,* Leic., differing chiefly in its darker tint and in small details of the structure of the hypopygium.

PAPUA: Milne Bay (*Breinl*); Lakekamu (*Giblin*). NEW BRITAIN: Rabaul (*Hill*).

Genus **Hodgesia,** Theo.

Three Australasian species of this genus have been described, all from captured females only. They are all very similar, differing in the colour of the thoracic integument and in the markings of the abdomen.

Hodgesia quasisanguinae, Leic.

Hodgesia quasisanguinae, Leicester, Cul. of Malaya, p. 230 (1908).
Hodgesia triangulatus, Taylor, Trans. Ent. Soc. 1914, p. 204 (1914).

The thoracic integument in the typical form is entirely shining black, though in the specimens from Darwin (which may indeed represent a distinct species) the pleura and the front of the scutum are more or less ochreous. The abdomen in both forms has distinct silvery lateral spots on tergites 2, 3, 5 and 6 (none on 4), those on 3 and

5 being larger than the others though rather variable in size. After comparison I can find no difference between specimens from the Malay Peninsula and North Queensland, and have therefore adopted Leicester's name.

PAPUA: Lakekamu (*Giblin*). QUEENSLAND: Cairns (*Taylor*). NORTHERN TERRITORY: Darwin (*Hill*).

Hodgesia cairnsensis, Taylor.

Hodgesia cairnsensis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 842 (1919).

Differs from the last species in the colour of the thoracic integument, which is mostly ochreous, but with a large oval black spot in front of each wing-root, and a blackish brown area in the middle between these two spots. This median dark area is variable in extent, widening out anteriorly and sometimes almost reaching the front margin of the scutum; in the lightest specimens it is represented by two divergent dark lines. The abdominal markings are practically the same in the two species, though in *H. cairnsensis* the silvery lateral areas on the fifth tergite seem to extend on the average nearer to the mid-dorsal line.

QUEENSLAND: Cairns (*Taylor*). PAPUA: Mekeo (*Hill*). NEW BRITAIN: Rabaul (*Hill*).

The specimens from Darwin, N.T., mentioned under *H. quasisanguinae,* may belong here, but they seem to be intermediate in coloration, and may perhaps indicate that the two forms *quasisanguinae* and *cairnsensis* are only varieties of one species.

Hodgesia spoliata, Edw.

Hodgesia spoliata, Edwards, Bull. Ent. Res. xiv, p. 8 (1923).

Differs from the last two in having no silvery markings on the abdomen. The thoracic integument is almost entirely black.

PAPUA: Mekeo District (*Hill*).

Genus **Rachionotomyia,** Theo.

Since the distinction between *Rachionotomyia* and *Rachisoura* rests almost entirely on the greater length of the proboscis in the former, and since, moreover, several species are more or less intermediate in this respect, I propose to unite the two genera under the earlier name. The group evidently corresponds to the American *Wyeomia,* from which it differs in the absence of postnotal bristles. In *Wyeomyia* also the proboscis is variable in length in the different species, the subgenus *Phoniomyia* being analogous to *Rachionotomyia* (s. str.) in its long slender proboscis.

Little is known as to the life-history of the Australian species. *R. caledonica* has been reared from pitcher-plants, and Bancroft states that *R. atripes* is sometimes found in water-butts, though this may not be the normal habitat of the species. Some of the Oriental species live in bamboos, and the same may be true of the allied Australasian forms with spotted femora.

The following key will distinguish the known Australasian species:—

1. Femora with preapical white or silvery spots in front 2
   Femora not spotted in front 6
2. Tarsi tipped with white ... ... *argyropus* (Walk.)
   Tarsi not tipped with white 3
3. Femora with only one distinct spot; pronotal scales narrow *magnesiana,* sp. n.
   Femora each with two distinct spots; pronotal scales broad 4
4. Integument of scutum mainly blackish ... ... *bimaculipes* (Theo.)
   Integument of scutum orange 5

5. Abdomen without purple gloss ... ... *quasiornata* (Taylor)
   Abdomen with strong purple gloss ... ... *purpurata*, Edw.
6. Head blue-scaled ... ... *ornata* (Taylor)
   Head black-scaled, a narrow white margin round the eyes in front ... 7
7. Tip of hind tibia and last two segments of hind tarsi white *tasmaniensis* (Strick.)
   These parts dark 8
8. A light stripe across pleural integument clothed with white scales, the darker parts nearly bare ... ... *caledonica*, Edw.
   Pleural integument uniformly dark, and densely clothed with white scales 9
9. Wing-scales narrow 10
   Wing-scales all broad 12
10. Proboscis slender, as long as the whole body ... *argenteiventris* (Theo.)
    Proboscis stouter, not longer than the abdomen 11
11. No white scales in front of scutellum ... ... *atripes* (Skuse)
    White scales surrounding bare space in front of scutellum ... *solomonis*, sp. n.
12. Abdominal tergites with apical lateral white spots... ... *filipes* (Walk.)
    These spots absent ... ... *atra* (Taylor)

Rachionotomyia argyropus (Walker).

Culex argyropus, Walker, List Dipt. Brit. Mus. i, p. 2 (1848).
Uranotaemia argyropus, Theobald, Mon. Cul. ii, p. 264 (1901).

This species stands quite apart from all the other members of the genus, not only because of its conspicuously distinctive ornamentation, but also owing to its possession of from 2–4 strong proepimeral * bristles, the other species having one only, and even this often very small or even absent. The remaining structural characters being essentially the same as in *Rachionotomyia*, there is perhaps no necessity for erecting a new genus for this species. It cannot be placed in *Theobaldia*, because the upper sternopleural bristles are reduced to one only.

Apart from the white-tipped tarsi (on the front tarsi the fourth but not the fifth segment is white) the insect may be known by the white ring in the middle of the palpi, the broad stripe of flat silvery-white scales along the margin of the scutum, and by the rather narrow silvery-white stripe across the pleura, this last feature recalling *R. caledonica*, Edw. The proboscis is stouter and less elongate than in the other species with spotted femora.

The adults are found resting on tree-trunks. The larval habits have not been recorded, but this is perhaps the species referred to by Miller as breeding in epiphytic Astelias on the North Auckland peninsula.

NEW ZEALAND: Wellington district (*Hudson*); Ohakune (*Harris*).

Rachionotomyia bimaculipes (Theo.).

Phoniomyia bimaculipes, Theobald, Ann. Mus. Nat. Hung. iii, p. 114 (1905).

The group to which this species belongs is distinguished by the brilliant silvery markings on the abdomen; a large silvery patch on the pleura; absence of upper sternopleural bristle; azure blue head (when seen from in front); short palpi, hardly longer than the clypeus in either sex, and silvery spots on the front of the femora. The diagnostic characters of *R. bimaculipes* are the small broad scales on the pronotal lobes, the largely shining blackish integument of the mesonotum, and the dull black colour of the dark scales of the abdomen.

PAPUA: Moroka and Friederich-Wilhelmshafen (*Biró*).

* It has recently been shown by Mr. S. B. Freeborn that the sclerites which have hitherto been called proepimera in mosquitos are really the posterior portions of the pronotal lobes. But for present convenience the term "proepimeral bristles" has been retained in this paper.

Rachionotomyia quasiornata (Taylor).

Stegomyia quasiornata, Taylor, Proc. Linn. Soc. N.S.W. xl, p. 177 (1915).

Closely allied to *R. bimaculipes*, differing only in the uniformly orange integument of the scutum. The proepimera have narrow scales, and the scutal scales are black.

The specimen mentioned by me (Bull. Ent. Res. xii, p. 80, 1921) as this species was really *R. magnesiana*. Subsequent examination of Taylor's type female showed that two species had been confused.

QUEENSLAND: Innisfail (*Taylor*). NEW BRITAIN: Toma (*Hill*).

Rachionotomyia purpurata, Edw.

Rachionotomyia purpurata, Edwards, Bull. Ent. Res. xii, p. 79 (1921).

Very similar to the last two, but differs from both in the strong purple gloss on the dorsum of the abdomen, the tergites, however, having basal lateral dull black triangles. The scutum is entirely dull orange, and clothed mostly with greenish scales; the proepimera have broad scales like those of the pronotal lobes.

FIJI: Suva (*Bahr*), reared from larvae found in an old kerosene tin.

Rachionotomyia magnesiana, sp. n.

Nearly related to *R. purpurata*, Edw., and with a similar coloration of the abdomen, but differs as follows:—Scales of pronotal lobes narrow and hairlike. Thoracic integument shining, the scutal scales black. Femora rather shorter and stouter, and with only one distinct silvery spot close to the tip; the middle femora have a silvery line in front extending along the basal two-thirds, this being faintly indicated also on the front femora. Wing-scales distinctly smaller and scantier.

QUEENSLAND: Magnetic Island, 24.xi.1920 (*G. F. Hill*); 1 ♀ presented by the collector to the British Museum.

Rachionotomyia ornata (Taylor).

Stegomyia ornata, Taylor, Trans. Ent. Soc. 1914, p. 189 (1914), and Proc. Linn. Soc. N.S.W. xli, p. 565 (1916).

I have not seen this species, but from Taylor's description it evidently belongs here. In its blue head, together with the unspotted femora, it seems quite distinct from the other Australian species, but most closely resembles the Oriental *R. affinis*, Edw., which is a pitcher-plant breeder.

PAPUA: Milne Bay (*Breinl*).

Rachionotomyia argenteiventris (Theo.).

Polylepidomyia argenteiventris, Theobald, Ann. Mus. Nat. Hung. iii, p. 118 (1905).

This belongs to the same group as the last, but is quite distinct by the black head with a narrow bluish-white border round the eyes, and the white instead of brown scales on the pronotal lobes and proepimera. It is very similar to the Oriental *R. aranoides* (Theo.), the type of the genus, but appears to be distinct by having only one minute claw on the hind tarsus, a distinct upper sternopleural bristle, etc.

PAPUA: Paumomu River (*Biró*).

Rachionotomyia caledonica, Edw.

Rachionotomyia caledonica, Edwards, Bull. Ent. Res. xiii, p. 100 (1922).

This and the next species are somewhat intermediate between *Rachionotomyia* (s. str.) and *Rachisoura*, because, although the proboscis is long and slender as in the

former group, the male palpi are long as in the latter. *R. caledonica* is well distinguished from the other species of the genus by the pleural markings; it further differs from *R. tasmaniensis*, its nearest ally, in the entirely dark tibiae and tarsi. There is a distinct upper mesepimeral bristle, and dorsocentral bristles on the scutum.

NEW CALEDONIA: Houailou (*Montague*); bred from pitcher plants.

Rachionotomyia tasmaniensis (Strick.).

Stegomyia tasmaniensis, Strickland, Entom. xliv, p. 249 (1911); Taylor, Proc. Linn. Soc. N.S.W. xli, p. 564 (1916).
Rachionotomyia cephasi, Edwards, Bull. Ent. Res. xiv, p. 8 (1923).

Very distinct from the other species of the genus by the white apical spots of the tibiae (especially those of the hind legs), and the white tips to the hind tarsi. The chaetotaxy is practically the same as in *R. caledonica*, and the male palpi are presumably long, though not actually mentioned by Taylor.

In describing *R. cephasi*, I unfortunately overlooked the fact that Strickland's *S. tasmaniensis* belongs to this genus. The species are obviously identical.

TASMANIA: Launceston, Mt. Arthur, Devonport, St. Patrick's River, Springfield, Bridport (*Littler*); New River (*Twelvetrees*); Mole Creek (*C. L. Edwards*).

Rachionotomyia filipes (Walk.).

Culex filipes, Walker, Proc. Linn. Soc. v, p. 229 (1861).
Rachisoura sylvestris, Theobald, Mon. Cul. v, p. 208 (1910).
Stegomyia hilli, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 456 (1914).
Mimeteomyia hilli, Taylor, Proc. Linn. Soc. N.S.W. xli, p. 566 (1916).

Distinct from all the other species of the genus except *R. atra* by the broad wing-scales. The proboscis is shorter and stouter than in any of the above-mentioned species, being scarcely longer than the front femora. The palpi of the male are about two-thirds, of the female one-fifth as long as the proboscis. The abdominal tergites have distinct apical lateral white spots.

PAPUA: Dorey (*Wallace*). QUEENSLAND: Kuranda (*Bancroft*). N. TERRITORY: Stapleton and Melville Island (*Hill*).

Rachionotomyia atra (Taylor).

Stegomyia atra, Taylor, Trans. Ent. Soc. 1914, p. 190 (1914).

Very close to *R. filipes*, but the abdomen has hardly a trace of apical lateral pale spots on the tergites. A paratype female examined shows the following characters: One pre-epimeral bristle, three strong dark spiraculars; proepimeral scales dense, white below and brown above. Palpi 2·5 times as long as the clypeus. Wing-scales broad.

PAPUA: Lakekamu, Mungana (*Giblin*).

Rachionotomyia atripes (Skuse).

Culex atripes, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1750 (1889).
Stegomyia punctolateralis, Theobald, Entom. xxxvi, p. 156 (1903).
Mimeteomyia apicotriangulata, Theobald, Mon. Cul. v, p. 211 (1910).

As Theobald says, this looks very much like a small *R. filipes*, but differs in having the wing-scales quite narrow. Further, the hind tibiae are largely whitish beneath, and the male palpi are as long as the proboscis.

According to Bancroft, " the larvae are found occasionally in water-butts and tanks," a very unusual habitat for a species of this genus. He also remarks that the hind legs are " cocked up and bent forwards," an attitude which has been recorded for other Sabethine genera.

The type of *M. apicotriangulata* appears to have the scutal scales a little broader than usual, but I do not think it can be a distinct species.

NEW SOUTH WALES: Homebush (*Masters*); Sutherland and Knapsack Gully (*Skuse*); Milson I. (*Cleland, Ferguson*); Blackheath (*Thompson*); Ingleburn (*Taylor*). QUEENSLAND: Brisbane, Eidsvold (*Bancroft*); Burketown, Townsville (*Taylor*); Malanda and Palm I. (*Hill*). VICTORIA: Mildura (*Taylor*).

Rachionotomyia solomonis, sp. n.

Nearly related to *R. atripes* (Skuse), differing as follows :—General coloration much darker; scutal scales black, but with a conspicuous margin of pure white scales round the bare space in front of the scutellum, also more numerous white scales round the front of the mesonotum; dorsum of abdomen with a strong bluish gloss; front and middle femora much less extensively white beneath; upper fork-cell relatively somewhat longer.

SOLOMON IS.: Tulagi, Guadalcanar I., vii, 1923 (*Dr. A. G. Carment*), 1 ♀ caught in house; presented to the British Museum by the collector.

Genus **Theobaldia,** N.-L.

No species of this genus has hitherto been reported from the region, but I find that two species described (under other generic names) from Australia should be referred here. Though resembling *Culex* in general appearance, they agree with the Palaearctic species of *Theobaldia* in all important respects, especially in the pleural chaetotaxy, absence of pulvilli, and structure of male and female genitalia. The cross-veins are not noticeably approximated, but this has been proved to be a character of no importance generically. The male palpi are much more slender and less hairy than in the European species. There are two or three small but distinct spiracular bristles, which are pale in colour as usual in this genus, and may require rather close observation before their presence is detected. The Australian species are perhaps nearest to the subgenus *Culicella,* but until the larvae are known it would be premature either to assign them to that subgenus or to erect a new one for their reception.

Theobaldia frenchi (Theo.).

Culex frenchii, Theobald, Mon. Cul. ii, p. 66 (1901).

A rather small species about the size of *Culex fatigans,* with reddish thorax, dark unbanded abdomen, and dark tarsi. The proepimera have rather numerous narrow curved scales. The male has recently been obtained for the first time by Mr. G. F. Hill; its hypopygium has the anal and genital parts with claspers as in typical *Theobaldia,* but the side-pieces are rather peculiar in having a long basal process, hairy at its tip, which rather suggests the definite claspette structure of *Taeniorhynchus,* though without a terminal spine.

VICTORIA: locality unstated (*French*); Beaconsfield (*Hill*).

Theobaldia littleri (Taylor).

Chrysoconops littleri, Taylor, Trans. Ent. Soc. 1913, p. 702 (1914).

The type is closely similar to *T. frenchi,* except that the scales on the proepimera are fewer and more hair-like. It is very likely nothing more than a variety of *T. frenchi.*

TASMANIA: Mt. Arthur (*Littler*).

Genus **Aëdomyia,** Theo.

This genus is probably more or less nearly related to *Taeniorhynchus,* in spite of the very different specialisation of the larvae. Apart from the structural character of the antennae, the species may be recognised by its very broad and dense wing-scales and the scale-tufts at the tip of the femora.

Aëdomyia venustipes (Skuse).

Aëdes venustipes, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1761 (1889).
Aëdeomyia catasticta, Knab, Ent. News, p. 387 (1909).

Having now compared specimens from the two regions, I am convinced that the Oriental and Australian forms are identical.

NEW SOUTH WALES : Elizabeth Bay, Sydney (*Skuse*). QUEENSLAND : Eidsvold (*Bancroft*); Townsville (*Taylor*). NORTHERN TERR. : Darwin (*Taylor*). Also throughout the Oriental Region ; larva in swamps, associated with " water-lettuce " (*Pistia*).

Genus **Ficalbia,** Theo.

Only one Australian species of this genus is known, which according to Taylor's description belongs to the same group as the Oriental *F. luzonensis* (Ludl.) and the African *F. mediolineata* (Theo.). All three species have been placed in Theobald's genus *Etorleptiomyia,* and as Drs. Ingram and Macfie have recently shown, the African species at least shows some rather striking differences in the larva and pupa from the more typical *F. malfeyti* (Newst.). Further material of the early stages of other species is desirable before an opinion can be expressed as to whether *Etorleptiomyia* should be regarded as a distinct genus or subgenus. Apart from the difference in the shape of the wing-scales, to which I attach little importance, the adult structure is very much the same in all the species of the genus.

Ficalbia elegans (Taylor).

Dixomyia elegans, Taylor, Trans. Ent. Soc. 1913, p. 703 (1914).

According to Taylor's description this differs from *F. luzonensis* (Ludl.), the Oriental representative of the group, in the less extensively yellow legs and the black-scaled abdomen.

QUEENSLAND : Townsville (*Priestley*).

Genus **Taeniorhynchus,** Arr.

Two of the three subgenera of *Taeniorhynchus* are well represented in the Australasian region : *Mansonioides,* in which post-spiracular bristles are present, all the wing-scales very broad, male palpi slender and upturned with minute terminal segment, and seventh segment of female abdomen much reduced ; and *Coquillettidia,* in which post-spiracular bristles are absent, many of the wing-scales rather narrow, male palpi with the last segment quite large and not upturned, and seventh segment of female abdomen normal. In the subgenus *Mansonioides* only one species is endemic to the region, the remaining three all having a wide external distribution. On the other hand, in the subgenus *Coquillettidia* four out of the six species are endemic, one at least of the remaining two showing varietal modification.

Taeniorhynchus (Mansonioides) papuensis, Taylor.

Taeniorhynchus papuensis, Taylor, Trans. Ent. Soc. 1914, p. 200 (1914).

Although apparently a typical member of the subgenus, this differs from all the other known species in having the wing-scales uniformly dark, instead of mixed dark

and light, and in the almost completely dark tarsi and the very indistinct pale markings on the femora and tibiae. It is one of the smallest species of the subgenus. The male is at present unknown.

PAPUA : Lakekamu (*Giblin*) ; Mekeo (*Hill*).

Taeniorhynchus (Mansonioides) annulipes (Walk.).

Culex annulipes, Walker, Proc. Linn. Soc. i, p. 5 (1857).
? *Mansonia septempunctata*, Theobald, Ann. Mus. Nat. Hung. iii, p. 187 (1905).

Distinguished by the rather conspicuous whitish spots on the scutum ; it resembles the Oriental *M. annuliferus*, but is larger and has the thoracic integument much darker. Recorded in error by Hill as *M. septemguttata*.

QUEENSLAND : Cairns (*Hill*). PAPUA : Friedrich Wilhelmshafen (*Biró*) ; Lakekamu (*Giblin*) ; Mekeo (*Breinl*).

Taeniorhynchus (Mansonioides) africanus (Theo.).

Panoplites africana, Theobald, Mon. Cul. ii, p. 187 (1901).

The thorax is rather dark brownish, without special ornamentation, and the markings on the femora and tibiae are pure white. I believe the Queensland specimens are conspecific with the African, but no males are yet available for comparison.

QUEENSLAND : Halifax and Innisfail (*Taylor*).

Taeniorhynchus (Mansonioides) uniformis (Theo.).

Panoplites uniformis, Theobald, Mon. Cul. ii, p. 180 (1901).
Panoplites australiensis, Giles, Handb. Gnats Ed. ii, p. 355 (1902).

Distinguished from *T. africanus*, Theo., by the lighter tint of the thoracic integument, the two longitudinal bands of pale greenish scales on the scutum, and the less sharply defined and more ochreous-tinged markings on the femora and tibiae.

PAPUA : Lakekamu (*Giblin*) ; Milne Bay (*Breinl*). DUTCH E. INDIES : Celebes, Ceram (*Brug*) ; Buru (*Toxopeus*). QUEENSLAND : Moreton Bay (*Bancroft*) ; Cairns, Townsville (*Hill*). NORTHERN TERR. : various localities (*Taylor*). Also throughout the Oriental and Ethiopian regions.

Taeniorhynchus (Coquillettidia) giblini (Taylor).

Pseudotaeniorhynchus conopas var. *giblini*, Taylor, Trans. Ent. Soc. 1914, p. 198 (1914).

A very distinct species on account of its yellow colour, black-ringed legs, and black markings on the integument of the thorax. I can see no constant difference between Australian and Oriental females, and believe them to be identical, but males have not yet been compared.

PAPUA : Lakekamu (*Giblin*). Also widely spread in the Oriental region.

Taeniorhynchus (Coquillettidia) brevicellulus, Theo.

Taeniorhynchus brevicellulus, Theobald, Mon. Cul. ii, p. 212 (1901).

This also is a very easily recognised species, with a yellow or brownish yellow thorax, and almost entirely dark purple legs. The male abdomen is rather remarkable, the seventh sternite bearing a large tuft of long bristles, the eighth sternite large and pointed, the hypopygium large, turned upwards and very bristly ; the side-pieces have a small patch of fine hair on the inner side at the tip, but no definite lobe. The only Australasian specimens I have seen are a few from Fiji ; these differ from the

average Oriental form in having the abdomen more extensively purple scaled, and in the apparent absence of a small filament on the male clasper near the base of the inner margin.

PAPUA: Lakekamu (*Giblin*). NEW CALEDONIA (*Theobald*). FIJI: Nausori and Labasa (*Veitch*). BURU (*Toxopeus*).

Taeniorhynchus (Coquillettidia) xanthogaster, nom. n.

Taeniorhynchus acer, Theobald (*nec* Walker), Mon. Cul. ii, p. 211 (1901).

This is the Australian representative of *T. brevicellulus*, from which it differs externally chiefly in the almost entirely yellow abdomen, which has hardly any purple scales. The abdomen is rather variable in colour in the Oriental form, and at one time I thought that these yellow specimens merely represented an extreme variation, but having now studied the male hypopygium I find that there is a conspicuous difference: in *T. xanthogaster* the side-piece has a broad flat apical lobe projecting inwards, square-ended and bearing a dense apical fringe of dark hair; the clasper also is of rather a different shape from that of *T. brevicellulus*.

An examination of Walker's type of *Culex acer* shows that it is certainly not this species, but a worn and faded *Culex*, probably *C. fatigans*. The present species probably does not occur in New Zealand.

QUEENSLAND: Burpengary (*Bancroft*); Townsville (*Hill*). NORTHERN TERRITORY: various localities (*Hill*).

Taeniorhynchus (Coquillettidia) linealis (Skuse).

Culex linealis, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1747 (1889).

Although I have not seen a male of this species I have no doubt it is correctly placed here. It differs from the above three species and agrees with the two following in the dark brown thoracic integument. From all the other species it differs in the rather definite lines of golden scales on the scutum, and in having indistinct whitish rings at the bases of the first two or three hind tarsal segments.

NEW SOUTH WALES: Blue Mts., Hexham and Wheeny Creek (*Skuse*). QUEENSLAND: Enoggera (*Bancroft*). VICTORIA: Beaconsfield (*Hill*).

Taeniorhynchus (Coquillettidia) iracundus (Walk.).

Culex iracundus, Walker, List Dipt. Brit. Mus. i, p. 6 (1848).

Venter with whitish scales, but with very distinct apical dark bands on the sternites. Hind femora dark all round at the tip. Wing-scales all broadish, ligulate. Palpi of the male not much longer than the proboscis; last two segments rather densely hairy, together only about half as long as the long segment; apex of long segment and base of penultimate segment somewhat swollen. Palpi of female barely a fifth as long as the proboscis. Terminal segment of male antennae barely as long as the penultimate, the plumes moderately dense. Male clasper with a large flat expansion on the outer side about the middle; inner margin gently curved, entire.

NEW ZEALAND: North Auckland district and Great Barrier Is. (*Miller*); Ohakune *Harris*).

Taeniorhynchus (Coquillettidia) tenuipalpis, sp. n.

Resembles *T. iracundus* but larger, and also shows the following differences:— Thoracic integument more shining. Venter mostly pale-scaled, the sternites without distinct apical dark bands. The hind femora are pale to the tip on the outer side. Many of the outstanding wing-scales are quite narrow, almost linear. Palpi of the male considerably longer than the proboscis, and of uniform thickness throughout;

the last two segments together about equal in length to the long segment and almost devoid of hair. Palpi of female about one-fourth as long as the proboscis. Terminal segment of male antennae nearly half as long again as the penultimate, plumes more scanty than in *T. iracundus*. Male clasper without noticeable expansion on the outer side, but with a small obliquely-placed flat expansion on the inner side a little beyond the middle.

NEW ZEALAND: Ohakune, i, 1924 (*T. R. Harris*); type ♂ and paratype 3 ♂ 3 ♀ presented by the collector. Also two other ♀ taken at the same place, i. 1920 and i. 1923.

Genus **Opifex,** Hatton.

This remarkable genus includes only a single species, which is known only from the coasts of New Zealand, the larvae living in brackish pools on the shore. It shows some decidedly primitive features, notably in the presence of hairs instead of upright scales on the head, but it has lost its pulvilli, and in this respect as well as in its chaetotaxy and larval characters it shows affinity with the *Aëdes* rather than with the *Culex* group of genera. I see no justification for treating it as forming a separate tribe, as has been proposed by Miller.

Opifex fuscus, Hutton.

Opifex fuscus, Hutton, Trans. N.Z. Inst. xxxiv, p. 188 (1902); Edwards, Bull. Ent. Res. xii, p. 73 (1921); Miller, Bull Ent. Res. xiii, p. 115 (1922).

Especially remarkable for the secondary sexual characters of the male: the absence of plumes and presence of spines on the antennae, and the very large and equal front claws. A stoutly-built, dark species.

NEW ZEALAND: Wellington (*Hudson*); rocky coasts of North Island (*Miller*).

Genus **Mucidus,** Theo.

This genus, though very easily recognised by the striking ornamentation and the relative position of the cross-veins, is really quite closely related to the subgenus *Ochlerotatus* of *Aëdes*. There are two Australasian species.

Mucidus alternans (Westw.).

Culex alternans, Westwood, Ann. Soc. Ent. France, iv, p. 681 (1835).
Culex commovens, Walker, Ins. Saund., Dipt. i, p. 432 (1856).
Culex hispidosus, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1726 (1889).

A large species which could not be confused with any other in the Australian fauna, owing to the shaggily-scaled legs with white rings on the tibiae as well as the tarsi. Larvae in shallow swamps.

VICTORIA: Kyabram (*Taylor*). NEW SOUTH WALES: Hexham and Richmond (*Skuse*); Mt. Kemble (*Masters*); Yarrawin (*Froggatt*). QUEENSLAND: Burpengary and Kuranda (*Bancroft*); Townsville (*Priestly*); Normanton, Rockhampton, Mackay (*Taylor*). NORTHERN TERR.: Darwin (*Strangman*). PAPUA: Port Moresby (*Armitage*); Breakfast Creek (*Tryon*). NEW CALEDONIA: Noumea (*J. J. Walker,* 1 ♀ in British Museum).

Mucidus kermorganti (Laveran).

Culex kermorganti, Laveran, C.R. Soc. Biol. liii, p. 568 (1901).
Mucidus kermorganti, Edwards, Bull. Ent. Res. xiii, p. 99 (1922).

This is quite possibly only a form of the preceding, as it only differs in having the scales of the legs appressed, the coloration being identical. Both forms occur in New Caledonia, though *M. kermorganti* has not yet been found outside the island.

NEW CALEDONIA: Noumea (*Laveran*); Calama (*Delacour*).

Genus **Armigeres,** Theo.

Although this genus has not been found on the mainland of Australia, three species occur in New Guinea and adjacent islands. All are closely related to if not identical with Oriental forms, and are distinguishable from one another chiefly by hypopygial characters.

Armigeres breinli (Taylor).

Neosquamomyia breinli, Taylor, Trans. Ent. Soc. 1914, p. 186 (1914).
Armigeres breinli, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 828 (1919).

Distinguished in both sexes from the other two species by the presence of two patches of white scales on the clypeus. The hypopygium of the specimen described and subsequently figured by Taylor is identical with that of the Oriental *A. malayi* (Theo.) of which *A. breinli* is probably nothing more than a variety with dark bands on the venter.

PAPUA: Milne Bay (*Breinl*); Mungana (*Giblin*).

Armigeres obturbans (Walker) var. ?

Among several specimens received from Mr. G. F. Hill that had been determined as *A. breinli* by Taylor were two or three females and one male of a quite distinct species without clypeal scales. Mr. Hill had mounted the hypopygium of this male, which was labelled as type of *A. breinli,* though obviously not the one which had served for the description. In structure it resembles that of *A. obturbans,* though the basal lobe of the side-piece is larger, with more distinct spiny bristles, which are curved at their tips, and the teeth on the clasper are rather more numerous and extend nearly to the base.

PAPUA: Milne Bay ? (*Breinl*).

Armigeres lacuum, Edw.

Armigeres lacuum, Edwards, Bull. Ent. Res. xiii, p. 97 (1922).

Differs from the above, in the male sex, by the dense tuft of hair on the basal lobe of the side-piece. No definite distinction between the females of the two species can be pointed out. *A. lacuum* seems to be the Australasian representative of the Oriental *A. confusus,* Edw.

ILE DES LACS (Biró). NEW BRITAIN: Toma and Beinung (*Hill*).

Genus **Aëdes,** Mg.

The subgenera of *Aëdes* (including, for comparison, the genus *Armigeres*) occurring within the region may be separated by the following more or less artificial keys, which will not necessarily hold good for species of other regions.

Males.

1. Palpi very short 2
   Palpi at least half as long as the proboscis 3
2. Scutellum with narrow scales only ... ... *Aëdes*
   Scutellum with broad flat scales only ... ... *Skusea*
   Scutellum with scales of both shapes ... ... *Leptosomatomyia*

3. Hypopygium without definite claspettes, though often with more or less modified basal plaques 4
   Hypopygium with definite claspettes bearing an appendage, which is usually flattened but may be merely setiform 8
4. Clasper with a row of teeth ... ... *Armigeres*
   Clasper without a row of teeth 5
5. Palpi with only one terminal segment ... ... *Banksinella*
   Palpi with two distinct terminal segments 6
6. Spine of clasper terminal 7
   Spine of clasper subterminal ... ... *Aëdimorphus*
7. Conspicuously ornamented species; phallosome divided, each half spiny on the outer side; palpi bare, upturned ... ... *Stegomyia*
   Dark species with little ornamentation; phallosome undivided and smooth; palpi hairy, not upturned at tip ... ... *Pseudoskusea*
8. Side-pieces of hypopygium with well-marked basal lobes ... ... *Ochlerotatus*
   Side-pieces without basal lobes, at most with an aggregation of hairs ... 9
9. Claspettes connected with the side-pieces, appendage distinctly articulated ... *Finlaya*
   Claspettes free, appendage not distinctly articulated ... ... *Macleaya*

Females.

1. Wings with a tuft of very long scales at the extreme base *Chaetocruiomyia*
   Wings without such scale-tuft 2
2. Cerci short, eighth segment not completely retracted 3
   Cerci long, eighth segment small and retracted; head with many narrow scales above 11
3. Eighth sternite large and exserted; head usually with many narrow scales above 4
   Eighth sternite smaller and partly retracted; head with few or no narrow scales above 5
4. Lower mesepimeral bristles absent ... ... *Finlaya*
   Some of these bristles present ... ... *Pseudoskusea*, part
5. Strongly ornamented species 6
   Dark species with little ornamentation 8
6. Claws toothed, clypeus scaly ... ... *Stegomyia*, part
   Claws simple, clypeus bare 7
7. Scutum with a median silvery-white line ... ... *Stegomyia*, part
   Scutum without such line ... ... *Macleaya*
8. Scutellum with broad flat scales 9
   Scutellum with narrow scales 10
9. Claws toothed; proboscis rather stout ... ... *Armigeres*
   Claws simple; proboscis more slender ... ... *Skusea*
10. Claws toothed ... ... *Aëdes*, part
    Claws simple ... ... *Aëdes*, part; *Pseudoskusea*, part
11. Lower mesepimeral bristles present ... ... *Ochlerotatus*, part
    Lower mesepimeral bristles absent ... ...
    Ochlerotatus, part; *Aëdimorphus*; *Banksinella*

Subgenus **Chaetocruiomyia,** Theo.

This subgenus is very well characterised by the basal scale-tuft on the wings. When males and larvae are discovered some characters may be found which will necessitate re-erecting it to full generic rank, but the females, which alone are known at the present time, show no structural differences from *Aëdes*.

Aëdes (Chaetocruiomyia) spinosipes, Edw.

Aëdes (Chaetocruiomyia) spinosipes, Edwards, Bull. Ent. Res. xiii, p. 92 (1922).
Chaetocruiomyia sylvestris, Theobald, Mon. Cul. v, p. 196 (1910) (preoccupied).

A small, very stoutly built species; the scutum with a large whitish-ochreous patch in front; hind tarsi with white rings at the bases of the first two segments, third and fourth black, fifth white.

QUEENSLAND: Kuranda (*Bancroft*); Palm Island (*Hill*); Innisfail (*Taylor*).

Aëdes (Chaetocruiomyia) humeralis, Edw.

Aëdes (Chaetocruiomyia) humeralis, Edwards, Bull. Ent. Res. xiii, p. 93 (1922).

Differs from *A. spinosipes* in having the pale patch on the scutum divided by a dark median stripe. The third hind tarsal segment has a distinct white ring; the species has a rather strong superficial resemblance to *A. (Macleaya) tremula,* Theo.

QUEENSLAND: Brigalow Scrub and Eidsvold (*Bancroft*).

Subgenus **Stegomyia,** Theo.

Three species of this subgenus have been reported from the region, only one of which is truly endemic. In view of the rather large number of species in the Oriental region, the paucity of species in the Australasian region is somewhat surprising.

Aëdes (Stegomyia) argenteus (Poiret) (*Stegomyia fasciata*).

Culex bancrofti, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1740 (1889).

The yellow-fever mosquito is widely spread in the warmer parts of the region. In Australia it may have been comparatively recently introduced, as it occurs only in the coast towns; according to Cleland it is found all along the Queensland coast and extends into the northern coast towns of New South Wales, but records from further south (Newcastle and Victoria) probably rest on a confusion with *A. notoscriptus.* It is known from Celebes, Papua, New Caledonia, Fiji, Samoa, Sandwich Is. and Pitcairn I., but is apparently absent from New Zealand and also from many of the smaller Pacific islands.

Aëdes (Stegomyia) albopictus (Skuse).

Culex albopictus, Skuse, Ind. Mus. Notes, iii, p. 5 (1895).
Stegomyia scutellaris, Theobald (*nec* Walker), Mon. Cul. i, p. 298 (1901).

I have seen no Australasian examples of this abundant Oriental species, but the following records of its occurrence within the region have been published. It is not impossible that some of them may refer to *A. variegatus.*

TIMOR GROUP: Timor, Alor and Saparoea (*Brug, Haga*); Sumba (*Schuurmans Stekhoven*). PAPUA: Dutch region (*Brug, Haga*); ex-German region (*Theobald*); Lakekamu (*Giblin*). N. AUSTRALIA: Darwin (*Hill*); Moa Island (*Luscombe*).

Aëdes (Stegomyia) variegatus (Dol.).

Culex variegatus, Doleschall, Nat. Tijd. Ned. Ind. xvii, p. 77 (1858).
Culex scutellaris, Walker (*nec* Theobald), Proc. Linn. Soc. iii, p. 77 (1859).
Culex zonatipes, Walker, Proc. Linn. Soc. v, p. 229 (1861).
Stegomyia sp., Laveran, C.R. Soc. Biol. liv, p. 909 (1902).
Stegomyia pseudoscutellaris, Theobald, Entom. xliii, p. 156 (1910).

Although superfically very similar to the preceding, this is really very distinct in the following particulars: (1) the central silvery stripe of the scutum is of perfectly even width, not slightly widened anteriorly; (2) there is a distinct patch of flat silvery

scales close above the root of the wing, which is absent in *A. albopictus*; (3) the silvery scales of the scutellum form a straight transverse line, the apical part of the median lobe being bare, whereas in *A. albopictus* the scutellum is completely covered; (4) the scales of the pleura are not arranged in irregular patches, but form two well-marked lines, one just below the margin of the scutum, the other across the middle; (5) the lateral white markings of the abdomen are entirely removed from the bases of the tergites, and somewhat crescent-shaped, while in *A. albopictus* each tergite has two disconnected white spots on each side, the upper of which is quite basally placed; finally (6) there are well-marked structural differences in the hypopygium.

According to O'Connor the larvae are found chiefly in old coconut husks and cacao pods.

This species has a very wide distribution within the region, but seems most abundant on the smaller islands; it occurs as far west as Christmas Island (S. of Java, its only known place of occurrence within the Oriental region) and as far to the north-east as the Tokelau Islands. It occurs widely in Papua and is abundant in Fiji, but has not yet been recorded and may be absent from the mainland of Australia, New Caledonia, the Solomon Is., Celebes, Timor and New Zealand. Some new records are: BURU (*Toxopeus*). FIJI GROUP: Loma-Loma, Nukulau, Savu-Savu, Waievo, Wailagilala (*C. L. Edwards*). TONGA Is.: Nukualofa and Vavau (*C. L. Edwards*). NEW BRITAIN: Rabaul (*Hill*). NEW HEBRIDES: Zagabé (specimen in British Museum, received for determination from the French Government); Port Sandwich, Mallicolo I. (*Laveran*).

Subgenus **Banksinella,** Theo.

This subgenus is founded principally on the structure of the male palpi, which are longer than the proboscis, and apparently composed of only two segments, of which the apical one is turned upwards. The remaining characters seem to show most affinity with the subgenus *Aëdimorphus*. Two species are known to occur in the Australasian region.

Aëdes (Banksinella) lineatopennis (Ludlow).

Taeniorhynchus lineatopennis, Ludlow, Can. Ent. xxxvii, p. 133 (1905).
Banksinella luteolateralis, Theobald, *partim.*
Pseudohowardina linealis, Taylor, Rept. for 1911, Austr. Inst. Trop. Med., p. 10 (1913).

Readily known from the following by the broad margin of yellow scales on the scutum, yellow scales on some of the veins, and the dark tarsi. The somewhat similar *A.* (*Skusea*) *aurimargo* is distinguished by its dark wing-scales, simple female claws, etc.

QUEENSLAND: Ching Do and Townsville (*Taylor*). Also widely spread in the Oriental and Ethiopian regions.

Aëdes (Banksinella) brugi, sp. n.

♂. *Head* clothed with narrow ochreous scales above, the usual broad flat whitish scales at the sides. Antennal torus ochreous, flagellum dark. Palpi and proboscis dark-scaled. Palpi nearly one-third longer than the proboscis, the single terminal segment turned upwards and with long spreading hairs as in the other members of the subgenus. *Thorax* with the integument reddish brown, scutellum lighter. Scales of scutum, scutellum, pronotal lobes and proepimera narrow, curved, dark or light brownish. Pleura with some patches of white flat scales. No lower mesepimeral bristles. *Abdomen* dark brownish above, with a distinct creamy-white basal band on each segment; venter mostly creamy-white. Hypopygium small. Ninth tergite

apparently completely divided into two portions, each with a thumb-like projection. Side-pieces not longer than broad, with a rather large hairy basal lobe. Claspers forked, both prongs blunt-ended and somewhat curved, the shorter one with a few bristles but without a distinct spine. *Legs* dark brown, femora light beneath but not mottled; hind femora with a dark dorsal line extending almost to the base; tarsi damaged, but the first three segments of the front and at least the first two of the hind tarsi with narrow basal creamy-white rings. *Wings* very scantily scaled, the scales all dark. Fork-cells as long as their stems; cell *Ri* distinctly contracted just before the tip. Wing-length 3·8 mm.

S. PAPUA: Merauke, 1922 (*Dr. S. L. Brug*). Type male presented to the British Museum by the collector.

Although the male palpi are quite typical of the subgenus, the nearly bare wings suggest the genus *Mimomyia*, from which, however, the species is quite definitely excluded by the rather numerous postspiracular bristles. The hypopygium is very peculiar and distinctive, quite unlike that of any of the African species.

Subgenus **Aëdimorphus,** Theo.

Only two Australasian species can be referred to here with any certainty, neither of them being endemic to the region. Possibly some of the species placed under *Ochlerotatus* should be included here.

Aëdes (Aëdimorphus) alboscutellatus (Theo.).

Lepidotomyia alboscutellata, Theobald, Ann. Mus. Nat. Hung. iii, p. 80 (1905).
Reedomyia pampangensis, Ludlow, Can. Ent. xxxvii, p. 94 (1905).

Easily known from all other Australian species of *Aëdes* by the flat silvery-white scales of the scutellum and the entirely dark tarsi. The male has not yet been found in Australia, but as the species is very widely distributed in the Oriental region, the determination is probably correct.

NORTHERN TERRITORY: Daly River and Doctor's Gully (*Hill*).

Aëdes (Aëdimorphus) vexans, Mg.

Culex vexans, Meigen, Syst. Beschr. vi, p. 241 (1830).
Ochlerotatus vexans (Mg.) Edwards, Bull. Ent. Res. vii, p. 218 (1917).
Culex nocturnus, Theobald, Mon. Cul. iii, p. 159 (1903).
? *Culex nocturnus* var. *niger*, Theobald, Nova Caledonia, i, p. 164 (1913).
Aëdes (*Ochlerotatus*) *vigilax*, Edwards (*nec* Skuse), Bull. Ent. Res. xiii, p. 99 (1922).

I consider, after a close examination, that my first opinion as to the identity of *C. nocturnus* is more likely to be correct, and do not understand why I proposed to alter it. The two species (*vexans* and *vigilax*) are certainly similar, but seem well distinguished by the characters of the proboscis; also, of course, by the male hypopygium. Males of *A. vexans* have not yet been obtained in the Australasian region, so that there is still an element of doubt in the determination.

FIJI (*Hall*). TONGA IS.: Nukualofa (*C. L. Edwards*). NEW CALEDONIA: Houailou (*Montague*). SAMOA (*O'Connor*). DUTCH E. INDIES: Celebes, Ternate (*Brug*). Also occurs throughout the Oriental, Palaearctic and Nearctic regions.

Subgenus **Ochlerotatus,** Arrib.

The Australasian species of this subgenus are rather numerous, and may be divided into two groups: firstly, those which possess at least one lower mesepimeral bristle, and secondly, those in which the lower mesepimeral bristles are absent.

The members of the first group are the more typical representatives of the subgenus, and show little or no divergence in structure from the holarctic forms. In this group there are only three Australian species which have ringed tarsi : *A. vittiger* (Skuse), *A. vandema* (Strick.) and *A. camptorhynchus* (Thomson), all very well characterised forms. The remaining species, with the possible exception of *A. stricklandi* (Edw.), have the tarsi dark ; these are *A. nigrithorax*, Macq. (*tasmaniensis* Strick.), *A. cunabulanus*, sp. n., *A. australis* (Theo.), *A. wilsoni* (Taylor), *A. bupengaryensis* (Theo.) and probably the allied species mentioned below which have not been examined by the author. All these have one strong and 1–3 weaker lower mesepimeral bristles, with the exception of *A. stricklandi* (Edw.) which has only a single rather weak bristle in this position. The hypopygium of those species of which the male is known has a more or less distinct apical lobe to the side-piece.

In the second group, without lower mesepimeral bristles, all the species have ringed tarsi. Apart from *A. aculeatus* (Theo.), which is peculiar in its thoracic scaling, they are all rather alike. *A. flavifrons* (Skuse), *A. theobaldi* (Taylor) and *A. normanensis* (Taylor) all have a distinct sprinkling of pale scales on the wings ; of the remaining species, in which the wing-scales are all dark, *A. vigilax* (Skuse), *A. rubrithorax* (Macq.) and *A. albirostris* (Macq.) have the proboscis pale in the middle beneath, while *A. antipodeus* (Edw.) and *A. imprimens* (Walk.) have it entirely dark-scaled. In this group I have only seen males of *A. normanensis*, *A. vigilax*, *A. rubrithorax* and *A. antipodeus*. In all of these the apical lobe of the side-piece is absent, the basal lobe large, the claspette small with an almost bristle-like appendage. This is the structure characteristic of the group of South American species, including *A. taeniorhynchus* (Wied.) and its allies, which Dyar has proposed to treat as a distinct subgenus (*Culicelsa*). It hardly seems to me, however, that the structural difference is sufficient to warrant this. Some of the species included here may possibly be found to belong to *Aëdimorphus* when males are discovered.

I. *Tarsi with pale rings.*

Aëdes (Ochlerotatus) vittiger (Skuse).

Culex vittiger, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1728 (1889).
Culicada vittiger, Cooling, Ann. Rept. Com. Pub. Health Queensland, p. 63 (1913).

An extremely distinct species on account of the ornamentation of the thorax, which is clothed with pale ochreous scales, with four sharply defined lines of black scales. It differs from the other ringed-legged species of the subgenus in having the first hind tarsal segment dark at the tip only, instead of with a narrow pale ring at the base. The male has been described by Cooling, and appears to be remarkable in having the claspettes forked.

Cooling also describes the larvae, which have two strong spines beyond the pecten-tuft and live in temporary ground pools. Bancroft states that the eggs are studded with papillae, presumably as in the genus *Psorophora*.

QUEENSLAND : Port Denison and Wide Bay (*Masters*) ; Burpengary (*Bancroft*) ; Brisbane (*Wesché*) ; Townsville and Cardington (*Taylor, Hill*). NEW SOUTH WALES : Gosford (*Skuse*) ; Narromine (*Ferguson*).

Aëdes (Ochlerotatus) aculeatus (Theo.).

Gilesia aculeata, Theobald, Mon. Cul. iii, p. 233 (1903).

Another very well-defined species, with the head and sides of the mesonotum clothed with small flat yellow scales, and the cross-veins practically in one line. The reference to the subgenus *Ochlerotatus* is provisional, pending the discovery of the male

QUEENSLAND : Deception Bay (*Bancroft*).

Aëdes (Ochlerotatus) vandema (Strickland)

Culicada vandema, Strickland, Entom. xliv, p. 202 (1911).
Culicada vandema var. *variegatans*, Strickland, *ibid.*, p. 204.

This also could hardly be confused with any other Australian species on account of the conspicuous brown blotch on the membrane across the middle of the wing. Traces of such a blotch are sometimes seen in *A.* (*F.*) *queenslandis*, from which *A.* (*O.*) *vandema* differs in the subgeneric characters.

TASMANIA: locality unstated (*Bancroft*); Wedge Bay and Mt. Arthur (*Littler*).

Aëdes (Ochlerotatus) camptorhynchus (Thomson).

Culex camptorhynchus, Thomson, Eugenie's Resa, Dipt., p. 443 (1868).
Culex labeculosus, Coquillett, Ent. News xvi, p. 116 (1906).
Culicelsa westralis, Strickland, Entom. xliv, p. 131 (1911).
Culicada inornata, Strickland, Entom. xliv, p. 201 (1911).
Culicada nigra, Taylor, Trans. Ent. Soc. 1913, p. 688 (1914).
Culicada annulipes, Taylor, Trans. Ent. Soc. 1913, p. 693 (1914).
? *Culicada victoriensis*, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 460 (1914).

Though at first sight rather similar to several other Australian species, this is really very distinct by the combination of white-ringed tarsi with the presence of well-developed lower mesepimeral bristles. The only other species in the Australian fauna which possess both these characters are *A. vittiger* and *A. vandema*, the first very distinct by its thoracic markings and the second by the large brown patch on the wing-membrane. For the rest, *A. labeculosus* may be known by the reddish thorax, conspicuously mottled femora and tibiae, and white-scaled venter, usually with a median row of rounded dark spots.

Thomson's type, which I have examined in the Stockholm Museum, although damaged, is quite recognisable as this species. I did not note the occurrence of lower mesepimeral bristles, but am indebted to Dr. Y. Sjöstedt for confirming their presence.

I have not examined the type of *C. victoriensis*, but cannot separate it from *A. labeculosus* by Taylor's description. Of the rest of the synonymy given above there can be no doubt.

NEW SOUTH WALES: Milson I. (*Cleland*). VICTORIA: Beaconsfield (*Hill*); Melbourne (*Cumpston*). TASMANIA: Georgetown, Launceston and St. Helens (*Littler*); Cataract Gorge, Launceston (*C. L. Edwards*). FLINDERS I. (*Cleland*). SOUTH AUSTRALIA: Adelaide and Tailem Bend (*Cleland*). WEST AUSTRALIA: Perth (*Cleland*).

Aëdes (Ochlerotatus) flavifrons (Skuse).

Culex flavifrons, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1735 (1889).
Culicada flavifrons, Taylor, *ibid.* xxxviii, p. 751 (1914).

This is unknown to me. From Skuse's description it must resemble *A. camptorhynchus* rather closely, except that the wings have a few scattered yellowish scales. As there are no pale scales on the wings of any *A. camptorhynchus* which I have examined, I do not think it can be the same species. Theobald's *C. flavifrons* is evidently a distinct species, as pointed out by Taylor, differing in the darker thoracic integument and broader wing-scales.*

NEW SOUTH WALES: Blue Mts. (*Masters*). QUEENSLAND: Brisbane (*Tryon*).

* Dr. Ferguson has re-examined Skuse's type and states that lower mesepimeral bristles are present; pale scales of wings moderately numerous and slightly broader and shorter than usual, but not nearly so wide as in *A. theobaldi*.

Aëdes (Ochlerotatus) theobaldi (Taylor).

Grabhamia flavifrons, Theobald (*nec* Skuse), Mon. Cul. iv, p. 304 (1907).
Grabhamia theobaldi, Taylor, Proc. Linn. Soc. N.S.W. xxxviii, p. 751 (1913) and xliii, p. 832 (1919).

A rather small dark-coloured species, with rather numerous pale scales scattered over the wings, these pale scales being quite broad and square-ended. The femora (though not the tibiae) are also conspicuously mottled with pale scales. According to Taylor's figure the male hypopygum is very similar to that of *A. vigilax*, but quite distinct from that of *A. normanensis*.

QUEENSLAND: Deception Bay, etc. (*Bancroft*). VICTORIA: Bamawm, Kyabram, Mildura and Echuca (*Taylor*).

Aëdes (Ochlerotatus) normanensis (Taylor).

Culex normanensis, Taylor, Proc. Linn. Soc. N.S.W. xl, p. 182 (1915).

Rather closely resembles the preceding, differing in the somewhat narrower tarsal rings and in having the pale scales on at least the apical half of the wing much narrower and more pointed. It is possible that this may be the same as *A. flavifrons* (Skuse).

QUEENSLAND: Normanton (*Taylor*).

Aëdes (Ochlerotatus) vigilax (Skuse).

Culex vigilax, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1731 (1889).
Culex marinus, Theobald, Mon. Cul. i, p. 396 (1901).
Culex procax, Theobald (*nec* Skuse), *ibid.*, p. 415.
Culex albirostris, Theobald (*nec* Macquart), Mon. Cul. iii, p. 162 (1903).
? *Culicelsa pseudovigilax*, Theobald, Mon. Cul. iv, p. 382 (1907).
Culicelsa uniformis, Strickland, Entom. xliv, p. 131 (1911).

Fairly readily distinguishable from related species by the dark, almost black thoracic integument. From *A.* (*Aëdimorphus*) *vexans*, Mg. (a species which has not yet been reported from the Australian continent, though very likely occurring there) it differs in the rather longer proboscis, which on the underside shows a rather sharp line of demarcation between the pale middle part and the blackish apical third, also in the pale bands of the abdomen, which are straight and not indented in the middle as is usually the case in *A. vexans*.

A common salt-marsh species round the Australian coasts, and occurring also in Papua, Timor, Celebes, the Philippine Is., Formosa and Siam. Apparently not yet reported from Victoria or Tasmania, but occurring in West Australia at Perth.

Aëdes (Ochlerotatus) rubrithorax (Macq.).

? *Culex rubrithorax*, Macquart, Dipt. Exot. 4th Supp., p. 9 (1850).
Culex rubrithorax, (Macquart) Theobald, Mon. Cul. I, p. 416 (1901).
? *Culex occidentalis*, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1729 (1889).
? *Culex procax*, Skuse, *ibid.*, p. 1742.

A rather small species of the size and build of *A. vigilax*, to which it is evidently allied, though easily distinguished by the reddish thorax and absence of pale mottling on the femora. The tendency of the lateral white areas of the abdominal tergites to be produced dorsally in the middle of the segments is not nearly so great as in *A. vigilax*.

For convenience Theobald's interpretation of Macquart's name may be followed, but its correctness is very doubtful, since the insects do not conform in all respects to the original description, and no specimens of this species have been taken in recent years in Tasmania.

Skuse described *C. occidentalis* from a single female from Western Australia. It may prove to be a distinct species, but there is nothing definite in the description which disagrees with the British Museum specimens of *A. rubrithorax*. Theobald's identification of *C. occidentalis* was almost certainly an error; Skuse describes the venter as white, the segments with a narrow apical brown band, a description which would apply well to *A. rubrithorax* but certainly not to *A. queenslandis*. Skuse's description of *C. procax* also agrees with this species, and though there are some discrepancies in Taylor's redescription of the type (for example, he describes the narrow scales of the head as white, while Skuse calls them golden), I think there can be little doubt of the identification.*

QUEENSLAND: Moreton Bay (*Bancroft*). NEW SOUTH WALES: Gosford and South Clifton (*Skuse*); Bulli (*Taylor*). TASMANIA (*Macquart*). WEST AUSTRALIA: King George's Sound (*Masters*).

Aëdes (Ochlerotatus) albirostris (Macq.).

Culex albirostris, Macquart, Dipt. Exot. Supp. iv, p. 10 (1850).

A female specimen in the British Museum, probably of this species, shows the following characters:—Head with ochreous scales in the middle and round the eyes, surrounding a pair of patches of darker scales. Proboscis largely clothed with whitish scales, especially in the middle, but leaving the base and the apical fourth dark. Palpi narrowly white at the tip and at each joint. Thoracic integument reddish-brown, darker above. Proepimera with narrow ochreous scales above, flat black and white ones below. Mesonotal scales all narrow, reddish brown in the middle, lighter at the sides; no distinct markings. No lower mesepimeral bristles. Abdomen blackish, with narrow white bands which are mainly basal but spread on to the apical margin of the last four segments. Cerci long. All the femora largely pale-scaled, except towards the tips; the anterior pairs with scattered dark scales in front and more especially above. Tibiae and tarsi dark; first two segments of the front tarsi, three of the middle and four of the hind tarsi narrowly ringed with white at the base; remaining segments all dark. Claws all toothed. Wing-scales all dark.

Macquart's description differs in some respects; according to him the abdomen has white bands on the posterior borders of the segments; the hind tibiae are a little whitish in the middle (perhaps merely rubbed), and there is a white ring at the base of each tarsal segment.

NEW ZEALAND: Akaroa (*Macquart*); Invercargill (*Wesché*).

Aëdes (Ochlerotatus) antipodeus, Edw.

Ochlerotatus antipodeus, Edwards, Bull. Ent. Res. x, p. 132 (1920).

Very distinct from *A. albirostris* (Macq.), the only other New Zealand species of the subgenus, by the entirely black-scaled proboscis and the conspicuous thoracic ornamentation, which suggests a species of *Finlaya*, such as *A. (F.) lauriei* (Carter); this ornamentation, however, is only seen in good specimens. The proepimera are clothed with small flat black scales only; no lower mesepimeral bristles. Hypopygium in most respects very similar to that of *A. vigilax*, with a large basal but no apical lobe to the side-piece, and an almost bristle-like appendage to the claspette.

NEW ZEALAND: Karikari Bay, Auckland (*Brookes*); Te Horo, Wellington; Ohakune (*Harris*); Kaitaia, Russell and Whangaroa (*Miller*); New Brighton (*Campbell*).

* Dr. Ferguson informs me that the type of *C. procax* apparently possesses a lower mesepimeral bristle; it is therefore more likely to be *A. camplorhynchus* than *A. rubrithorax*. He also states that the type of *A. occidentalis* is a *Finlaya*.

Aëdes (Ochlerotatus) imprimens (Walk.).

Culex imprimens, Walker, Proc. Linn. Soc. v, p. 144 (1861).
Ochlerotatus imprimens, Edwards, Bull. Ent. Res. iv, p. 228 (1913).

This is quite distinct from the other Australasian species by the uniformly black-scaled proboscis, and the absence of definite ornamentation on the thorax, the latter feature distinguishing it from *A. antipodeus*. The male is still unknown, so that its location in *Ochlerotatus* rather than *Aëdimorphus* is a matter of conjecture.

AMBOINA (*Walker*). SOLOMON IS.: Guadalcanar (*Dr. A. G. Carment*). PAPUA: Merauke (*Brug*). Also Oriental.

II. *Tarsi without pale rings.*

Aëdes (Ochlerotatus) stricklandi, Edw.

Grabhamia australis, Strickland, Entom. xliv, p. 133 (1911) (*nec C. australis*, Erichs.).
Ochlerotatus stricklandi, Edwards, Ann. Mag. Nat. Hist. (8) ix p. 523 (1912).
Grabhamia flindersi, Taylor, Trans. Ent. Soc. 1913, p. 686 (1914).

A rather large and very distinct species, the deep chocolate-brown scales of the whole mesonotum and proepimera contrasting strongly with the rather dense covering of white scales on the pleura. The types of both *G. australis* and *G. flindersi* have lost their hind legs, so that it is uncertain whether the species should be placed in the dark-legged or the ringed-legged section of the subgenus; the anterior tarsi show only faint traces of pale rings at the bases of the segments. The wings differ from those of all the dark-legged species in having a distinct speckling of pale scales.

Strickland's name cannot be used for the species, for although Erichson's *C. australis* is unrecognisable and may not be an *Aëdes*, Theobald's identification of Erichson's species (now regarded as probably erroneous) prevents the subsequent use of this name within the genus.

WESTERN AUSTRALIA: Darling Range, Perth (*Cleland*). FLINDERS ISLAND (*Cleland*).

Aëdes (Ochlerotatus) nigrithorax (Macq.).

Culex nigrithorax, Macquart, Dipt. Exot. Supp. ii, p. 9 (1847).
Andersonia tasmaniensis, Strickland, Entom. xliv, p. 250 (July 1911), *nec Culicada tasmaniensis*, Strickland, Entom. xliv, p. 181 (May 1911).
Menolepsis ? tasmaniensis, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 466 (1914).

A large species, easily known from all the other species with dark tarsi by the patch of broad flat white scales in front of the root of each wing. The femora, and to a less extent the tibiae, are mottled with dark and light scales; on the hind femora the dark scales are quite numerous over almost the whole of the anterior surface. The abdomen is unbanded, without a distinct purple gloss. The scales on the anterior part of the mesonotum are dark brown in the middle and usually golden at the sides, but a specimen taken by my father on the summit of Cradle Mt. has the lateral scales almost pure white, and may possibly represent a distinct variety or species. Taylor's type of *M. tasmaniensis* only differs in possessing a few scales on the end of the postnotum; although these scales seem to be in their natural position I do not think there can be two species concerned.

I am indebted to Mr. J. E. Collin for the loan of the type of Macquart's *C. nigrithorax*, which still exists in Bigot's collection. It is in extremely bad condition, but is recognisable as an *Ochlerotatus* with dark tarsi, and from its size, and the apparent presence of a flat white scale above one of the wing-roots, is almost certainly this species. I propose to adopt the name, since otherwise a new one will be required, Strickland's *A. tasmaniensis* being preoccupied by his own *Culicada tasmaniensis*

The hypopygium, which I have mounted, shows the following characters: Side-pieces with the basal lobes well developed, hairy; apical lobe slight, bearing two or three rather stout curved spines. Claspers with the basal two-thirds somewhat swollen, apical third slender, terminal spine long. Claspettes with a sub-basal thumb on the inner side bearing a small terminal bristle, somewhat as figured by Cooling for *A. vittiger*; appendage broad and flat, with a retrorse angle at the base. Lobes of ninth tergite each with about six short bristles. This structure is almost identical with that of *A. burpengaryensis*, Theo., which chiefly differs in having the spines on the apical lobe of the side-piece more slender, and the sub-basal thumb of the claspettes rather shorter. It is evident that all the dark-legged species of this group are very closely related, and are probably to be regarded as geographical representatives of a single type.

TASMANIA: localities unstated (*Macquart, Anderson*); Wedge Bay (*Littler*); Cradle Mt. (*C. L. Edwards*).

Aëdes (Ochlerotatus) cunabulanus, sp. n.

Culex frenchi, Strickland (*nec* Theo.), Entom. xliv, p. 180 (1911).

Very similar to *A. (O.) nigrithorax*, but much smaller, and lacks the broad white scales in front of the wing-bases; mesonotal scales mostly golden brown, without darker median band; abdominal segments 2–5 more or less distinctly banded with white at the base; and there are apparently no flat black scales on the proepimera, though this may perhaps be due to denudation. As in *A. nigrithorax*, the integument of the thorax (of the female) is reddish; the abdomen and legs without obvious purple reflections; cerci elongate; venter white-scaled; femora mottled, the dark scales numerous all over the anterior surface of the hind femora.

TASMANIA: Cradle Valley, 20.1.1923 (*C. L. Edwards*), type ♀; locality unstated (*Bancroft*), 5♀, all much damaged.

Aëdes (Ochlerotatus) wilsoni (Taylor).*

Culicada wilsoni, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 833 (1919).

This differs from all the other dark-legged species of the subgenus known to me by the blackish integument of the thorax. The palpi are rather short and unusually stout. Proepimeral scales all rather narrow and loosely applied, mostly dark brown. Abdomen conspicuously banded, without the least trace of purple sheen on the dark parts. Femora and tibiae, and also the first tarsal segments, conspicuously powdered with ochreous-white scales; on the whole of the outer surface of the hind femora the light scales are more numerous than the dark, though there are some scattered dark scales even on the basal half. The pleural scales are ochreous white and cover most of the pleura, except for the lower part of the sternopleurite.

VICTORIA: Kyabram, Echuca, Bamawn, Swan Hill and Mildura (*Taylor*).

Aëdes (Ochlerotatus) sagax (Skuse).

Culex sagax, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1744 (1889).

I do not know this species. According to Skuse's description it has the integument of the thorax "deep brown or pitchy black." In this and many other respects it seems to be similar to *A. wilsoni*, but can hardly be the same, as Skuse states that the pleurae are "spotted with small patches of white scales"; the abdomen covered with violet black scales; and the femora and tibiae covered with violet-black scales "more or less dusted with pale ochreous."

NEW SOUTH WALES: Murrumbidgee (*Stephens*).

* Dr. Ferguson believes that *A. wilsoni* and *A. sagax* are certainly conspecific, but *sagax* has the abdominal scales distinctly purplish in certain lights.

Aëdes (Ochlerotatus) australis (Theo.).

Culex australis, Theobald, Mon. Ent. ii, p. 91 (1901).
? ? *Culex australis*, Erichson, Arch. Naturg. viii, p. 470 (1842).

Differs from *A. nigrithorax*, *A. cunabulanus* and *A. wilsoni* in having the basal two-thirds of the outer surface of the hind femora entirely pale, the outer third dark, with some scattered pale scales ; knee-spot conspicuous, yellowish. Besides this, the dark scales of the abdomen and legs have a very pronounced purple or violet gloss. The four anterior femora are conspicuously speckled in front, the tibiae less so. Proepimeral scales all rather narrow and all pale.

Erichson's *Culex australis* can hardly be this species, because he mentions a white tip to the tibia as well as to the femur, while in the present form the tibiae are dark at the tips. Moreover, although the male of this species is unknown to me, I consider it unlikely that it has the palpi shorter than the proboscis, such a condition being unknown in the restricted subgenus *Ochlerotatus*. I cannot, however, suggest what Erichson's species might have been.

In many respects this answers to Skuse's and Taylor's description of *A. sagax*, but the thorax integument is conspicuously reddish and the hind claws are toothed.

The larvae were found by Dr. Cleland in temporary snow-pools at a height of 6,000 ft.

VICTORIA : Marysville and Mt. Bismarck (*Bancroft*). NEW SOUTH WALES : Mt. Kosciusco (*Cleland*).

Aëdes (Ochlerotatus) clelandi (Taylor).

Culicada clelandi, Taylor, Trans. Ent. Soc. 1913, p. 690 (1914).

Very closely related to *A. australis*, but the four anterior femora dark in front, without scattered pale scales.

FLINDERS ISLAND (*Cleland*).

Aëdes (Ochlerotatus) burpengaryensis (Theo.).

Culex burpengaryensis, Theobald, J. Econ. Biol. i, p. 27 (1905).

Evidently closely related to *A. australis* and *A. clelandi*, differing from the former in the absence of pale speckling on the anterior femora, and from both in its smaller size and unbanded abdomen.

Reared from larvae found in a well.

QUEENSLAND : Burpengary (*Bancroft*).

Subgenus **Finlaya,** Theobald.

In this subgenus, in spite of great diversity of ornamentation, there is a remarkable uniformity of structure. The twenty Australasian species already known conform well to my definition of the subgenus, and fall so readily into groups that their identification is a fairly easy matter. All of them possess white rings on the hind tarsi, which are situated mainly or entirely at the bases of some or all of the segments.

The following six groups may be recognised :—

1. Species with spotted wings and numerous pale rings on the femora and tibiae ; scales of the head and scutellum mostly broad and flat : *A. kochi* (Dön.) and *A. poicilia* (Theo.).

2. Rather large species with two large patches of white scales on the scutum ; proepimera and scutellum with rounded white scales only ; head scales mostly narrow : *A. purpureus* (Theo.), *A. priestleyi* (Taylor) and *A. pecuniosus*, Edw.

3. With a large patch or a broad median stripe of white or golden scales on the front half of the scutum ; scales on top of head and on scutellum narrow : *A. australiensis* (Theo.), *A. auridorsum*, Edw., *A. papuensis* (Taylor), *A. biocellatus* (Taylor), *A. albitarsis* (Taylor) and *A. palmarum*, sp. n.

4. With sharply defined white or golden lines on the scutum and conspicuous white lines on the femora and tibiae ; scutellar scales flat ; head scales nearly all flat : *A. notoscriptus* (Skuse) and *A. pulcherrimus* (Taylor).

5. With more or less well-defined golden lines on the scutum, but without white lines on the femora and tibiae ; with a large area of narrow scales : *A. aureostriatus* (Dol.), *A. quinquelineatus*, Edw., *A. lauriei* (Carter) and *A. quasirubrithorax* (Theo.).

6. Scutum without special ornamentation ; scales on top of head and on scutellum all narrow ; white rings on hind tarsi broad : *A. alboannulatus* (Macq.), *A. queenslandis* (Strick.) and *A. milsoni* (Taylor).

Aëdes (Finlaya) poicilia, Theo.

Finlaya poicilia, Theobald, Mon. Cul. iii, p. 283 (1903).

This is probably to be regarded as the Oriental representative of *A.* (*F.*) *kochi*, with which it agrees structurally, differing only in the much darker thoracic integument, which is blackish instead of rather light brown, and in having all the pale markings of the legs and wings pure white ; the white markings of the wings occur in much smaller spots than is usual in *A. kochi*.

Although recorded by Bancroft and Taylor from several localities in Australia and Papua it seems not improbable that these records really refer to *A. kochi*.

Aëdes (Finlaya) kochi (Dön.).

Culex kochi, Dönitz, Insekten Börse, v, p. 38 (1901).
Finlaya samoana, Grünberg, Ent. Rundschau, xxx, p. 130 (1913).

This is the type of the subgenus ; it is unmistakable on account of the elaborate adornment of the wings and legs. The pale markings of the wings are very variable in extent, though usually almost as extensive as the dark areas, and always more or less tinged with yellow, especially towards the costa. Many of the pale areas on the femora and tibiae are also strongly tinged with yellow. The hypopygium differs from that of the other Australasian species in possessing a tuft of very long scales in the middle of the inner margin of the side-piece.

PAPUA (*Dönitz*). SAMOA (*Grünberg, O'Connor*).

Aëdes (Finlaya) pecuniosus, Edw.

Aëdes (*Finlaya*) *pecuniosus*, Edwards, Bull. Ent. Res. xiii, p. 94 (1922).

Perhaps the most beautiful and highly ornamented of all the Australian species of this subgenus. Though closely related to the two folllowing, it appears to be sufficiently well distinguished by the possession of a double median row of flat silver scales on the mesonotum, as well as in some other details. The African species *A.* (*F.*) *longipalpis*, Grünb., and *A.* (*F.*) *fulgens*, Edw., have a similar thoracic ornamentation, and it is curious also to note that in two other quite distinct genera (*Harpagomyia* and *Topomyia*) a silvery thoracic stripe may be present or absent in closely allied species.

NORTHERN TERRITORY : Port Darwin (*C. L. Strangman*).

Aëdes (Finlaya) purpureus (Theo.).

Molpemyia purpurea, Theobald, Mon. Cul. v, p. 479 (1910).

Similar to the last species in most respects, including the leg-markings, but differing in the absence of the median silvery stripe and in some other details of ornamentation of the mesonotum.

N. QUEENSLAND: Stannary Hills (*Bancroft*).

Aëdes (Finlaya) priestleyi (Taylor).

Calomyia priestleyi, Taylor, Trans. Ent. Soc. London, 1913, p. 684 (1914).

Evidently closely similar to *A.* (*F.*) *purpureus*, but according to Taylor's description it differs somewhat in the markings of its abdomen and tarsi.

QUEENSLAND: Townsville (*Priestley*).

Aëdes (Finlaya) australiensis (Theo.).

Leucomyia australiensis, Theobald, Mon. Cul. v, p. 313 (1910).

Distinguished especially by having the anterior half of the mesonotum clothed with creamy whitish scales. The still unique type is considerably damaged, but the species should be easily recognisable, as it appears to have no close ally in the Australasian fauna except *A. auridorsum*, Edw., and *A. papuensis* (Taylor).

Aëdes (Finlaya) auridorsum, Edw.

Aëdes (*Finlaya*) *auridorsum*, Edwards, Bull. Ent. Res. xii, p. 93 (1922).

Differs from *A. australiensis* chiefly in having the mesonotal scales bright golden, the first segment of the mid tarsi more extensively white, and the female palpi rather longer.

QUEENSLAND: Brigalow Scrub and Eidsvold (*Bancroft*).

The type was recorded as coming from Sydney, but Dr. Ferguson informs me that this was through an error of labelling; it was really collected by Dr. Bancroft at Eidsvold.

Aëdes (Finlaya) papuensis (Taylor).

Leucomyia australiensis var. *papuensis*, Taylor, Trans. Ent. Soc. 1913, p. 193 (1914).

Although very close to *A.* (*F.*) *australiensis* (Theo.) this is certainly a distinct species, differing in having the scales on the sides of the head and mesonotum dark, the pale scales of the thorax and abdomen pure silvery white, pale bands of abdomen narrow and straight, not broadening out in the middle, etc.

PAPUA: Milne Bay (*Breinl*).

Aëdes (Finlaya) biocellatus (Taylor).

Culex biocellatus, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 463 (1914).

Near *A. auridorsum*, Edw., but at once distinguished by having two yellow marks on the costa, one at the base of the wing and the other at the tip. The last two hind tarsal segments are missing in the type.

NEW SOUTH WALES: Milson I. (*Ferguson, Cleland*).

Aëdes (Finlaya) albitarsis (Taylor).

Leucomyia ? albitarsis, Taylor, Trans. Ent. Soc. 1913, p. 194 (1914).

Described as having the " thorax brown, clothed with narrow curved brown hair-like scales and a median line of pure white ones extending from the anterior margin to the level of the roots of the wings "; prothoracic lobes with flat white scales;

abdominal segments 2–5 with basal white bands ; first four hind tarsal segments with basal white rings. I have not seen the type, but there can be little doubt that it belongs to this subgenus.

PAPUA : Lakekamu (*Giblin*).

Aëdes (Finlaya) palmarum, sp. n.

Allied to *A.* (*F.*) *albitarsis* (Taylor), but differing from his description in the following particulars :—The median pale stripe of the thorax is moderately broad (it could hardly be described as a " line ") and composed of golden, not white scales ; prothoracic lobes (and also proepimera) with flat black scales ; abdomen unbanded dorsally.

N. QUEENSLAND : Palm Island (*G. F. Hill*) ; type ♀ presented to the British Museum by the Imperial Bureau of Entomology in 1921.

The specimen was determined by Mr. Hill as *Leucomyia albitarsis*, Taylor, but in view of the difference mentioned above I hardly think it can be the same species. Hill, however, mentions variability in the colour of the pale scales of the scutum, some specimens having them white, as in the New Guinea type.

Aëdes (Finlaya) notoscriptus (Skuse).

Culex notoscriptus, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1738 (1889).
Stegomyia notoscriptus, Theobald, Mon. Cul. i, p. 286 (1901).

A common semi-domestic species, easily recognised by the conspicuous white lines on the thorax, femora and tibiae, and the ringed proboscis and tarsi. It is subject to a certain amount of variation. One specimen in the British Museum has the hind tarsal rings narrow, the last segment all black. Some (but not all) of the New Zealand specimens have the white scales of the thorax largely replaced by golden-yellow ones.

The larvae are said to breed in water-butts, but Skuse's statement that they " are hatched from boat-like masses of nearly three hundred eggs " probably rests on a confusion with *Culex fatigans*. Hill records rearing the species from tree-holes and fire-buckets.

Apparently common throughout Australia and Papua, occurring also as follows : DUTCH E. INDIES : Saparoea (*Brug*). NEW CALEDONIA : Upper Houailou River (*P. D. Montague*). NEW ZEALAND : Grafton, Glenalvon, St. Mary's Bay (*Miller*).

Aëdes (Finlaya) pulcherrimus (Taylor).

Mimeteomyia pulcherrima, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 830 (1919).

Rather similar in most respects to *A.* (*F.*) *notoscriptus*, but there is some difference in the thoracic ornamentation, the white lines being composed of small broad instead of narrow scales, and the proboscis lacks the pale ring. Larvae in tree-holes.

QUEENSLAND : Cairns (*Taylor*) ; Townsville (*Hill*) ; Eidsvold ? (*Bancroft*).

Aëdes (Finlaya) aureostriatus (Dol.).

Culex aureostriatus, Doleschall, Nat. Tijd. Ned. Ind. xiv, p. 385 (1857).

This was described from Amboina, the description and figure evidently indicating some species of *Finlaya*. The British Museum has a single female from Alor, near Timor (*S. L. Brug*), which may possibly be this species ; it agrees tolerably well with the published data, except that the white lateral spots on the abdominal tergites are basal in position and not apical as indicated by Doleschall. I suspect that Doleschall

was mistaken, as most if not all the species of *Finlaya* known to me have the pale markings of the abdomen basal in position. Doleschall's figure apparently omits the posterior part of the mesonotum, probably owing to the way in which his specimen was pinned.

The specimen before me rather closely resembles the Ceylonese *A.* (*F.*) *greeni*, Theo., in almost every respect, differing only in having three separate golden lines on the anterior half of the mesonotum (the lines not suffused into a golden patch as in *A. greeni*, though less sharply defined than in *A. macdougalli*, Edw., or *A. quinquelineatus*, Edw.), and in the rather broader white rings of the hind tarsi, the fifth segment being all white above.

Aëdes (Finlaya) quinquelineatus, Edw.

Aëdes (*Finlaya*) *quinquelineatus*, Edwards, Bull. Ent. Res. xiii, p. 93 (1922).

This is perhaps the Australian representative of *A. aureostriatus* (as identified above), from which it differs chiefly in the following particulars :—The lines on the mesonotum are more sharply defined ; the scutellum has broad white scales instead of narrow brown and golden ones ; the proboscis has a narrow but distinct pale ring in the middle, and the rings on the hind tarsi spread more extensively on to the apices of the segments. From *A. notoscriptus* an obvious distinction is in the absence of white lines on the tibiae.

QUEENSLAND : Eidsvold ? (*Bancroft*).

Aëdes (Finlaya) lauriei (Carter).

Ochlerotatus lauriei, Carter, Proc. Zool. Soc. 1920, p. 623 (1920).

Somewhat resembles *A. quinquelineatus*, Edw., and *A. aureostriatus* (Dol.), but the middle thoracic stripe is rather broader, rather less sharply defined, and abbreviated posteriorly ; the sublateral stripes are scarcely indicated except on the posterior half of the scutum. The proepimeral scales are mostly small, flat and dark.

The larvae have been described by Carter and were found in the hollow of a fallen tree.

LORD HOWE ISLAND (*Laurie*).

Aëdes (Finlaya) quasirubrithorax (Theo.).

Culex quasirubrithorax, Theobald, Mon. Cul. v, p. 348 (1918).

Nearly related to the following three species, but quite distinct and easily recognised by the white fifth segment of the hind tarsi, by the proepimeral scales being all narrow and pale without any flat black ones, and the brighter golden scales of the thorax, which are not spread over the whole surface but arranged in more or less definite lines. Between the lines of golden scales are a variable number of black ones, which in the northern specimens are much more numerous, thus rendering the golden lines more conspicuous. Perhaps these northern specimens may represent a distinct variety, but the difference mentioned is only one of degree, and the other characters seem to be fairly constant. The species affords a good connecting link between the *aureostriatus* group and the *alboannulatus* group.

QUEENSLAND : Eidsvold (*Bancroft*) ; Townsville and Palm Island (*Hill*).

Aëdes (Finlaya) alboannulatus (Macq.).

Culex alboannulatus, Macquart, Dipt. Exot. Supp. iv, p. 10 (1849).

This is one of three or four very nearly allied species which in general appearance rather closely resembles species of the subgenus *Ochlerotatus*, *e.g.*, *O. labeculosus*; in regard to the genital structure, however, both sexes are quite typical of *Finlaya*. From most of the ringed-legged species of *Ochlerotatus* they may be distinguished at a glance by the broader and more conspicuous white ring on the first segment of the hind tarsi. In this and the following two species (which might indeed be regarded as merely varieties) the proepimera have a rather large patch of flat black scales posteriorly, and narrow golden ones above and in front.

A. alboannulatus differs from the next two in having a more or less obvious whitish ring before the tip of the femora (sometimes obsolete on the anterior legs), in the more pronounced speckling of pale scales on the tibiae, in the presence of a more or less distinct pale area in the middle of the proboscis on the underside, and in the largely white-scaled venter, with black median patches more or less as in *A.* (*O.*) *camptorhynchus*. The male hypopygium is practically identical in structure in all the three forms, but this is frequently the case in the subgenus *Finlaya* with species which are certainly quite distinct.

According to Bancroft the larvae of this species are found in freshwater lagoons and sometimes in wells; unusual habitats for a member of this subgenus.

QUEENSLAND: Burpengary and Eidsvold (*Bancroft*); Stanthorpe (*Wesché*). NEW SOUTH WALES: Mt. Victoria (*Bancroft*); Narromine and Milson I. (*Ferguson*); Locksley (*Cleland*); Sydney (*Thomson*); Woronora and Blue Mts. (*Skuse*). VICTORIA: Healesville (*Bancroft*); Melbourne (*French*); Beaconsfield (*Hill*).

Aëdes (Finlaya) queenslandis (Strickland).

Culex occidentalis, Theobald (*nec* Skuse), Mon. Cul. i, p. 419 (1901).
Culicelsa similis, Strickland, Entom. xliv, p. 132 (1911).
Culicelsa queenslandis, Strickland, *ibid.*, p. 179 (1911).
Culicada demansis, Strickland, *ibid.*, p. 202 (1911).
Culicada cumpstoni, Taylor, Trans. Ent. Soc. 1913, p. 692 (1914).
Culicada hybrida, Taylor, Proc. Linn. Soc. N.S.W. xli, p. 568 (1916).

This is very closely related to *A. alboannulatus*, but is certainly distinct on account of the absence of the pre-apical pale ring on the femora and of scattered pale scales on the tibiae, also by the uniformly dark-scaled proboscis and the different scaling of the venter. In this species the venter is mainly covered with pale yellowish scales, with an irregular sprinkling of dark scales; these dark scales are usually few in number, but occasionally, as in the type of *A. similis*, they are more numerous than the pale ones, especially towards the end of the abdomen. In some specimens, but not in all, there is a slight darkening of the wing-membrane across the middle; such specimens might be confused with *A. vandema*, but are easily distinguished by the structure of the abdomen as well as by the absence of lower mesepimeral bristles and of pale scales on the wing.

I have examined Strickland's types in the British Museum, and also a paratype of Taylor's *C. cumpstoni*; I have not seen the unique type of *C. hybrida*, but from the description I feel sure it is nothing but a variety of *A. queenslandis* with unbanded abdomen. The oldest name is *similis*, but this is preoccupied by *A.* (*Skusea*) *similis*, Theo.

Like the last, this species is said by Bancroft to breed in wells.

QUEENSLAND: Burpengary (*Bancroft*). NEW SOUTH WALES: Bulli (*Taylor*); Milson I. (*Ferguson*). VICTORIA: Healesville (*Bancroft*); Melbourne (*Cumpston*). TASMANIA: Hillwood and Lindisfarne (*Littler*); Westmoreland Falls (*C. L. Edwards*). S. AUSTRALIA: Mt. Lofty (*Cleland*).

Aëdes (Finlaya) milsoni (Taylor).*

Culicada milsoni, Taylor, Proc. Linn. Soc. N.S.W. xl, p. 179 (1915).
Hulecoeteomyia milsoni, Taylor, *ibid.*, xli, p. 566 (1916).

Closely allied to *A. queenslandis* (Strick.), differing chiefly in the much darker thorax (integument and scales), and in the scaling of the venter, which has a median longitudinal black stripe, and a transverse black band at the apex of each segment leaving only a pair of basal lateral patches of white (not yellowish) scales. According to Taylor, the male has " a thin and fairly long appendage, hairy at its apex, with its origin at the base of the fourth tarsus of the mid leg, extending to the apex of the fifth." There is no such structure in *A. queenslandis*, nor indeed in any mosquito known to me ; it is not present in two males from Hawksburgh in the British Museum, which I believe to belong to this species. Probably, therefore, Taylor described some foreign body.

NEW SOUTH WALES : Milson I. and Hawksburgh (*Ferguson*). QUEENSLAND : Eidsvold (*Bancroft*), Stanthorpe (*Weschè*).

Subgenus **Macleaya,** Theobald.

This name may perhaps be retained for a single Australian species which though apparently related to *Finlaya* shows several rather well-marked differences. The male hypopygium has well-developed claspettes, but they seem to be quite disconnected from the side-pieces, and the appendage is not distinctly jointed on to the stem ; there is a dense hair-patch at the base of the side-piece on the inner side. The aedoeagus is undivided, as in *Finlaya* and *Ochlerotatus*. The female differs from either of these subgenera in having simple claws ; the abdomen is depressed rather than compressed, and the eighth segment, though fairly large, is retracted and usually hardly visible externally.

Aëdes (Macleaya) tremula (Theo.).

Macleaya tremula, Theobald, Entom. xxxvi, p. 154 (1903).
Danielsia minuta, Taylor, Bull. Northern Terr. ia, p. 30 (1912).
Danielsia alboannulata, Taylor, *ibid.*, p. 31 (1912).
Aëdimorphus australis, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 457 (1914).
Aëdimorphus australis var. *darwini*, Taylor, *ibid.*, p. 458 (1914).
Mimeteomyia doddi, Taylor, *ibid.*, xliii, p. 831 (1919).

A small species of rather stumpy build, differing from almost all the other Australian species of the genus by the ornamentation of the hind tarsi, which have white rings at the bases of the first three segments, fourth segment all black, fifth all white. The species of the subgenus *Chaetocruiomyia* have the same tarsal ornamentation, but from these *A.* (*M.*) *tremula* differs in having no tuft of long scales at the base of the wing, as well as in the ornamentation of the thorax.

I have examined types or authentic specimens of all Taylor's species mentioned above, with the exception of *D. alboannulata*, the type of which has been destroyed, and give the synonymy without hesitation. The very slight differences which exist are evidently only individual variations. Larvae recorded by Bancroft from wells and casks, and by Hill from tree-holes, etc.

NORTHERN TERRITORY : Wandi and Darwin (*Hill*). QUEENSLAND : Deception Bay and Eidsvold (*Bancroft*) ; Palm Isl. and Townsville (*Hill*). PAPUA : Itikinumu (*Dodd*).

* Dr. Ferguson finds that Skuse's type of *C. occidentalis* is a *Finlaya* ; it may perhaps be this species. See p. 376.

Subgenus **Pseudoskusea,** Theo.

This name may be retained for a small group of species that resemble *Ochlerotatus* in having long male palpi which are hairy and somewhat swollen at the tip, and also in the simple, smooth mesosome of the aedoeagus and the longish terminal spine of the claspers, but differ from both *Ochlerotatus* and *Finlaya* in the entire absence of claspettes.

In the typical species, *A. multiplex* (Theo.) and *A. bancroftianus* (Edw.), the head is clothed almost entirely with broad flat scales, the scutellum with narrow scales only ; there are no lower mesepimeral bristles ; the female has toothed claws, and a very small retractile eighth segment, with long cerci ; the male has no apical and very indefinite basal lobes to the side-pieces of the hypopygium. Two other species, *A. culiciformis* (Theo.) and *A. cairnsensis* (Taylor), which are still only known in the female sex, are referred here provisionally ; they appear to agree with the type in most respects, except that the claws are all simple. The proepimera are either quite bare (as in *multiplex*) or carry a few narrow pale scales.

A second small group of species may also be included here for want of a better place ; this consists of three very closely allied species, *A. concolor* (Taylor), *A. crucians* (Walker) and *A. ashworthi* (Edw.). The generic name *Caenocephalus* was proposed by Taylor for this group, but had been used before by van der Wulp for a genus of STRATIOMYIIDAE. I do not think it necessary to propose a substitute name, because the male hypopygium has practically the same structure as in *Pseudoskusea*, but there are some rather considerable differences from the species of the first group : the top of the head carries only narrow scales, and there are distinct lower mesepimeral bristles present, as in typical *Ochlerotatus* ; the female has the eighth segment rather large and only partly retractile, with short cerci, much as in *Finlaya*. The basal lobes of the male side-pieces are much better developed than in the *multiplex* group, while in all three species the proepimera carry flat black scales only.

Aëdes (Pseudoskusea) multiplex (Theo.).

Pseudoskusea multiplex, Theobald, Mon. Cul. iv, p. 192 (1907).

Quite distinct from its allies by the narrow transverse band of ochreous scales across the middle of the mesonotum. The proepimera are devoid of scales ; the abdomen is unbanded, with the seventh segment in the female fairly large.

QUEENSLAND : Deception Bay (*Bancroft*). PAPUA : Friedrich-Wilhelmshafen (*Biró*) (recorded by Theobald, but probably a distinct species).

Aëdes (Pseudoskusea) bancroftianus (Edw.).

Aëdes (*Ochlerotatus*) *bancroftianus*, Edwards, Bull. Ent. Res. xii, p. 74 (1921).

Evidently allied to the above, but lacks the transverse pale band on the mesonotum, and has a very small seventh abdominal segment in the female.

Aëdes (Pseudoskusea ?) culiciformis (Theo.).

Skusea culiciformis, Theobald, Ann. Mus. Nat. Hung. iii, p. 77 (1905).

The abdomen is banded, and except for the simple claws and the much larger seventh abdominal segment the species rather closely resembles *A. bancroftianus*, (Edw.)

PAPUA : Panmonur River (*Biró*). N. AUSTRALIA : Moa I. (*Hill*).

Aëdes (Pseudoskusea ?) cairnsensis, Taylor.

Pseudoskusea cairnsensis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 829 (1919).

Differs from *A. culiciformis* (according to the description) chiefly in the unbanded abdomen. It is possible that this should be placed in *Aëdes* s. str., and it may even be synonymous with *A. similis* (Theo.).

QUEENSLAND : Cairns (*Taylor*).

Aëdes (Pseudoskusea) crucians (Walker).

Culex crucians, Walker, Ins. Saund., Dipt. i, p. 432 (1856).
Culicada tasmaniensis, Strickland, Entom. xliv, p. 181 (1911).

A rather large species. Male palpi with the last segment slender. Clasper very much swollen in the middle ; side-piece with only a few flattened bristles on the inner margin towards the vase.

TASMANIA : localities not stated (*Walker, Bancroft*).

Aëdes (Pseudoskusea) concolor (Taylor).

Caenocephalus concolor, Taylor, Trans. Ent. Soc. 1913, p. 1700 (1914).

Differs from *A. (P.) crucians* in its small size, much less swollen claspers, and swollen last segment of the male palpi. It should perhaps be regarded as only a variety of the above.

NEW SOUTH WALES : Cronulla (*Mrs. Cleland*). Larvae in salt water pools in rocks.

Aëdes (Pseudoskusea) ashworthi (Edw.).

Ochlerotatus ashworthi, Edwards, Bull. Ent. Res. xii, p. 75 (1921).

Closely resembles *A. (P.) concolor,* differing only in the male hypopygium. The claspers are slender, not at all swollen, and the inner margin of the side-piece carries a row of flattened bristles.

WEST AUSTRALIA : Yallingup (*Ashworth*).

Subgenus **Aëdes,** Mg., s. str.

The species now included in this genus all have short palpi in the male, mostly flat scales on the head, narrow scales on the scutellum, and no strong lower mesepimeral bristles. All are rather similar in external appearance, and few show any special ornamentation, all having dark tarsi. *A. cinereus,* the type species, has no lower mesepimeral hairs, and in the structure of its larva and aedoeagus is evidently related to species of the subgenus *Aëdimorphus,* such as *A. vexans,* Mg. Most of the Oriental species, however, have several, sometimes a large number, of fine short hairs towards the posterior margin of the lower part of the mesepimeron,* and these species have an aedoeagus of a rather different structure. All but *A. bancrofti* of the species mentioned below belong to this Oriental group. If at any time it seems desirable to treat it as a separate subgenus, the name *Verrallina* is available for it. The structure of the female claws is evidently not of great importance here, as they may be simple or toothed in such evidently nearly related species as *A. funereus* and *A. similis,* and *A. panayensis* and *A. carmenti.*

* I am indebted to Dr. S. L. Brug for calling my attention to this character.

Aëdes (Aëdes) incertus, Edw.

Aioretomyia taeniata, Leicester, Cul. of Malaya, p. 190 (1908) (nom-preocc.).
Aëdes (Aëdes) incertus, Edwards, Ind. J. Med. Res. x, p. 468 (1922).

Differs from the following species in the reddish-tinged mesonotum and the conspicuous pearly-white basal bands on the abdominal tergites. The male is here recorded for the first time; it agrees well with the females in the British Museum from the Malay Peninsula and Borneo.

S. PAPUA: Merauke (*Dr. S. L. Brug*); 1 ♂ presented to the British Museum by the collector.

Aëdes (Aëdes) funereus (Theo.).

Skusea funerea, Theobald, Mon. Cul. iii, p. 292 (1903).
Pseudoskusea basalis, Taylor, Ann. Rept. Con. Pub. Health Queensland; App. 6, p. 27 (1912).
Skusea pseudomediofasciata, Taylor (*nec* Theo.), Proc. Linn. Soc. N.S.W. xliii, p. 838 (1919).

In this also the abdomen is distinctly banded, but the bands are narrower and distinctly removed from the bases of the segments (this is true of Taylor's *P. basalis,* an examination of the type proving it to have been wrongly described). The tori are dark in colour; the scales on the upper part of the sternopleura are partly dark and partly whitish; the female claws are simple; and the mesonotal scales are all dark brown.

NORTHERN TERRITORY: Darwin (*Hill*). QUEENSLAND: Palm Island (*Hill*); Cairns (*Taylor*); Deception Bay (*Bancroft*). AMBOINA (*Swellengrebel*). PAPUA: Mekeo (*Breinl*).

Aëdes (Aëdes) funereus var. **ornatus** (Theo.).

Skusea funerea var. *ornata,* Theobald, Ann. Mus. Nat. Hung. iii, p. 79 (1905).
Lepidotomyia lineata, Taylor, Trans. Ent. Soc. 1914, p. 191 (1914).

Differs from the typical form in the ornamentation of the mesonotum, which has fairly distinct median and lateral golden lines. The structural characters, including those of the hypopygium, are the same.

PAPUA: Sattelberg and Friedrich-Wilhelmshafen (*Biró*); Mekeo (*Breinl*); Namanula (*Heydon*). CERAM: Wekai (*Swellengrebel*). NEW BRITAIN: Rabaul (*Hill*).

Aëdes (Aëdes) simlis (Theo.).

Pseudoskusea similis, Theobald, Mon. Cul. v, p. 189 (1910).

Appears to be closely related to the preceding, differing as follows:—Abdominal bands incomplete dorsally; tori ochreous or light brownish; scales on upper part of sternopleura all white.

QUEENSLAND: Kuranda and Burpengary (*Bancroft*). AMBOINA: Saparoea I. (*Schreuder*).

Aëdes (Aëdes) carmenti, sp. n.

A deep black species closely resembling *A. funereus,* Theo., and *A. similis,* Theo. Tori blackish. Scales on upper part of sternopleura all dark. Abdominal bands incomplete dorsally. Front and middle claws of female toothed. The very similar *A. butleri,* Theo. (Oriental Region) differs in its rather smaller size, white upper sternopleural scales, and smaller lateral white spots on the abdomen.

SOLOMON Is.: Maravovo, Guadalcanar I., vi. 1923 (*Dr. A. G. Carment*); numerous ♀♀ taken in bush and in native houses. N. QUEENSLAND: Palm Island (*G. F. Hill*); 1 ♀ in company with *A. funereus*.

Aëdes (? Aëdes) bancrofti (Taylor).

Skusea bancrofti, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 465 (1914).

An obscure species of rather doubtful validity, apparently distinguished from the above four species by the pale mesonotal scales, and from all except *A. carmenti* by the toothed female claws. The palpi of the male described by Taylor are presumably short, otherwise the species must be very similar to *A. bancroftianus*. A female in the British Museum which may belong to this species has the abdomen more like that of *A. similis*, but it has no lower mesepimeral hairs. The name *bancrofti* should perhaps be regarded as preoccupied by *Culex bancrofti* Skuse, a synonym of *A. argenteus*, Poiret.

QUEENSLAND: Eidsvold (*Bancroft*).

Subgenus **Leptosomatomyia,** Theo.

The single species of this subgenus is recorded from Papua; it is imperfectly known and of doubtful affinities.

Aëdes (Leptosomatomyia) lateralis, Theo.

Leptosomatomyia lateralis, Theobald, Ann. Mus. Nat. Hung. iii, p. 110 (1905); Edwards, Bull. Ent. Res. xiii, p. 98 (1922).

The male type is still unique; it is distinguishable from members of the subgenera *Aëdes* and *Skusea* by the more slender build and the hypopygial structure. The coloration is somewhat like that of *A.* (*Skusea*) *aurimargo*, Edw., and it is possible that the two may be synonymous. In view of this possibility I refrain from proposing a substitute for the name *lateralis*, which is preoccupied in *Aëdes*.

PAPUA: Muina (*Biró*).

Subgenus **Skusea,** Theo.

I have previously used this name to include all those species of *Aëdes* with little or no ornamentation and simple female claws, which were excluded by male genital structure from the other more clearly defined subgenera. I would now restrict the group somewhat further, and include only those species which have broad flat scales on the scutellum. Two Australian species, *A. funereus* and *A. similis*, have only narrow scales on the scutellum and are, I think, better placed in the subgenus *Aëdes*, in spite of the simple female claws. The remaining species still show considerable structural diversity, but seem to form a more or less natural group. Most of them possess distinct and fairly strong bristles on the anterior margin of the mesepimeron, thus differing from *Aëdes* s. str. (and the related subgenus *Aëdimorphus*), in which these bristles never occur. Some, however (such as *A. longirostris* Leic.), lack these bristles, while two described below (*A. fimbripes* and *A. tonsus*) have instead a row or small patch of fine short hairs near the posterior margin of the mesepimeron, just as in many species of *Aëdes* s. str.

It is of interest to note that most of those species whose habits are known breed in crab-holes. Such are *A. pembaensis*, Theo., the type of the subgenus (as recently found by Dr. R. R. Scott), *A. cancricomes*, Edw., *A. longirostris* (Leic.), and *A. fimbripes*, sp. n. Exceptions are *A. micropterus* (Giles) and *A. reginae*, Edw., which breed in tree-holes.

Aëdes (Skusea) aurimargo, Edw.

Aëdes (? *Skusea*) *aurimargo,* Edwards, Bull. Ent. Res. xiii, p. 94 (1922).

Differs from the next four species in the ornamented thorax, the mesonotum having a central line and a rather broad margin of golden scales. From *A. funereus* var. *ornatus,* which it somewhat resembles, it differs in the broad scutellar scales and in various details of coloration.

N. AUSTRALIA: Moa Island (*G. F. Hill*).

Aëdes (Skusea) fimbripes, sp. n.

Head completely covered with flat scales, mostly black, but lighter round the eyes; upright scales and bristles black. Proboscis moderately slender, black-scaled, a little longer than the front femora. Palpi black-scaled, alike in the two sexes, about one-fourth as long as the proboscis, the two apparent segments equal in length, the second slightly thickened apically. Antennae of the male with rather scanty plumes; verticils in the middle of the segments, no short hairs at the tips; last two segments together almost equalling the rest of the flagellum in length. *Thorax* with dark brown integument; prothoracic lobes, scutellum, and pleural sutures lighter. Scutal scales all narrow, very dark brown. Proepimera and scutellum with a few dark brown flat scales. Small patches of light brown scales in the upper part of the sternopleura and mesepimera. About 5–6 proepimeral and 3–4 postspiracular bristles, all black. Mesepimera with light brown hairs; apart from the patch in the upper corner there is a continuous but irregular row along the posterior margin. *Abdomen* with dark brown scales, venter, and small basal lateral patches on the tergites lighter brown. Hypopygium: side-pieces elongate, somewhat distorted, over three times as long as their average width, with a large (apparent) ventral lobe in the middle which is densely clothed with long golden hair, apical part of lobe somewhat produced; part of side-piece distal to the lobe rather hairy, the rest with scales only. Clasper long, strap-shaped, with long slender terminal spine. Ninth tergite with two short bristles on each lobe. Aedoeagus small, lightly chitinised, constructed as in *Ochlerotatus*. *Legs* black-scaled, femora lighter beneath towards the base only. Front tarsus about one-fourth longer than the tibia, the first segment equalling the remaining segments in length. Larger claw on front legs of male toothed, on middle legs simple; female claws simple. First segment of hind tarsus scarcely shorter than the tibia. Hind tibia of male remarkably bristly: on the outer two-thirds of the inner (or posterior) surface a row of about 20 long fine hairs, and on the outer half of the externo-ventral surface an irregular row of about 12–15 more bristly hairs; also a fringe of shorter hairs on the dorsal surface. Hind tibiae of female normal, with only scattered bristles. *Wings* with dark scales, outstanding ones ligulate. Bases of fork-cells about level, upper fork about as long as its stem. Wing-length 2·8 mm.

NEW BRITAIN: Rabaul, in crab-holes (*G. F. Hill*). Type and paratype ♂ presented to the British Museum; paratypes ♂ ♀ in Mr. Hill's collection.

This species is very distinct from the other members of the subgenus, especially by the hind tibiae of the male. The hypopygium shows some resemblances, though not very close, to *A.* (*S.*) *amesi,* Ludlow.

Aëdes (Skusea) tonsus, sp. n.

♂. Closely related to *A.* (*S.*) *fimbripes,* differing as follows:—Palpi rather more slender, not in the least swollen at the tip. Hind tibiae with only a few scattered bristles, no fringe. Side-pieces of hypopygium rather more slender and elongate, the median ventral lobe much less definite and without any hair-tuft.

AMBOINA: Saparoea, iii, 1922 (*Dr. S. L. Brug*); type ♂ presented to the British Museum by the collector.

Aëdes (Skusea) longirostris (Leic.).

Ficalbia longirostris, Leicester, Cul. of Malaya, p. 228 (1908).
Uranotaenia hilli, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 841 (1919).

A very small obscure species ; smaller than the two preceding and with relatively longer legs ; the pleura are almost devoid of scales and there are no lower mesepimeral hairs. The male hypopygium is quite different in structure, and the palpi in both sexes are much shorter, being less than a tenth of the length of the proboscis.

NORTHERN TERRITORY : Darwin, in crab-holes (*G. F. Hill*).

Aëdes (Skusea ?) daliensis (Taylor)

Stegomyia daliensis, Taylor, Proc. Linn. Soc. N.S.W. xli, p. 564 (1916).

I have not seen the type of this species, and only place it here provisionally. Since its describer referred this species to *Stegomyia*, it presumably has broad flat scales on the scutellum, otherwise it must be very similar to *A.* (*Pseudoskusea* ?) *culiciformis* (Theo.). It differs from the above three species in its banded abdomen.

NORTHERN TERRITORY : Daly River (*Hill*).

Genus **Lutzia**, Theo.

The single species occurring in the region has apparently spread from adjoining Malayan countries.

Lutzia halifaxi (Theo.).

Culex halifaxi, Theobald, Mon. Cul. iii, p. 231 (1903).
Lutzia halifaxi, Edwards, Ind. J. Med. Res. x, p. 274 (1922).

This large dark-coloured species has been recorded as *Culex tigripes* and *C. concolor*, but the Australian form differs slightly from these species and is nearly, if not quite, identical with the Malayan *L. halifaxi*. It is a common form in the northern part of Australia and in Papua, the most southerly record being Rydalmere, N.S.W. (*Ferguson*).

Genus **Culex**, L.

The not very numerous Australasian species of this genus may be distinguished by the following key :—

1. Proboscis and tarsi with distinct pale rings ; lower mesepimeral bristle absent 2
   Proboscis and tarsi uniformly dark, without pale rings (in *C. pacificus* the male only has an indistinct pale ring on the proboscis) 10
2. Pale markings of abdomen mainly at the apices of the segments ; wings with numerous pale scales... ... ... *bitaeniorhynchus*, Giles
   Pale markings of abdomen mainly at the bases of the segments 3
3. Front two-thirds, or at least the middle third of scutum, clothed mainly with pale scales 4
   Scutum dark-scaled or indistinctly mottled 6
4. Tarsal rings narrow, and involving both ends of the segments ... *squamosus* (Taylor)
   Tarsal rings broader, at bases of segments only 5

5. Scales on front of scutum white ... ... *vicinus* (Taylor)
   Scales on front of scutum dull ochreous ... ... *basicinctus*, Edw.
6. Dark species, abdomen quite unbanded ... ... *samoaensis* (Theo.)
   Abdomen distinctly banded 7
7. Wings spotted ... ... *mimulus*, Edw.
   Wings unspotted 8
8. Femora distinctly mottled with pale scales 9
   Femora not mottled ... ... *crinicauda*, Edw.
9. Front tibiae with a row of pale dots in front; abdominal bands more or less produced in the middle ... ... *annulirostris*, Skuse
   Front tibiae without row of pale dots; abdominal bands almost straight *sitiens*, Wied.
10. Pale markings of abdomen (bands or lateral spots) situated at the bases of the tergites; lower mesepimeral bristle present (except in *C. chaetoventralis*) 11
    Pale markings of abdomen situated at the apices of the tergites, or else entirely absent 19
11. Wing-scales moderately long and dense 12
    Wing-scales very short and scanty (subgenus *Lophoceratomyia*) 16
12. Pleura with small patches of scales (unless denuded) 13
    Pleura devoid of scales (subgenus *Culiciomyia*)* 15
13. Thoracic integument blackish brown; male clasper very broad *pacificus*, Edw.
    Thoracic integument lighter brown; male clasper more sickle-shaped ... 14
14. Tenth sternites of male hypopygium with strong basal arm *pervigilans*, Bergr.
    Tenth sternites of male hypopygium with the basal arm rudimentary or absent ... ... *fatigans*, Wied.
15. A conspicuous blackish spot at the base of the mesepimeron *pullus* (Theo.)
    This spot ill-defined and indistinct ... ... *muticus*, Edw.
16. Head with a rather broad margin of flat scales round the eye-margins ... 17
    Head with the flat scales not extending all round the eye-margins ... 18
17. Sixth antennal segment of male with a large scale-tuft ... *fraudatrix* (Theo.)
    Sixth antennal segment of male with a small scale-tuft ... ... *hilli*, Edw.
18. Scutal integument uniformly brownish ... ... *cylindricus*, Theo.
    Scutal integument greyish round the margin ... *chaetoventralis* (Theo.)
19. Head largely flat-scaled above; pleura without scales; lower mesepimeral bristle absent ... ... *cataractarum*, Edw.
    Head with at most a narrow rim of flat scales round the eye-margins ... 20
20. Pleura without scales; lower mesepimeral bristle present *papuensis* (Taylor)
    Pleura with small patches of scales; lower mesepimeral bristle absent ... 21
21. Abdominal tergites with apical lateral pale spots ... ... *fergusoni* (Taylor)
    Abdominal tergites uniformly dark-scaled ... ... *pseudomelanoconia*, Theo.

Culex bitaeniorhynchus, Giles.

Culex bitaeniorhynchus, Giles, J. Bombay Nat. Hist. Soc. xiii, p. 607 (1901); Edwards, Bull. Ent. Res. iv, p. 231 (1913).

Culicelsa abdominalis, Taylor, Rept. Austr. Inst. Trop. Med. 1911, p. 7 (1913).

Differs from *C. squamosus* in having rather more numerous pale scales on the wings, and conspicuous ochreous apical lateral spots or bands on the last few abdominal tergites, also in the hypopygial structure.

QUEENSLAND: Ayr, Townsville (*Taylor, Hill*). NORTHERN TERRITORY: Darwin (*Hill*). Also throughout the Oriental Region; has a strong tendency to the development of local races.

* This character applies also to the Oriental species of the subgenus, but not to the African.

Culex squamosus (Taylor).

Trichopronomyia annulata, Theobald, Ann. Mus. Nat. Hung. iii, p. 98 (1905) (nom. preocc.).
Culicada squamosa, Taylor, Trans. Ent. Soc. 1913, p. 691 (1914).
Leucomyia annulirostris, Taylor, *ibid.*, p. 696 (1914).
Culex taylori, Edwards, Bull. Ent. Res. xii, p.78 (1921).

The anterior two-thirds of the scutum are mainly covered with pale creamy scales; though there is a variable amount of darker scaling towards the front, there is generally a fairly sharp line of demarcation between the pale middle third and the darker posterior third. As in some allied species, there are a number of broad erect scales in the bristly area in front of the wing-roots. The pale tarsal rings involve both bases and apices of the segments. The femora and tibiae are conspicuously mottled with pale scales and there are also some scattered pale scales on the wings. The pale bands of the abdomen are scarcely if at all widened in the middle. The species is perhaps most nearly allied to *C. bitaeniorhynchus*, Theo., but there are few or no pale scales at the apices of the abdominal tergites, and the hypopygium differs considerably. I have not seen Theobald's type of *T. annulata*, but the description agrees with this species.

QUEENSLAND: Townsville (*Priestley, Taylor, Hill*); Ching Do (*Taylor*). PAPUA: Friedrich-Wilhelmshafen (*Biró*).

Culex vicinus (Taylor).

Leucomyia annulata, Taylor, Trans. Ent. Soc. 1913, p. 695 (1914).
Leucomyia vicina, Taylor, Proc. Linn. Soc. N.S.W. xli, p. 569 (1916).

Quite distinct from the other Australian species with a banded proboscis in having the anterior half or more of the scutum clothed almost entirely with pure white scales, rarely with a slight creamy tint. The white rings of the hind tarsi are placed almost entirely at the bases of the segments; the femora and tibiae are not mottled. The species is nearly related to the Oriental *C. gelidus*, Theo., and *C. whitmorei* (Giles), differing from both in details of ornamentation and in hypopygial structure. I have compared the types and found them identical; the earlier name cannot be used as it has been employed on several occasions for other species which are now referred to *Culex*.

NORTHERN TERRITORY: Stapleton (*Hill*). QUEENSLAND: Townsville (*Priestley*).

Culex basicinctus, Edw.

Culex basicinctus, Edwards, Bull. Ent. Res. xii, p. 78 (1921) and xiii, p. 96 (1922).

In many respects similar to *C. squamosus* (Taylor), and, like it, having the anterior two-thirds or at least the middle third of the scutum largely covered with pale scales, also with a similar patch of broad erect scales in front of the wing-roots. The clearest distinctions are to be found in the unusually short proboscis, which in the female is not more than four times as long as the palpi; in the markings of the abdomen, the white bands being more distinctly widened in the middle; and in the tarsal rings, which are broader than in *C. squamosus*, especially on the hind legs, and do not involve the apices of the segments. The femora are only slightly mottled, the tibiae not at all, and there are no pale scales on the wings.

QUEENSLAND: Townsville (*Hill*); Eidsvold (*Bancroft*).

Culex samoaensis (Theo.).

Pseudotaeniorhynchus samoaensis, Theobald, Entom. xlvii, p. 36 (1914).

An imperfectly known species, only two females having been collected. It is apparently quite distinct from the other ringed-legged species by the uniformly dark-scaled abdominal tergites. The scutum also is mainly dark, but shows traces of a pale transverse band behind the middle, indicating a probable relationship with the *bitaeniorhynchus*-group rather than with the *sitiens*-group.

SAMOA: Apia (*Friederichs, O'Connor*).

Culex mimulus, Edw.

Culex mimulus, Edwards, Bull. Ent. Res. v, p. 284 (March 1915).
Culex mossmani, Taylor, Proc. Linn. Soc. N.S.W. xl, p. 181 (June 1915).

Differs from all the other Australian species of the genus in its spotted wings. I have compared the hypopygia of *C. mimulus* and *C. mossmani* and find them identical. There is a difference in the wings, those of *C. mimulus* from the Oriental region generally having the third vein all dark, while *C. mossmani* shows a rather extensive pale-scaled area in the middle. This distinction, however, is inconstant.

QUEENSLAND: Mossman (*Breinl* and *Priestley*).

Culex sitiens, Wied.

Culex sitiens, Wiedemann, Aussereur. zweifl. Ins. i, p. 543 (1828).
Culex annulirostris, Theobald (*partim, nec* Skuse), Mon. Cul. i, p. 365 (1901).
? *Culex saibaii*, Taylor, Ann. Rept. Com. Pub. Health Queensland, p. 28 (1912).
Culicelsa paludis, Taylor, ♀, Austr. Inst. Trop. Med. Rept. 1911, p. 9 (1913).
Culicada annulata, Taylor, Trans. Ent. Soc. 1913, p. 689 (1914).
Culicelsa annulirostris var. *milni*, Taylor, Trans. Ent. Soc. 1914, p. 196 (1914).
Culex jepsoni, Theobald (type ♀), Entom. xliii, p. 158 (1910).
Culicelsa paludis, Taylor, ♂, Proc. Linn. Soc. N.S.W. xl, p. 181 (1915).

A small blackish species. Proboscis with a rather narrow pale ring, about a fifth as long as the whole proboscis. Mesonotum with a more or less mottled appearance owing to the mixing of light and dark brown scales. Pale bands of abdomen rather narrow, nearly pure white, with their posterior edges nearly straight. Sternites generally with distinct apical bands of black scales. Femora more or less distinctly mottled with pale scales in front; the front tibiae all dark in front except at the tip. Wings with the outstanding scales rather short and somewhat clavate; upper fork-cell with its base distinctly nearer the apex of the wing than that of the lower.

The larva apparently lives habitually in salt water; the species seems to be common on all coasts from Fiji and South Queensland to Somaliland. I have seen specimens from N. and S. Queensland, N. Territory, Fiji, Solomon Is., New Britain, Papua, Philippines, Celebes, Borneo, Java, Malay Peninsula, India, Ceylon, Aden and Somaliland.

Culex annulirostris, Skuse.

Culex annulirostris, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1737 (1889).
Culex jepsoni, Bahr, J. London Sch. Trop. Med. Supp. i, p. 18 (1912).
Culex palpalis, Taylor, Bull. Northern Terr. 1a, p. 29 (1912).
Culex somerseti, Taylor, Ann. Rept. Com. Pub. Health, p. 28 (1912).
Culicelsa consimilis, Taylor, Austr. Inst. Trop. Med. Rept. 1911, p. 8. (1913).
Culicelsa simplex, Taylor, Trans. Ent. Soc. 1913, p. 698 (1914).
Culex somerseti, Taylor, Proc. Linn. Soc. N.S.W. xli, p. 571 (1916).

Superficially very like *C. sitiens*, but quite distinct in many details of coloration as well as in the structure of the male hypopygium. Pale ring of proboscis broader,

fully a quarter of the whole length of the proboscis. Mesonotum more brownish than in *C. sitiens*, the scales rather variable but usually more uniform in colour. Pale bands of abdomen more or less distinctly produced in the middle, and more creamy white. Sternites without complete apical dark bands. Femora less distinctly mottled than in *C. sitiens*, but the front tibiae with rather numerous pale scales in front, which are aggregated into a row of small but fairly definite dots. Wings with the outstanding scales rather longer and narrower than in *C. sitiens*; bases of fork-cells level, or that of the upper slightly nearer the base of the wing than that of the lower.

I am indebted to Dr. E. W. Ferguson for examining Skuse's type of *C. annulirostris* and to Mr. G. F. Hill for the loan of Taylor's types. The species seems to be the commonest one of this group in Australia, and breeds partly if not entirely in fresh water. It does not occur outside the Australian region, unless *C. alis*, Theo. (from Christmas Island, S. of Java), is to be regarded as only a variety.

The male hypopygium differs from that of *C. sitiens* in the absence of the basal arm of the tenth sternites, and in other respects.

NEW SOUTH WALES: Blue Mts. (*Masters*); Berowra (*Skuse*). QUEENSLAND: Somerset, Innisfail, Cairns, Halifax (*Taylor*); Townsville (*Priestley, Taylor, Hill*), Ayr (*Taylor*); Eidsvold (*Bancroft*); Gympie (*Hill*). NORTHERN TERR.: Umbrawarra Creek (*Taylor*); Daly R. (*Hill*). DUTCH E. INDIES: Bangaii (*Brug*). FIJI: Suva, etc. (*Bahr*). SAMOA and ELLICE Is. (*O'Connor*). SOLOMON Is.: Guadalcanar I. (*Carment*).

Culex crinicauda, Edw.

Culex crinicauda, Edwards, Bull. Ent. Res. xii, p. 77 (1921).
Culex parvus, Taylor (*nec* Macquart), Bull. Northern Terr. 1a, p. 27 (1912).

The smallest Australian species with a banded proboscis. Somewhat resembles *C. sitiens* and *C. annulirostris*, but the femora not mottled with pale scales, and the hypopygium of peculiar structure, the claspers broad with a tuft of hairs round their base. The Japanese *C. orientalis*, Edw., has a somewhat similar hypopygium, but has spotted wings.

NORTHERN TERRITORY: Umbrawarra Creek (*Taylor*).

Culex fatigans, Wied.

Culex fatigans, Wiedemann, Aussereur. zweifl. Ins. i, p. 10 (1828).
Culex acer, Walker (*nec* Theo.), List Dipt. Brit. Mus. i, p. 7 (1848).
Culex macleayi, Skuse, Proc. Linn. Soc. N.S.W. (2) iii, p. 1746 (1889).
Culex sp., Skuse, *ibid.*, p. 1748.
Culex skusii, Giles, Gnats, p. 292 (1900).
Culex pervigilans, Theobald (*partim, nec* Bergroth), Mon. Cul. iii, p. 206 (1903).
Culicelsa fuscus, Taylor, Trans. Ent. Soc. 1913, p. 699 (1914)
Culex townsvillensis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 836 (1919).

This is the abundant domestic mosquito throughout the Australian region, occurring as far south as Launceston (*Littler*) and the North Island of New Zealand (Glenalvy, Erin Bay, Devonport, *D. Miller*). Its only close allies in the region are *C. pervigilans*, Bergr., which is confined to New Zealand, and *C. pacificus*, Edw., occurring only in the New Hebrides. The much denser wing-scales and the normal male antennae will distinguish it from the small species of the subgenus *Lophoceratomyia.*

Culex pervigilans, Bergr.

Culex pervigilans, Bergroth, Wien. Ent. Zeits. viii, p. 295 (1889).

This is the antipodal representative of *C. pipiens*, L. It rather closely resembles that species and *C. fatigans*, but may usually be distinguished by the more conspicuous row of dark spots on the underside of the abdomen. These spots are always present in *C. pervigilans*, but though usually absent in the other two species they are to be found rather frequently in *C. pipiens* and occasionally in *C. fatigans* (*e.g.*, in some specimens from Launceston). The only reliable distinction between the three forms seems to be in the hypopygial structure. In *C. pervigilans* this is nearly if not quite the same as in the East African *C. trifilatus*, Edw.

C. pervigilans is an abundant and troublesome domestic mosquito throughout New Zealand. It is not yet certainly known from outside that country, the specimens recorded by Theobald from New South Wales being in reality *C. fatigans*. Some females collected by Mr. G. F. Hill at Melbourne may, however, belong to this species.

Culex (Lophoceratomyia) fraudatrix (Theo).

Lophoceratomyia fraudatrix, Theobald, Ann. Mus. Nat. Hung. iii, p. 93 (1905).
Lophoceratomyia cairnsensis, Taylor, Proc. Linn. Soc. N.S.W. xliii, p. 837 (1919).
? *Lophoceratomyia annulata*, Taylor, *ibid.*, xli, p. 571 (1916).

Distinguished from the other two Australian species of this subgenus by the large tuft of long scales on the sixth antennal segment of the male. In the typical form the abdomen is unbanded. Taylor's *L. annulata*, of which there is a paratype in the British Museum, does not differ from *C. fraudatrix* except for the inconspicuously banded abdomen. If it is not, as I suppose, a variety of this species, a new name will be required.

NEW SOUTH WALES: Stapleton (*Hill*). QUEENSLAND: Cairns and Halifax (*Taylor*); Townsville and Palm I. (*Hill*). NORTHERN TERRITORY: Daly River (*Hill*). PAPUA: Friedrich-Wilhelmshafen (*Biró*). NEW BRITAIN: Rabaul (*Hill*). Also known from Borneo and the Malay Peninsula.

Culex (Lophoceratomyia) hilli, Edw.

Culex (Lophoceratomyia) hilli, Edwards, Bull. Ent. Res. iii, p. 95 (1922).
? *Neomacleaya australis*, Taylor (*nec* Erichson), Proc. Linn. Soc. N.S.W. xl, p. 178 (1915).

The sixth antennal segment of the male carries a small and inconspicuous scale-tuft; the abdomen is unbanded. Taylor's *N. australis* may be either this species or *C. fraudatrix*.

NORTHERN TERRITORY: 70 miles S. from Darwin (*Hill*). N. QUEENSLAND: Halifax (*Taylor*).

Culex (Lophoceratomyia) cylindricus (Theo.).

Culex cylindricus, Theobald, Mon. Cul. iii, p. 202 (1903).

The thorax has a somewhat brighter reddish tint than in the last two species; the abdomen is conspicuously banded; and segments 6–8 of the male antennae are without scale-tufts, showing only the usual hair-whorls. The flat scales on the head are much less numerous than in the last two species, and do not extend quite round the eye-margins in front. The female rather closely resembles a small *C. fatigans*, but the male is easily recognised by the matted hair-pencil on the ninth antennal segment.

QUEENSLAND: Burpengary and Eisdvold (*Bancroft*); Palm I. (*Hill*).

Culex (Lophoceratomyia ?) chaetoventralis, Theo.

Neomelanoconion chaetoventralis, Theobald, Mon. Cul. v, p. 461 (1910).

The rather scantily scaled wings suggest that this species may belong to the subgenus *Lophoceratomyia*, but as it is still only known from the type female the reference is uncertain. It somewhat resembles *C. cylindricus*, Theo., and like that species has few or no flat scales on the top of the head, but it lacks the lower mesepimeral bristle ; the margin of the scutum is distinctly greyish pruinescent, the scutal scales are smaller and darker, and the pale bands on the abdomen, except that on the second segment, are interrupted in the middle.

QUEENSLAND : Kuranda (*Bancroft*).

Culex (Culiciomyia) muticus, Edw.

Culex (Culiciomyia) muticus, Edwards, Bull. Ent. Res. xiv., p. 6 (1923).

Differs from *C. papuensis*, Taylor, in the conspicuously banded abdomen, and also in the dark markings of the pleura, which are distinct but not very dark or sharply defined. As in the other species of the subgenus there is a narrow rim of small flat scales round the eye-margin, and a row of outstanding sharp-pointed scales on the long segment of the male palpi.

NEW BRITAIN : Rabaul (*Hill*). PAPUA : Merauke (*Brug*). AMBOINA (*Brug*).

Culex (Culiciomyia) pullus, Theo.

Culex pullus, Theobald, Ann. Mus. Nat. Hung. iii, p. 87 (1905).

This is quite possibly the same as the above, but after examining the type some years ago I noted that the pleural markings were the same as in the Oriental *Culiciomyia annulata*, Theo., *i.e.*, with a nearly round, conspicuous blackish spot at the base of the mesepimeron. No fresh material is available, but as it is quite possible both species may occur in Papua the names may remain as they are for the present. The Oriental species differs from *C. muticus* in hypopygial characters, and in its lighter general colour.

PAPUA : Muina (*Biró*).

Culex (Culiciomyia) papuensis (Taylor).

Melanoconion papuensis, Taylor, Trans. Ent. Soc. 1914, p. 201 (1914).

I have examined the type of this species and find that it is a member of the subgenus *Culiciomyia*, very similar to the Oriental *C. fragilis*, Ludlow. As in all the Oriental species of this subgenus, there are no scales whatever on the pleura, and one fairly strong lower mesepimeral bristle is present. Some specimens from Amboina presented to the British Museum by Dr. S. L. Brug seem to be referable to this species ; I have examined the male hypopygium and find that though in most respects similar to that of *C. fragilis* it differs conspicuously in the absence of the basal arm of the tenth sternites. The scales at the tip of the wing are also rather broader than in *C. fragilis*.

PAPUA : Lakekamu (*Giblin*). AMBOINA (*Brug*).

Culex (Neoculex) pseudomelanoconia, Theo.

Culex pseudomelanoconia, Theobald, Mon. Cul. iv, p. 416 (1907).

Distinguished from all the other Australian species with dark tarsi, by having the abdomen entirely clothed with dark scales above and below. There are no distinct knee-spots at the apices of the femora and tibiae, and no lower mesepimeral bristle.

The hypopygium of the male shows that the species is very closely related to the Holarctic *C. apicalis*, Adams, which is the type of Dyar's subgenus *Neoculex*.* It shows the following characters: Side-piece with the lobe slightly divided, the basal division with two long somewhat sinuous rods, the apical division with five stiff but hardly modified bristles; no leaf. Tenth sternites with a regular apical comb of about a dozen rather long blunt spines; no basal arm. Mesosome of aedoeagus almost membranous, with only slightly developed processes.

S. QUEENSLAND: Burpengary (*Bancroft*).

Culex (Neoculex ?) fergusoni (Taylor).

Culicada fergusoni, Taylor, Proc. Linn. Soc. N.S.W. xxxix, p. 459 (1914).

This species is a true *Culex*, but I am uncertain of the subgenus, having examined only the female type. It is the only Australian *Culex* in which the pale markings of the abdomen are situated entirely at the apices of the segments. There is no lower mesepimeral bristle; the pronotal and proepimeral scales are all narrow; the hind femora and tibiae have distinct pale apical spots. The species is probably nearly related to *C. pseudomelanoconia*.

NEW SOUTH WALES: Milson I. (*Ferguson*).

Culex cataractarum, Edw.

Culex cataractarum, Edwards, Bull. Ent. Res. xiv, p. 7 (1923).

One of the smallest species of the genus; obscure in coloration, but differing from all other species yet recorded from Australia or New Guinea in the very short palpi of the male. Other species with short male palpi will doubtless be discovered in the region; one of the Oriental forms (*C. malayi*, Leic.), has in fact been found in Timor (*Brug*), though not as yet farther east; it differs from *C. cataractarum* in the forked male claspers and in other respects.

NEW BRITAIN: Rabaul (*Hill*).

The following two species probably belong to the genus *Culex*, but as I have not seen the types I have not ventured to place them.

Melanoconion ornatus, Theo.

Melanoconion ornatus, Theobald, Ann. Mus. Nat. Hung. iii, p. 100 (1905).

A small dark-legged species, easily distinguished (according to the description) by the pale golden scales at the sides of the chestnut-brown mesonotum. The figure of the wing suggests a species of the subgenus *Lophoceratomyia*.

PAPUA: Friedrich-Wilhelmshafen (*Biró*).

Melanoconion pallidiceps, Theo.

Melanoconion pallidiceps, Theobald, Ann. Mus. Nat. Hung. iii, p. 101 (1905).

Another dark-legged species; the palpi of the male longer than the proboscis; said to be distinguished by the markings on the mesonotal integument; two dark lines in front and a pair of dark patches behind.

PAPUA: Friedrich-Wilhelmshafen (*Biró*).

* In Dyar's key to the subgenera of *Culex* (Insecutor Inscitiae, **vi**, p. 92, 1918), *Neoculex* is wrongly included in the group which has the tenth sternites tufted. Actually in the type species they terminate in quite a definite comb, much as in the present species, though the teeth are shorter.

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(Synonyms in italics.)