

(Noona Dan Papers No. 60.)

Some Muscidae (Diptera) from the Philippine Islands and the Bismarck Archipelago. 2. Philippine Muscidae, excluding the tribes Muscini, Dichaetomyiini and Coenosiini.

By

Adrian C. Pont, B.A.

Department of Entomology, British Museum (Natural History), London.

This is the second in a series of reports on the Muscidae (Diptera) collected by the Noona Dan Expedition to the Philippine Islands and Bismarck Archipelago in 1961—1962, see Petersen (1966). The fauna of both these regions is extremely poorly known and there is virtually no synoptic or revisionary literature on which to base the identification of the very large collection made by the participating entomologists. For this reason it is only practicable for me to work up the collection genus by genus over a number of years and to present a series of reports dealing with individual genera or tribes as the results accumulate.

The present report covers the tribes Hydrotaeini, Phaoniini, Mydaeini, Limnophorini, Eaginiini and Stomoxyini from the Philippines. The other three tribes represented in the Philippine collection, the Muscini, Dichaetomyiini and Coenosiini, contain about 900 of the 1000 specimens involved.

In this report, 28 species in 18 genera have been identified, including 7 genera and 16 species not previously recorded from the Philippines. 1 genus and 2 species are described as new. 9 new combinations and 1 new synonymy are established.

Tribe HYDROTAEINI.

Genus **Ophyra** Robineau-Desvoidy.

Ophyra chalcogaster (Wiedemann, 1824).

PALAWAN: Brooke's Point, Uring Uring, 1 ♂, 18. viii. 1961.

A cosmotropical species, recorded from the Philippines by Malloch (1923: 666).

Genus **Parahydrotaea** Stein.

Parahydrotaea jacobsoni Stein, 1919.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♂, 17. viii. 1961. — MINDANAO: Sapamoro, Curuan District, caught in Malaise-traps, 1 ♀, 17. xii. 1961.

Not previously recorded from the Philippines.

Genus **Hydrotaea** Robineau-Desvoidy.

Hydrotaea sp.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 18. viii. 1961; 1 ♀, 7. ix. 1961.

These two females cannot be determined with any certainty at the present time. They are extremely small (body-length 3.0 — 3.5 mm.), and may possibly be the unknown female of *nitidiventris* Malloch, described from Sumatra. They certainly do not belong to any of the species dealt with by Emden (1965).

The genus has not previously been recorded from the Philippines.

Tribe PHAONINI.

Genus **Phaomusca** Malloch.

Phaomusca bakeri Malloch, 1926.

TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 24. x. 1961.

Originally described from Luzon, and until now known only from the holotype male.

Apart from the sexual characters of the head, this female agrees with Malloch's description, except that the abdomen in extreme caudal view has tergites 1 + 2 and 3 undusted, shining black, and tergites 4 and 5 densely yellowish-grey dusted except for a narrow median vitta on tergite 4. Malloch described the abdomen as deep black on the disc of the first three visible tergites, i.e. tergites 1 + 2, 3 and 4. The femora are dark brown on rather more than basal half.

Genus **Passeromyia** Rodhain & Villeneuve.**Passeromyia longicornis** (Stein, 1909).

PALAWAN: Mantalingajan, Pinigisan, 600 m., caught in Malaise-trap outside forest, 1 ♂, 14. ix. 1961.

Not previously recorded from the Philippines.

Genus **Pictia** Malloch.**Pictia ? xanthoceras** (Walker, 1860).

TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 28. x. 1961; 1 ♀, 2. xi. 1961; 1 ♀, 6. xi. 1961; 1 ♀, 10. xi. 1961; 1 ♀ in B.M.), 14. xi. 1961.

Previously recorded from the Philippines by Malloch (1926: 502).

This species is still extremely poorly known, and I have only been able to study the following material: a male from Menado (Pont, 1966: 98); 3 females in the B.M., from Malaya, Sarawak, and Samar Is.; and the females detailed above. The Noona Dan females agree with the Samar female in having the ground-colour of the abdomen yellow, with the characteristic dark markings dark brown; in the Sarawak female the ground-colour is dull red; in the male and the Malayan female it is dark, with black markings. Lack of sufficient material of both sexes has prevented me from establishing whether there is any correlation between this colour variation and structural characters. In the Noona Dan females, there is sometimes a setula on the dorsal surface of vein 1, and there is an enormous range in wing markings, from almost clear to completely infuscated with heavily seamed veins and a dark spot near the costa between sc and vein 1.

Genus **Helina** Robineau-Desvoidy.**Helina (Helinella) lenticeps** (Thomson, 1869).

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 18. viii. 1961; 1 ♀, 19. viii. 1961. — BALABAC: Dalawan Bay, caught in Malaise-traps, 1 ♀, 8. x. 1961; 1 ♀ (in B.M.), 11. x. 1961. — TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 1. xi. 1961. — MINDANAO: Sapamoro, Curuan district, 1 ♀, 18. xii. 1961.

Widespread in the Oriental and Ethiopian regions. Previously

recorded from the Philippines, as *propinqua* (Stein), by Malloch (1926: 498).

Helina (Helina) nervosa (Stein, 1909).

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♂, 14. viii. 1961, 1 ♀, 23. viii. 1961; 1 ♀, 23. ix. 1961.

Widespread in the Oriental region. Previously recorded from the Philippines, as *mindanaensis* sp. n., by Malloch (1926: 494).

Genus **Gymnodia** Robineau-Desvoidy.

Gymnodia ascendens (Stein, 1915).

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 14. ix. 1961. — MINDANAO: Sapamoro, Curuan District, 2 ♀, 22. xii. 1961.

Not previously recorded from the Philippines.

Gymnodia ? distincta (Stein, 1909).

PALAWAN: Brooke's Point, Uring Uring, 1 ♀, 18. viii. 1961.

One female, with a greasy thorax and shrivelled abdomen, is identified as probably this species.

G. distincta has not been previously recorded from the Philippines.

Tribe MYDAEINI.

Genus **Eumyiospila** Malloch.

Three species belong to this genus, viz. *argentata* (Walker), *pellucida* (Stein) and *flavicans* (Malloch) (c o m b. n o v.). I have studied the holotypes of all three. The systematic position of the Australian species *flavicans* has always been regarded as rather problematic, but I am convinced that it is closely related to the species of *Eumyiospila* and should be placed in this genus rather than in *Myospila* Rondani. It resembles *argentata* in facies and structure, and also possesses 1 *ad* seta on hind tibia and, in the male, short stout *av* spines in the apical half of all femora. The larva has been found in rotten fruit, which suggests affinity with *pellucida* and *argentata* rather than with the genera *Myospila* Rondani and *Mydaea* Desvoidy the larvae of which live in dung.

Eumyiospila sp.

TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 24. x. 1961.

This single female cannot be satisfactorily identified at present. It possesses 4 *post dc* setae, but has the dark thorax of *argentata* and the yellow unspotted abdomen of *flavicans*.

Genus **Xenosia** Malloch.

Xenosia bina bina (Wiedemann, 1830).

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 19. viii. 1961; 2 ♀ (1 in B.M.), 4. ix. 1961.

Recorded by Emden (1965: 433) from the Philippines.

Genus **Lasiopelta** Malloch.

As pointed out by Hennig (1965: 54), the name *Xenosina* Malloch, 1925, is preoccupied by *Xenosina* Warren, 1900. This genus must therefore be known as *Lasiopelta* Malloch.

Lasiopelta coxata (Malloch, 1935), comb. nov.

PALAWAN: Mantalingajan, Tagembung, 1150 m., 3 ♀ (1 in B.M.), 16. ix. 1961; 1 ♀, 18. ix. 1961; 1 ♀, 19. ix. 1961.

Previously known only from North Borneo (Malloch, 1935: 235). The male has not been described.

L. coxata is very closely related to *setipennis* (Malloch), c o m b. n o v., and *tarsalis* (Malloch), c o m b. n o v., to which it runs in Emden's key to the Oriental species of the genus (1965: 435). It differs from both species by having a well developed lower anterior *stpl* seta (hair-like or absent in the other two species), all coxae extensively blackened and grey-dusted, scutellum yellow only at tip, and infra-alar bulla black (almost always yellow in the other two species).

Lasiopelta femorata (Malloch, 1935), comb. nov.

PALAWAN: Mantalingajan, Tagembung, 1150 m., 1 ♂, 19. ix. 1961.

Not previously recorded from the Philippines. The type-locality is in North Borneo, and the species is widespread in the Oriental region (Emden, 1965: 445).

Lasiopelta ? flavipennis (Malloch, 1928), comb. nov.

PALAWAN: Mantalingajan, Tagembung, 1150 m., caught in Malaise-traps, 1 ♀, 17. ix. 1961; Pinigisan, 600 m., caught in Malaise-trap inside forest, 1 ♀, 7. ix. 1961.

These females are probably *flavipennis*, but they are very much darker than the single female and three males in the B.M., all of which are from Malaya. Structurally they agree very well with the Malayan female, but the femora are entirely black, and both tibiae and tarsi are infuscated.

Previously known only from Malaya (Emden, 1965: 454).

***Lasiopelta fulviventris* sp. n.**

♂. Head. Frons slender, at narrowest point separated by just over diameter of anterior ocellus. Eyes virtually bare, with only the usual microscopic pubescence; upper inner facets conspicuously enlarged. Ocellar setae fine, slightly shorter than anterior *prst dc*. Vertical setae short, twice as long as the adjacent post-ocular setulae; these latter short, with several scattered setulae below the upper row. Parafrontalia, on all but upper fifth, parafacialia and face densely silvery-white pruinose; genae and post-occipital region black in ground-colour, grey dusted. Interfrontalia, viewed from below, with the visible parts grey-dusted. Parafrontalia slender, even at lunula only a little broader than diameter of anterior ocellus. Interfrontalia present as a well-developed triangle on lower half of frons, visible only as a seam on upper half except for a tiny triangle before ocellar tubercle. *Ori* quite well developed, 6 crossed pairs with a few interstitials on lower half of frons; 1 quite strong pair of reclinate *ors* just before ocellar tubercle. 1st, 2nd and basal third of 3rd antennal segments yellow, the first 2 rather infuscated on disc; 3rd segment otherwise black, grey pruinose. 3rd antennal segment slender, almost 4 times as long as broad, in frontal view falling short of epistoma by slightly less than its own width. Arista with long regular plumosity, the longest of which all but equals length of 3rd antennal segment. Parafacialia slender, opposite insertion of arista not as broad as diameter of anterior ocellus, hardly tapered below. Genae slender; the depth below lowest eye-margin equal to width of 3rd antennal segment. Peristomal setae quite dense behind. Beard wholly black. Facial ridges with but 1—2 setulae above the cluster just above vibrissae. Palpi brown, long, slightly compressed, weakly clavate towards apex. Mentum of proboscis dark brown, slightly dulled by dust.

Thorax: Ground-colour wholly black, only post-alar declivity and the lateral and apical margins of scutellum dull yellow; some

pleural plates obscurely translucent. Mesonotum densely grey dusted, tinged with yellowish behind; viewed from above and behind with a pair of paramedian brown-dusted vittae just mesad of *dc*, from neck to level of 3rd *post dc*, the median area between them, from neck to scutellum, also brown dusted; after 3rd *post dc* with a pair of broad undusted black vittae that join an undusted fascia at scutellar suture, and with a pair of virtually undusted vittae between *dc* and *ia* rows; paired virtually undusted patches through *ph* and *sa* rows. Scutellum, viewed as above, with a pair of small lateral basal yellowish-grey dusted patches, disc otherwise undusted. Pleura thinly grey dusted. Prothoracic spiracle dark brown, metathoracic spiracle brown. Ground-setulae short, semi-decumbent, all black. *Acr* 0 + 1, the single (*prsc*) pair rather weak, placed well behind transverse level of *prsc dc* and closer to each other than to *dc*. *Dc* 2 + 4, all strong, the anterior *post* pair closer to suture than to 2nd pair. 2 *h*, the outer one 1½ times as long as inner one, with a short but distinct 3rd inner seta. 2 *ph*, the posterior one 1½ times as long as anterior one. 1 *ia*, the anterior one absent. 2 *sa*, the posterior one weak. *Pra* very weak, hardly distinguishable from the adjacent ground-setulae. Prosteronum black setulose. Propleural depression bare. 1 propleural and 1 prostigmatal seta, each surrounded by several setulae. 1st *npl* longer and stronger than 2nd; disc with a setula near base of 1st seta, otherwise bare. Mesopleuron with 4 strong setae in caudal row, and 1—2 setulae in upper anterior corner. Infra-alar bulla orange, darkened on disc. *Stpl* 1 + 2, the anterior and lower posterior setae subequal. Hypopleuron and pre-episternite III bare. Metathoracic spiracle without black setulae on margins. Scutellum with a strong apical and sub-basal lateral pair of setae. Ground-setulae as mesonotum, with some of the lateral and sub-apical ones stronger; lateral margins with a single row of setulae on extreme upper part, just below level of the setae; extreme lower angle and ventral surface with numerous fine pale setulae, from base to just before apex.

Legs: Fore legs missing. Coxae largely infuscated, trochanters dull yellow, mid femur black except in apical third, hind femur and tibiae yellow, tarsi yellow, slightly darker apically. Mid femur with rather long dense *av* to *v* setulae at base and 4 *pv* setae in basal half, otherwise without *av* or *pv* setae; 1 submedian *a* seta, preceded by a row of stronger setulae. Mid tibia with 3—4 *p* setae.

Hind femur without *pv* setae; *av* surface with a complete row of short setae that become stronger towards apex, only 1 before apex really long and strong. Hind tibia with 2 *ad* and 2 *av* setae.

Wings: Yellowish tinged, especially costally; veins orange-yellow. Basicosta and epaulet orange-yellow. Small cross-vein placed below point where vein 1 enters costa. Hind cross-vein oblique, weakly sinuate. Vein 1 bare below, setulose in basal part above. Vein 3 with some setulae on node at base and just beyond on both surfaces. Vein 4 hardly curved forward towards vein 3 just before wing-margin. Vein 5 bare above and below. Squamae and halteres rather deep yellow.

Abdomen: Entirely orange-yellow in ground-colour with some rather more intensely orange-yellow patches due to post-mortal rot but entirely without dark markings or pattern. In extreme caudal view with very thin and irregular brownish-yellow dusting. Macrochaetae unusually strong and erect: tergites 4 and 5 each with a complete row of marginal setae; tergite 4 with 2 lateral discals and tergite 5 with a complete discal row. Sternite I bare. Sternites concolorous with the tergites, venter with a dark line on each side along the margin between sternites and tergites.

Measurements: Body length 7.5 mm. Wing length 7.0 mm.

Holotype ♂, Philippines, PALAWAN: Mantalingajan, Pini-gisan, 600 m., caught in Malaise-traps, 11. ix. 1961. In the Zoological Museum, Copenhagen.

L. fulviventris is distinguished from all other species of the genus by the scutellum, which is bare laterally but has numerous pale setulae ventrally, and by the entirely fulvous abdomen.

Lasiopelta pudica pudica (Stein, 1915), comb. nov.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀ (in B.M.), 18.viii.1961; 1 ♂, 20.viii.1961; 1 ♀, 25.viii.1961. — BALABAC: Dalawan Bay, caught in Malaise-traps, 1 ♀, 7.x.1961; 1 ♀ (in B.M.), 9.x.1961; 1 ♀, 10.x.1961; 1 ♂, 12.x.1961.

Not previously known from the Philippines. Recorded from Formosa, Sumatra, and the Sunda Islands.

Lasiopelta pudica rufomarginata (Malloch, 1925), comb. nov.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 25.viii.1961. — MINDANAO: Sapamoro, Curuan district, caught in Malaise-traps, 2 ♀ (1 in B.M.), 16.xii.1961; 1 ♀,

18.xii.1961; 1 ♀, 19.xii.1961.

Originally described from the Philippines: Luzon.

Lasiopelta tarsalis (Malloch, 1935), comb. nov.

Xenosina scutellaris Malloch, 1935, s y n. n o v.

PALAWAN: Mantalingajan, Tagembung, 1150 m., 1 ♀, 15.ix.1961.

Not previously recorded from the Philippines. Known from North Borneo, as well as from the Asiatic mainland from North India to Formosa and to Malaya.

Emden (1965: 448) was more or less certain that *scutellaris* is the female of *tarsalis*, and in my opinion this is certainly the case. I have studied series of *Lasiopelta* from New Guinea and adjacent territories, including both sexes of single species caught together at the same locality, and it is not uncommon in several species for the males to have scutellar margins bare whilst the associated females have one or more rows of setulae below the level of the lateral setae. I have also studied the holotypes of *scutellaris* and *tarsalis* in the B.M., and now formally establish this synonymy.

Lasiopelta spp. indet.

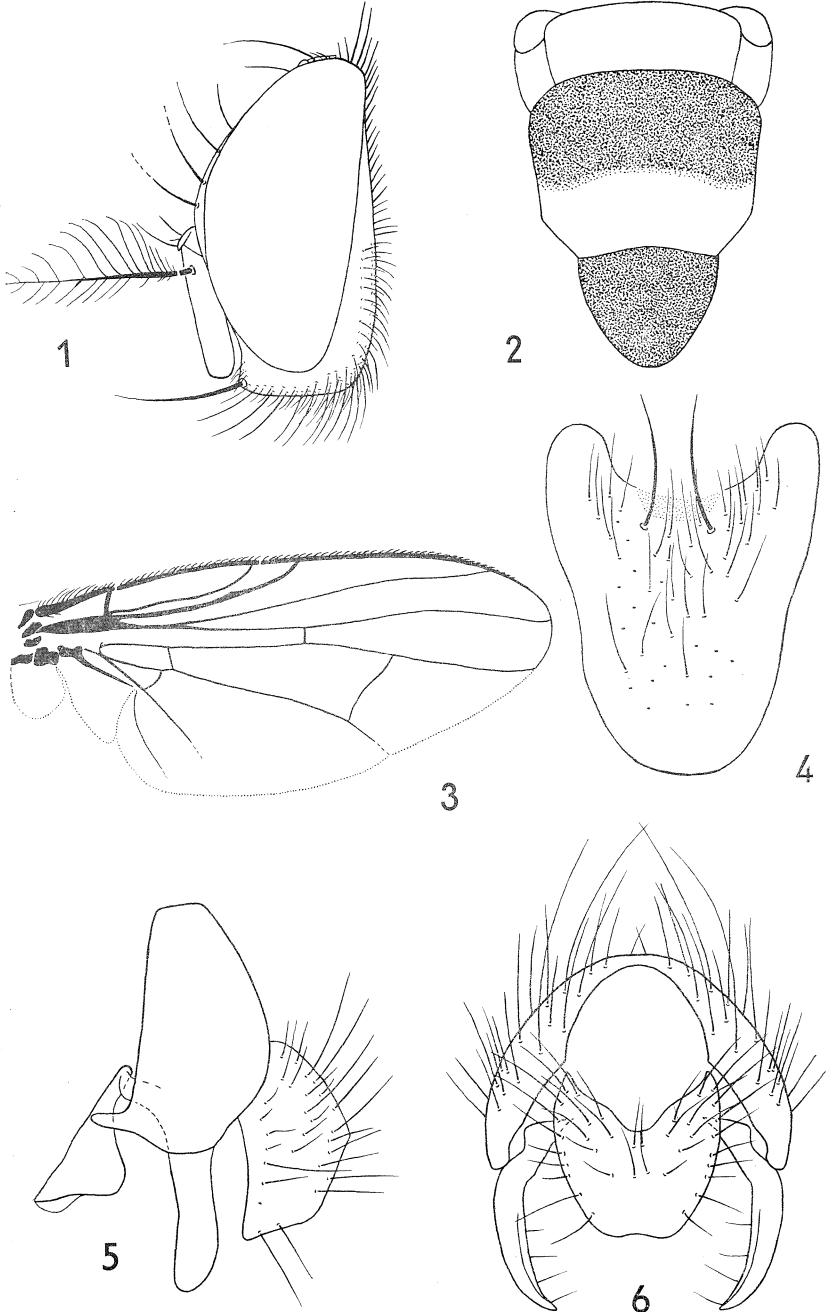
TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 24.x.1961; 1 ♀, 9.xi.1961.

These two females, representing two species, do not agree with any of the described species of the genus. They are both related to *tarsalis*.

Parapictia gen. n.

This genus is erected for a remarkable new species from the Philippines. It resembles a small species of *Pictia* Malloch or *Hellographa* Malloch in general appearance, but belongs to the Mydaeini as defined by Hennig (1956, 1965) and Emden (1965).

Male head holoptic; female head dichoptic, interfrontalia bare and proclinate *ors* absent. 1 *ia* seta. Post-alar declivity, supra-squamal ridge, prosternum, propleural depression, infra-alar bulla and pteropleuron bare. Metathoracic spiracle without setae on margins. Mid femur with a short *a* preapical seta. Hind tibia with the *ad* preapical seta slightly shorter than *d*, both longer than tibial diameter. Subcostal sclerite bare. Stem-vein bare above, with 1 black setula below just before humeral cross-vein. Vein 1 setu-



Figs. 1—6. *Parapictia nudisterna* gen. n., sp. n. 1. Head, lateral view (holotype). 2. Mesonotum, dorsal view (holotype). 3. Wing. 4. Sternite 5. 5. Hypopygium, lateral view (aedeagus and setae on epandrium omitted). 6. Hypopygium, caudal view.

lose along entire length above, with a few setulae in apical part below. Vein 3 with setulae from the node at base to small cross-vein on both wing-surfaces. Vein 4 weakly curved towards vein 3 just before wing-margin (Fig. 3). Lower squama of the *Phaonia*-type, bare. Sternite 1 bare. Male aedeagus (Fig. 7) extremely simple; epiphallus present, distiphallus unmodified, prae-gonite fused to hypandrium. Female ovipositor (Figs. 9—11) with sternite 6 and tergite 8 divided laterally, tergite 7 with an ancillary strip directed ventrad, sternite 8 divided longitudinally into 2 plates; post-abdominal spiracles absent; 3 spermathecae. Egg typical of the Mydaeini.

Type-species: *Parapictia nudisterna* sp.n.

Parapictia is distinguished from the other genera of Oriental Mydaeini by the bare prosternum (distinction from *Xenosia* and *Lasiopelta*) and by the setulose 1st vein (distinction from *Mydaea*, *Myospila*, *Eumyiospila*, and *Hebecnema*). It may be separated from *Pictia* and *Heliographa*, which closely resembles in build and general appearance, by the bare prosternum.

The aggregate of characters place this genus unquestionably in the Mydaeini, but its affinities within this group are at present not very clear. The extremely simple aedeagus, with the strong fusion between prae-gonite and hypandrium, shows affinity with the Australasian genus *Papuaia* Malloch. The rather elongate ovipositor (from the point-of-view of the Mydaeini) with the peculiar tergal and sternal development, is very characteristic and unlike any other Mydaeine genus. The pair of flanges at the caudal extremity of the egg are longer than those of *Mydaea* and *Myospila*, but shorter than those of *Xenosia* and *Lasiopelta*.

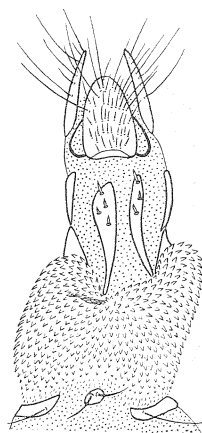
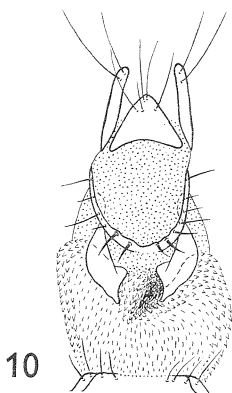
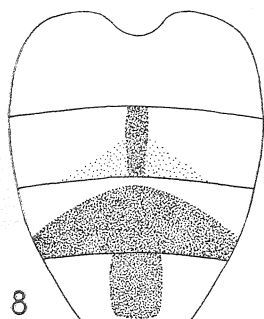
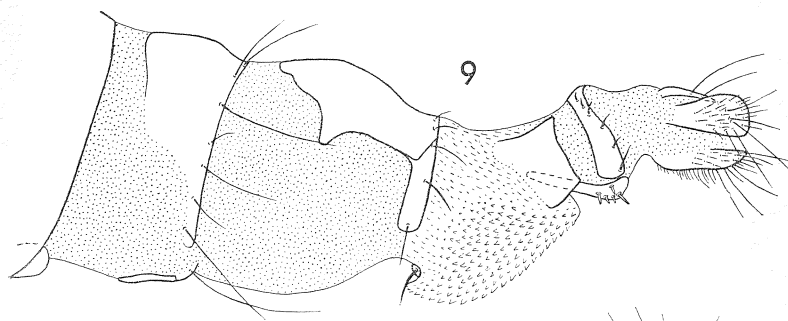
***Parapictia nudisterna* sp. n.**

♂. H e a d: (Fig. 1). Frons slender, at narrowest point separated by a little over twice diameter of anterior ocellus. Eyes virtually bare, with only the usual microscopic pubescence; upper inner facets enlarged as usual but not conspicuously so. Ocellar setae quite well developed, subequal to anterior *prst dc*. Vertical setae short, hardly distinguishable from the adjacent post-ocular setulae; the latter short, in 1 regular row and with virtually no setulae below the upper row. Parafrontalia, parafacialia, face and post-occiput silvery-white pruinose; genae grey, black in ground-colour; interfrontalia, viewed from below, with the visible parts

grey dusted. Parafrontalia slender throughout, only slightly broadened from vertex to lunula, at middle parafrontale as broad as diameter of anterior ocellus. Interfrontalia slender, two slender triangles visible before ocellar tubercle and above lunula, present only as a seam for a short distance on median part of frons. 4—5 pairs of quite strong inclinate *ori* on lower half of frons, the upper one more reclinate, without interstitials; 1 pair of distinct proclinate *ors* just before ocellar tubercle. 1st and 2nd antennal segments, and most of arista, dark brown; 3rd segment pale yellow, sometimes more orange apically, white pruinose. 3rd segment quite long and slender, 4 times as long as broad, in frontal view reaching epistoma. Arista with long rather irregular plumosity, the longest of which equals about 2/3 length of 3rd antennal segment. Parafacialia slender, opposite insertion of arista as broad as diameter of anterior ocellus, hardly tapering below. Parafacialia and genae bare. In lateral view, parafacialia and parafrontalia largely obscured, except at lunula. Genae slender; the depth below lowest eye-margin slightly less than width of 3rd antennal segment. Peristomal setae rather fine, dense behind. Beard wholly black. Facial ridges without setulae ascending above the cluster of setulae above vibrissa. Mentum of proboscis short and stout, dark brown, dulled by dust. Palpi brown, long, slender, rather compressed and weakly clavate towards apex.

T h o r a x: Ground-colour entirely black. Mesonotum covered with dense silvery-white dust, leaving only a broad fascia behind suture, whose posterior margins run through posterior *sa*, *ia*, and between 3rd and 4th *dc*, and the scutellum undusted black (Fig. 2). Fore coxa, posterior part of mesopleuron and sternopleuron, and anterior part of pteropleuron silvery-white dusted, pleura otherwise undusted. Spiracles dark brown. Ground-setulae short, black, semi-decumbent. *Acr* 0+1, the single (*prsc*) pair fine, placed behind transverse level of *prsc dc* and closer to each other than to *dc*. *Dc* 2+4, the first 2 *post* pairs short, about half as long as the last 2, anterior *post* pair closer to suture than to 2nd pair. 2 *h*, the outer one 1½ times as long as inner one. 2 *ph*, the posterior one twice as long as anterior one. 1 *ia*, placed caudad of 3rd *dc*, anterior one absent. 2 *sa*, posterior one fine and weak. *Pra* present

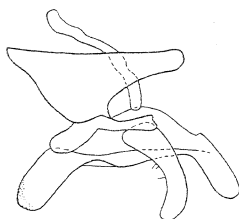
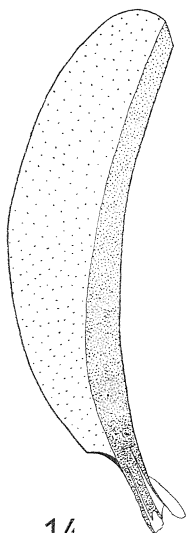
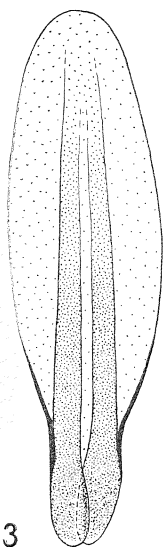
Figs. 7—14. *Parapictia nudisterna* gen. n., sp. n. 7. Aedeagus, lateral view. 8. Abdomen, dorsal view (holotype). 9. Ovipositor, lateral view. 10. Apex of ovipositor, dorsal view. 11. Apex of ovipositor, ventral view. 12. Spermatheca. 13. Egg, dorsal view. 14. Egg, lateral view.



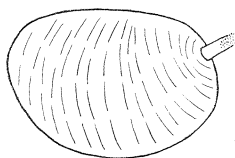
11

8

10



7



12

13

14

but short, about half length of 2nd *npl*. Post-alar callus with 2 setae. 1 propleural and 1 prostigmatal seta, the former surrounded by few, the latter by several, setulae, neither with an auxiliary seta. 1st *npl* longer and stronger than 2nd; disc of notopleuron otherwise bare. Mesopleuron with 3 strong setae in caudal row, with a conspicuous black setula in upper anterior corner. Infra-alar bulla dark brown. *Stpl* 1+2, the lower posterior one slightly weaker than the anterior one, and much closer to upper posterior one than to anterior one. Hypopleuron with a few fine setulae on beret and below spiracle, bare on pre-episternite III. Metathoracic spiracle small, subspherical, Squamopleuron and metanotum bare. Scutellum with a very strong apical and sub-basal lateral pair of setae. Disc entirely setulose, with some stronger ones laterally and apically; lateral margins and ventral surface entirely bare.

L e g s: Brownish-black, fore and mid knees and tibiae yellow to dull yellow. Tarsi unremarkable, pulvilli short. Fore femur without *av* setae, with a complete *pv* row. Fore tibia without submedian setae. Mid femur with 3—4 *pv* and a row of short *av* setae in basal 2/5; 1—2 strong submedian *a* setae, preceded by a row of strong setulae; 3 *d-p* preapical setae. Mid tibia with 2 *p* setae. Hind coxa bare behind. Hind femur with 2—4 short *av* setae in basal third, and up to 5 in apical half of which 2 are strong, otherwise without *av* or *pv* setae; *ad* row complete; 1 *d* and 1 *pd* preapical setae. Hind tibia with 1 *ad* and 1 *av* seta.

W i n g s: Weakly yellowish tinged, veins orange-yellow, venation as in Fig. 3. Epaulet and basicosta black, contrasting with the yellow costa. Costa setulose ventrally to the apex of vein 2, the spine inconspicuous. Small cross-vein placed slightly basad of point where vein 1 enters costa. Hind cross-vein oblique, weakly sinuate. Veins bare, apart from those mentioned in generic diagnosis. Upper squama creamy, lower squama creamy to yellow, poorly defined brown markings as follows: tergite 3 with a slender on disc; margins yellow, fringes pale. Halteres yellow.

A b d o m e n: Orange-yellow in ground-colour, with rather poorly defined brown markings as follows: tergite 3 with a slender to broad median vitta, with some infuscation on each side towards hind-margin; tergite 4 with a broad crescent-shaped fascia that lies along hind-margin and almost reaches the fore-margin medially; tergite 5 with a broad median vitta to rather extensively infuscated (Fig. 8). Even in extreme caudal view hardly dulled by

dust, some very weak dust apparent only on the yellow areas on anterior tergites. Macrochaetae quite strong and erect: tergites 4 and 5 each with a marginal row, tergite 4 with a few lateral discals and tergite 5 with a discal row. Sternites yellow.

Hypopygium: (Figs. 5—7). Surstyli and cercal plate simple in structure. Aedeagus very small, without striking modifications. Sternite 5 (Fig. 4) simple, much longer than broad.

Measurements: Body length 6.0—7.0 mm. Wing length 5.0—6.0 mm.

♀. Differs from the male as follows: **Head:** Eyes broadly separated; frons at middle less than an eye-width. Upper inner eye-facets not enlarged. Ocellar setae long and strong, as long as 3rd *post dc*, directed forwards and outwards. *Vti* strong, crossed, hardly longer than the outcurved *vte*; *pot* rather weak, outcurved. Parafrontalia more thinly pruinose on upper 1/4, almost grey. Interfrontalia black in ground-colour, viewed from below wholly brownish-grey dusted, frontal triangle visible as a subshining black streak that reaches almost to lunula. Parafrontalia slender, at middle of frons equal to almost twice diameter of anterior ocellus, broadened at lunula to well over width of 3rd antennal segment. Interfrontalia broad, narrowed towards lunula, with convex margins. 4 pairs of inclinate *ori* on lower 2/3 of frons, only the lowest pair really strong; 2 rather strong reclinate *ors*, the upper one almost twice as long as lower one and placed closer to it than to *vti*; parafrontalia otherwise with a few short proclinate setulae on lower half. Parafacialia broader, opposite insertion of arista broader than diameter of anterior ocellus. Palpi broader.

Thorax: Pattern as in male, but mesonotum also with indications of a pair of slender brown to black undusted vittae at neck mesad of the *dc*, and the dusting between them tinged with yellowish. Fore coxa hardly if at all dusted. First 2 *post dc* stronger.

Legs: Generally rather darker.

Abdomen: Dark markings a little more extensive and diffuse, tergite 3 also with a crescent-shaped band of variable extent, tergite 5 with the vitta often rather reduced, markings tending to be black rather than brown. In caudal view undusted. Tergite 4 without lateral discal setae.

Ovipositor: (Figs. 9—11). Tergite 9, post-genital plate and cerci short. Sternite 8 divided longitudinally into 2 elongate

plates; sternite 7 minute, subcircular; sternite 6 divided into 2 small plates overlapping longitudinally. Tergite 8 divided into two, the posterior plate extending ring-like over the ovipositor, the anterior one further divided longitudinally into two broad plates; tergite 7 broad, with a finger-like posterior lateral extension, indented anteriorly so as to appear bifurcate; tergite 6 broad, simple. Spermathecae (Fig. 12) large, lemon-shaped, conspicuously striate.

M e a s u r e m e n t s : Body length 6.5—7.0 mm. Wing length 5.5—6.0 mm.

E g g. Two eggs, 2 mm. long, were found in the abdomen of the single female dissected (Figs. 13 and 14). They are characteristic of the Mydaeini, boat-shaped, without lateral flanges, with a pair of more strongly sclerotised strips along dorsal surface that extend into a pair of short overlapping flaps.

H o l o t y p e ♂, Philippines, BALABAC: Dalawan Bay, caught in Malaise-traps, 11.x.1961. In the Zoological Museum, Copenhagen.

P a r a t y p e s, 6 ♂, 5 ♀, data as for holotype except for dates: 1 ♂, 8.x.1961; 1 ♂, 1 ♀, 9.x.1961; 1 ♂, 2 ♀ (1 ♀ in B.M.), 10.x.1961; 3 ♂, 2 ♀ (2 ♂ in B.M.), 11.x.1961. In the Zoological Museum, Copenhagen, except for 2 ♂ and 1 ♀ in the British Museum (Natural History), London, as indicated. — Additional paratypes, 3 ♀: BORNEO: Sarawak, Merirai V., Kapit District, secondary forest, 1-6.viii.1968 (T. C. Maa), 1 ♀ (Bishop Museum, Honolulu). — N. BORNEO: Samawang, near Sandakan, jungle, 14.vii.1927 (C. Boden Kloss and H. M. Pendlebury), 1 ♀ (B.M.). — MALAYA: Pahang, Fraser's Hill, 4000 ft., 27.i.1929 (H.M. Pendlebury), 1 ♀ (B.M.).

Tribe LIMNOPHORINI.

Genus **Limnophora** Robineau-Desvoidy.

Limnophora plumiseta Stein, 1903.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 2 ♂, 18.viii.1961; 1 ♀, 31.viii.1961.

Not previously recorded from the Philippines.

Limnophora spp. indet.

Three species are represented in the Noona Dan material by females only. These probably belong to new species, but cannot

be described until good series including males are available.

BALABAC: Dalawan Bay, 1 ♀, 12.x.1961. — TAWI TAWI: Lapid Lapid, 1 ♀, 21.xi.1961; Tarawakan, caught in Malaise-traps, 3 ♀, 28.x.—10.xi.1961.

Genus **Heliographa** Malloch.

Heliographa insignis (Stein, 1900).

PALAWAN: Mantalingajan, Pinisigan, 600 m., caught in Malaise-traps inside forest, 2 ♀, 5 and 12.ix.1961.

Not previously recorded from the Philippines.

Genus **Lispe** Latreille.

Lispe binotata Becker, 1914.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 5 ♀ (1 ♀ in B.M.), 18.viii—16.ix.1961. — TAWI TAWI: Tarawakan, caught in Malaise-traps, 2 ♀, 26 and 29.x.1961.

Not previously recorded from the Philippines.

Lispe flavicornis Stein, 1909.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 16.ix.1961.

Not previously recorded from the Philippines.

Lispe glabra Wiedemann, 1824.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 25.viii.1961.

Although females of this group of *Lispe* are very difficult to distinguish, I am certain that this large female (body-length 9.0 mm.) belongs to this species and not to *incerta* Malloch or *assimilis* Wiedemann. It agrees with B.M. material of *glabra* in such important characters as absence of *prst dc* setae, except for 1 vestigial pair, anterior *ph* seta rudimentary, arista slightly longer plumose, etc.

Previously recorded from the Philippines, as *grandis* sp.n., by Thomson (1869: 561).

Lispe incerta Malloch, 1925.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♂, 29.viii.1961.

This specimen agrees perfectly with *incerta* Malloch in the sense of Snyder (1965: 262) and with Australian specimens in the B.M. identified by Malloch. It is probably the species recorded by Malloch (1922: 388) as *modesta* Stein from the Philippines.

Not previously recorded from the Philippines.

Tribe EGINIINI.

Genus *Cypselodopteryx* Townsend.

Cypselodopteryx ?mima (Townsend, 1926).

PALAWAN: Mantalingajan, Tagembung, 1150 m., caught by mercury-light, 19.00—03.30 hours, 1 ♂, 17.ix.1961.

Originally described from Sumatra. The tribe has not previously been recorded from the Philippines.

There are quite a number of small but important differences between this specimen and the holotype of *mima*, particularly in leg chaetotaxy. As *mima* is known only from the female holotype and the present male lacks wings, it is not possible to decide whether the differences are due to sexual dimorphism or are of specific importance. For the present, therefore, this male is assigned to *mima*.

Tribe STOMOXIINI.

Genus *Stomoxys* Geoffroy.

Stomoxys dubitalis Malloch, 1932.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 18.viii.1961; 1 ♀, 22.viii.1961; 1 ♀, 25.viii.1961. — TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 26.x.1961; 1 ♀, 5.xi.1961.

Previously recorded from the Philippines by Zumpt (1940: 130).

Stomoxys indica Picard, 1908.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♂, 15.ix.1961; 1 ♀, 1.ix.1961. — TAWI TAWI: Tarawakan, caught in Malaise-traps, 1 ♀, 6.xi.1961. — MINDANAO: Sapanoro, Curuan District, 1 ♀, 22.xii.1961; caught in Malaise-traps, 1 ♀, 21.xii.1961.

Previously recorded from the Philippines by Zumpt (1940: 134).

Stomoxys discalis Malloch, from North Borneo, is very close to

indica and may only be a darker mountain form of it. The thoracic pattern in *discalis*, as described by Malloch, is very characteristic, and the tarsi are dark, as opposed to yellow in *indica*.

Genus **Haematobia** Le Peletier and Serville.

Haematobia exigua de Meijere, 1903.

PALAWAN: Brooke's Point, Uring Uring, caught in Malaise-traps, 1 ♀, 18.viii.1961. —TAWI TAWI: Lapid Lapid, caught by mercury-light, 19.00—01.00 hours, 1 ♂, 21.xi.1961.

Previously recorded from the Philippines by Emden (1965: 178).

Summary.

The Noona Dan Muscidae from the Philippines of the tribes Hydrotaeini, Phaoniini, Mydaeini, Limnophorini, Eginiini and Stomoxyini are dealt with. 28 species in 18 genera have been identified, including 7 genera and 16 species not previously recorded from the Philippines. New taxa are *Parapictia nudisterna* gen. n., sp. n., and *Lasiopelta fulviventris* sp. n. 9 new combinations and 1 new synonymy are established in the genera *Eumyiospila* Malloch and *Lasiopelta* Malloch.

References.

- Emden, F. I. van, 1965: The Fauna of India and the adjacent countries. — Diptera, VII, Muscidae, 1: XIV + 647 pp. Delhi.
- Hennig, W., 1955—1964: Muscidae in Lindner, E., Fliegen palaearkt. Reg., 63b. 1110 pp. Stuttgart.
- , 1965: Vorarbeiten zu einem phylogenetischen System der Muscidae (Diptera: Cyclorrhapha). — Stuttg. Beitr. Naturk., 141: 100 pp.
- Malloch, J. R., 1922: Exotic Muscaridae (Diptera), VII. — Ann. Mag. nat. Hist. (9), 10: 379—391.
- , 1923: Exotic Muscaridae (Diptera), IX. — Ann. Mag. nat. Hist. (9), 11: 664—675.
- , 1926: Notes on Oriental Diptera, with descriptions of new species. — Philipp. J. Sci., 31: 491—512.
- , 1935: Exotic Muscaridae (Diptera), XXXIX. — Ann. Mag. nat. Hist. (10), 16: 217—240 and 321—343.
- Petersen, Børge, 1966: The Noona Dan Expedition, 1961—62. Insects and other land arthropods. — Ent. Meddr, 34: 283—304.
- Pont, A. C., 1966: Notes on the Muscidae of New Guinea (Diptera). I. The types of Francis Walker. — Ann. Mag. nat. Hist. (13), 9: 87—99.
- Snyder, F. M., 1965: Muscidae in Insects of Micronesia, 13 (6): 191—327.

- Thomson, C. G., 1869: *Diptera in Kongliga svenska fregatten Eugénies resa omkring jorden*. 617 pp.
- Zumpt, F., 1940: 4. Vorstudie zu einer monographischen Bearbeitung der Stomoxydinae. Ueber einige afrikanische und orientalische Stomoxys-Arten. — *Z. angew. Ent.*, 27: 126—141.
-