

## DIPTERA

## SOME NEW SPECIES OF NEMOCEROUS DIPTERA FROM GUAM

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Recently O. H. Swezey of the Hawaiian Sugar Planters' Association Experiment Station sent me a small collection of nemocerous Diptera that were collected on Guam in 1936. Among these are eight species representing five genera of the family Scatopsidae, Ceratopogonidae, and Chironomidae described herewith. In addition to these, the genera *Forcipomyia*, *Dasyhelea*, *Anatopynia*, and *Pentapedilum* are also included in the collection as well as a specimen of the genus *Eusimulium*, family Simuliidae. Since the five genera last mentioned are each represented by but one or two female specimens, some of them defective, it was not thought advisable to attempt to describe or name them.

## FAMILY SCATOPSIDAE

1. *Scatopse guamensis*, new species (fig. 1, *a-e*).

Male and female: black, including antennae, halteres, and legs except the tarsi which are yellow. Dorsum of thorax and abdomen dull, almost velvety, pleura and venter more or less shiny. Antennae of the male about half again as long as the transverse diameter of the head, the terminal segment a half longer than wide, the others transverse. Antennae of the female a little longer, the terminal segment about twice as long as wide. Thorax with short, suberect pubescence. Hind basitarsus twice as long as the second segment. Abdomen depressed, widest just beyond the middle. Terminalia of the male usually retracted (extended in fig. 1, *c*), the claspers broadened apically, tapering toward the base (fig. 1, *b*), mesosome about as long as broad (fig. 1, *d*). Terminalia of the female (fig. 1, *e*) with a pair of prominent cerci, the last two sternites of characteristic shape; the anal segment somewhat extended in the figure. Spermatheca single, spherical, sclerotized. Wing (fig. 1, *a*) hyaline, anterior veins dark, posterior veins colorless, microtrichia dense, coarse, and uniformly distributed. Venation as figured; the second cubital vein strongly curved as in the *S. fuscipes* group; second costal division a fourth shorter than the first. Length of body 1.5 mm.; of wing, measured from the humeral crossvein, 1.2 mm.

Piti, July 21; Sumay, June 22, Swezey. Holotype and allotype in the Cornell University collection; paratypes in the collections of Cornell University and the Experiment Station, Hawaiian Sugar Planters' Association.

This species differs from *Scatopse fuscipes* Meigen in having the first cubital vein extending to the wing margin and in the form of the median fork. *S. fuscipes* is the genotype of Enderlein's genus *Rhaeboza*, which is distinguished from *Reichertella* by the strongly curved second cubital vein. *Scatopse*, as interpreted here (following Edwards, 1925, and Duda, 1934), includes species both with and without the spur at the base of the anterior branch of

the media, thus embracing both *Scatopse* sensu stricto and *Reichertella*. The character upon which *Rhaeboza* is based scarcely warrants generic rank. The nomenclature of wing venation followed here is that of Comstock and not of Edwards (Ann. Applied Biology 12: 271, 1925).

#### FAMILY SCIARIDAE

### 2. *Psectrosciara brevicornis*, new species (fig. 1, *f*, *g*).

Female: head and thorax black, subshining; antennae (fig. 1, *g*) blackish, pubescent, shorter than the head, nine-segmented, the apical segment a third longer than wide. Eyes broadly contiguous, lower ocellus nearly twice its diameter above the level of the upper margin of the eye; eyes with a short and delicate seta, less in length than the diameter of a facet, placed at each facet angle, best seen in a slide mount. Palpi short, apparently one-segmented. Abdomen black, subshining, becoming more brownish posteriorly, pubescent. Wings clear hyaline, radial veins blackish, the other veins colorless; venation as figured (figure 1, *f*); subcosta and anal vein delicate, the others sharply defined; base and tip of the anterior branch of the media distinct, though somewhat weak; apex of anterior branch of cubitus obliterated. Microtrichia coarse, macrotrichia lacking in the costal cell and the basal part of the radial cell, elsewhere, including on the veins, sparsely but well distributed. Halteres dark. Legs more or less yellowish brown; strong; tibiae slender at base gradually broadening toward tip, in the hind leg three times as broad apically as at base. Basitarsi approximately twice as long as the following segment. Proportions of the hind leg segments in the ratio 40:40:18:10:8:5:8. Length 1.6 mm., of wing 1.07 mm., measured from the humeral crossvein, of the antenna 0.25 mm.

Sumay, June 22, 1936, Swezey.

Holotype in the Cornell University collection; paratype in the Experiment Station, Hawaiian Sugar Planters' Association.

This species resembles *P. mahensis* Kieffer from the Seychelles, but differs slightly in wing venation, in having nine instead of 10 antennal segments, and a distinctly shorter terminal segment. Kieffer's statement as to the number of antennal segments in *P. mahensis* has been corrected by Enderlein (1912).

#### FAMILY CERATOPOGONIDAE

### 3. *Atrichopogon rarus*, new species.

Male and female: head and antennae dark brown, the pedicel of the antenna and the mouth parts yellow. Thorax yellowish brown to brown, more or less shining, mesonotum with three dark brown vittae, in some cases coalescent, in other cases scarcely darker than the background, lightly yellow pollinose. Scutellum yellowish brown to brown, scarcely lighter than the mesonotum. Abdomen fuscous, contrasting with the lighter thorax and terminalia. Legs, including coxae, yellow to yellowish brown, tarsi somewhat darker apically. Hind basitarsal-tibial ratio 0.4. Claws cleft. Eyes contiguous, bare. Antennae 15-segmented (counting the minute scape); in the male segments 12 to 15 combined about a third longer than segments 3 to 11 combined, 3 to 11 short fusiform, 12 to 15 cylindrical, the latter having the proportions 7:20:14:17; apical segment with stylet. In the female antennal segments 11 to 15 combined nearly 2.5 times as long as 3 to 10 combined, 15 slightly longer than 14, 11 to 14 subequal; 3 to 10 approximately spherical. Palpi in both sexes five-segmented, third longest and with a sense pit, fourth and fifth subequal, the fifth somewhat spatulate.

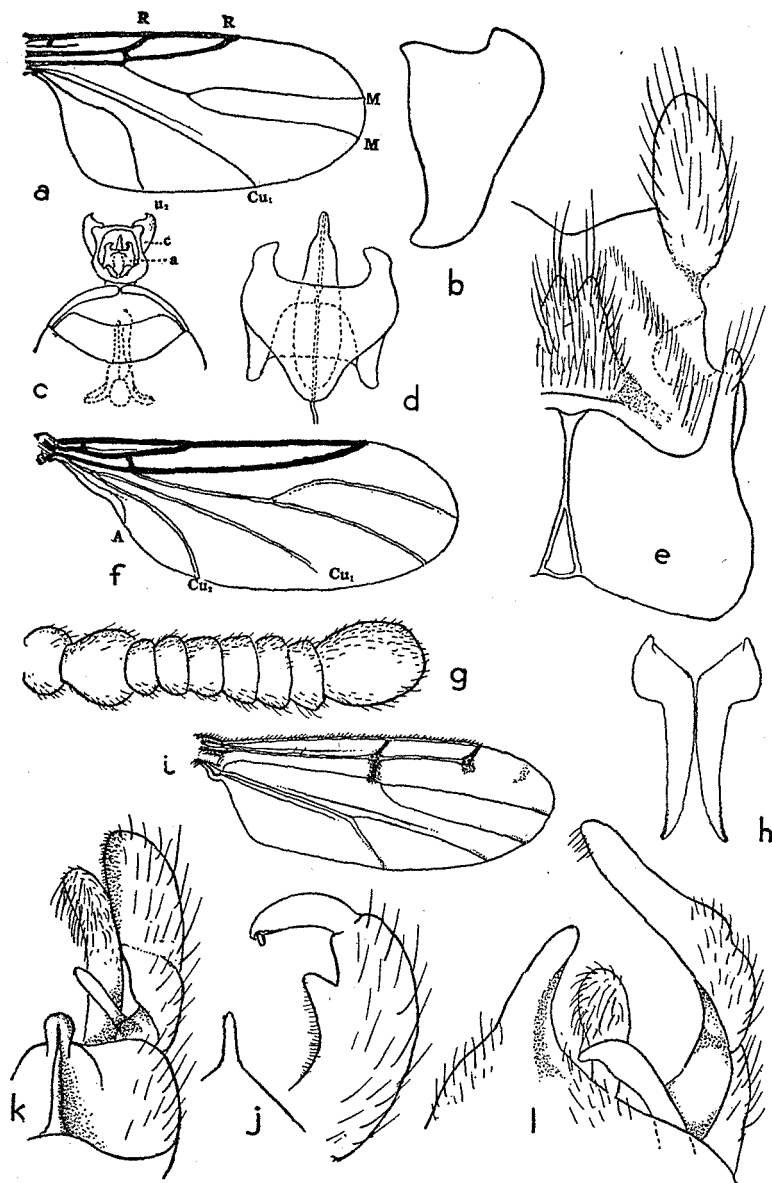


FIGURE 1.—a-e, *Scatopse guamensis*: a, wing of female  $\times 34$ ; b, clasper of male  $\times 225$ ; c, hypopygium of male, ventral aspect  $\times 45$  (a, mesosome, c, clasper); d, mesosome of male, ventral aspect  $\times 225$ ; e, terminalia of female, ventral aspect  $\times 225$ . f, g, *Psectrosciara brevicornis*: f, wing of female  $\times 45$ ; g, antennae of female  $\times 225$ . h, *Culicoides guttifer* deMeijere, var. *histrion*, inner processes of male, caudal end directed downward  $\times 225$ . i, *Eukraiohelea inusitata*, wing of female  $\times 24$ . j, *Smittia insulsa*, ventral aspect of half of hypopygium  $\times 225$ . k, *Chironomus insolens*, ventral aspect of half of hypopygium  $\times 112$ . l, *Chironomus eximius*, latero-ventral aspect of half of hypopygium  $\times 225$ .

Wings in both sexes with coarse microtrichia, that of the male without macrotrichia, of the female with macrotrichia on the distal third but extending back over the cubital cells. In the male the costa ends at 0.7 wing length measured from the cubital crossvein, that of the female at about 0.75 wing length; in both sexes the first radial cell is about a fourth as long as the second; angle between branches of the cubitus less than 70 degrees in the male, nearly 90 degrees in the female, its fork on level of the tip of first radial cell; petiole of the media shorter than the r-m crossvein. Halteres brownish. Length of body 2.25 mm., of wing 1.8 mm.

Piti, swarming on leaves of *Intsia bijuga*, Sept. 14, May 9, Nov. 4, Swezey; Agat, Oct. 17, Swezey.

Holotype and allotype in the collection of Cornell University, paratypes in the collections of Cornell University and of the Experiment Station, Hawaiian Sugar Planters' Association.

#### 4. *Culicoides guttifer* deMeijere, var. *histrion*, new variety (fig. 1, *h*).

Male and female: dark brown, including legs and halteres; immediately above and below the knees slightly paler. The mesonotum cinereous with subshining black markings as follows: a pair of narrow vittae anteriorly (in some cases contiguous) between the shining humeral pits; a pair of elongate oval spots in the prescutellar depression, a broader pair of elongate lateral vittae behind the humeral pits, a transverse spot covering and in front of the scutellar suture, and a more or less elongate oval area in front of each wing base. These marks resemble somewhat those of *C. crepuscularis* Malloch (1915) but the median lines have parallel sides. The extent of these marks seem subject to some variation and in some cases are more brownish. The hypopygium resembles that of *C. copiosus* Root and Hoffman (Am. Jour. Hygiene 25: 17, 1937) rather closely, including claspers, aedeagus, and apico-lateral processes of the tergite, but the inner processes (so-called harpes) are less tapering (fig. 1, *h*) and not so attenuated apically. Wings with about 16 round hyaline areas on a gray background, those at the base of the wing more or less diffuse. The elongate dark stigmal spot covers the distal half of the first and all of the second anterior radial cell. The large hyaline area covering the crossvein encroaches on the basal half of the first radial cell. The venation and the wing markings are like those of *C. guttifer* deMeijere as shown by Edwards (Bull. Ent. Res. 13: 169, fig. 2, 1921). Length 1.25 mm., wing, measured from the humeral crossvein, 1 mm.

Piti, August to November, Swezey; Libugon Farm, July 10, Swezey.

Holotype and allotype of this variety in the Cornell University collection; paratypes in the collections of Cornell University and of the Experiment Station, Hawaiian Sugar Planters' Association.

#### 5. *Eukraiohelea inusitata*, new species (fig. 1, *i*).

Female: head and large basal segment of antenna yellowish brown; palpi, mouth parts, and flagellum of antenna, dark brown. Antenna short bristly haired, slender, about two thirds as long as the body, intermediate segments fusiform, terminal segments slender, cylindrical, progressively increasing in length. Thorax dusky yellow, ground color of mesonotum brown, slightly shining, with three slender pruinose vittae that are transversely connected beyond the middle by some broader pruinose bands; laterad of the vittae are several pruinose spots. Posterior margin of the scutellum pruinose. Abdomen brown, posterior margins of the segments pruinose, more extended on posterior segments. Legs, including coxae, yellow, tips of tibiae blackened, fourth tarsal segment short and strongly bilobed, fifth segment longer and more slender, each with one long claw and a short basal lateral tooth; hind tibiae broadened at tip. Wing venation as figured (fig. 1, *i*); costa bristly; petiole of radius with a pair of short bristles before the middle; other veins bare,

the wing margin fringed; microtrichia present, macrotrichia absent. The wing spots that narrowly margin the tips of the veins, and more prominently the crossvein, and at the angle of the radial sector near its tip and a small crescent beyond this, owe their brown color to coarser microtrichia. Wing surface faintly yellow tinged, costa and radial veins yellow. Halteres dark brown. Fore femora each with a single spine near the middle on the under side. Length 2.2 mm.; wing, measured from the humeral crossvein, 1.9 mm.

Agana, June 26, Usinger.

Holotype in the Cornell University collection.

Ingram and Macfie have described two closely related species, the first as *Parabezzia poikiloptera* (Ann. Trop. Med. 16: 278, 1922), the second as *Stilobezzia ugandae* (Bull. Ent. Res. 14: 62, 1923). The wing venation in both is similar to the above described species, but they differ in lacking the spine on the underside of the fore femur. By definition, the Guam species falls in with the genus *Eukraiohelea* of Ingram and Macfie (Ann. Trop. Med. 15: 347, 1921), because of the presence of the femoral spine; but in other characters it seems more closely related to *P. poikiloptera*. Most species of *Stilobezzia* have two anterior radial cells, whereas the three species noted above have but one. Whether it is more expedient to include these and other similar forms in *Stilobezzia* or whether they should be placed in *Eukraiohelea* by broadening its scope is left for the future. It seems that the most reasonable course would be to broaden the scope of *Stilobezzia* and include the aberrant forms under subgenera. Until the female of *Parabezzia petiolata* Malloch is found, the position of the genus *Parabezzia* with respect to related genera is in doubt.

#### FAMILY CHIRONOMIDAE

##### 6. *Smittia* (*Pseudosmittia*) *insulsa*, new species (fig. 1, j).

Male: thorax and abdomen velvet black, scutellum fuscous, pleura more or less shining. Antennae pale brown, basal segment and head black. Legs yellow, femora slightly darker. Dististyle of the terminalia sordidly white. Wings milky hyaline, without microtrichia, veins and halteres cream-white. Eyes bare. Ratio of 14th antennal segment to segments 2 to 13 united, 1.16; last segment somewhat thickened. Thoracic bristles black, suberect. Costa of the wing well produced beyond the level of the tip of the posterior branch of the radius, second radial branch distinct, ending about midway between the tips of the adjacent veins, tip of the posterior branch of the radius ends slightly distad of the level of the tip of the anterior branch of the cubitus, media ends behind the wing tip, the cubital fork slightly distad of the level of the tip of the first radial branch, posterior cubital branch nearly straight, anal vein ends well before the cubital fork. Squamae not fringed, colorless. Hypopygium normal in size, the basistyle with large, acute angled inner lobe (fig. 1, j), dististyle with terminal spine of moderate size, anal point slender. Pulvilli absent, empodium about as long as the claws; the basitarsal-tibial ratio of the fore legs about 0.55, middle and hind tibiae with long spur, hind tibiae with a comb of bristles at apex.

Female: dorsum of thorax pale yellow, with three wide black vittae, the laterals connected by a narrow black line in front of the scutellar suture; scutellum yellow; pleura and sternum dark. Abdomen velvet black. Halteres and legs cream colored. Antennae six-segmented, last segment thicker and nearly twice as long as the fifth, intermediate

segments each with a few strong curved bristles. Pronotal collar normal. Costa and the first and third radial branches with a few black bristles; costa produced far beyond the tip of the third radial branch and ending nearer the apex of the wing than the media; first radial branch ends slightly distad of the level of the cubital fork; cubitus forks at the level of a third of the distance between the r-m crossvein and the tip of the third branch of the radius; anterior branch of the cubitus ends about the level of the tip of the third branch of the radius; second radial branch distinct; anal vein ends far short of the cubital fork; lobe of wing obtusely rounded as in the male. In other respects like the male. Length of male 1.2 mm.; wing, 1.1 mm.; female 0.85 mm.; wing, measured from the humeral crossvein 0.8 mm.

Agana, May 25, Usinger.

Holotype and allotype in the Cornell University collection; paratypes in the collection of the Experiment Station, Hawaiian Sugar Planters' Association.

This species would fall in group D of Edwards (1929) except that the anal vein ends well before the fork of the cubitus. The third branch of the radius ends rather farther distad than in other species placed under *Pseudosmittia* by Goetghebuer (1932).

#### 7. *Chironomus insolens*, new species (fig. 1, *k*).

Male: head and thorax, including halteres and scutellum, yellow; mouth parts, basal antennal segment, thoracic vittae, metanotum, and sternum, brown; median thoracic vitta divided by a fine line. Abdomen dark brown, hairs pale. Legs, including coxae, yellow; tarsal segments, beyond the first, somewhat infuscated. Pronotum complete, notched anteriorly in the center. Wings hyaline, crossvein slightly darkened; third branch of the radius and the media end about equidistant from the apex of the wing; cubitus forks very slightly distad of the crossvein. Squamae fringed. Antennae and fore tarsi broken off. Frontal tubercles present. Fore tibiae terminating in a blunt scale, middle and hind tibiae each with a comb, each comb with a short spur; pulvilli and empodium well developed. Basal segment of palpus short, second and third more than twice as long as the first, fourth half again as long as the third. Hypopygium rather small (fig. 1, *k*); claspers short, dististyle oval, not attenuated apically, with numerous short hairs on inner surface instead of the usual longish hair tuft near apex; superior appendages slender, bare, somewhat curved, ending nearly opposite apex of basistyle; inferior appendages reaching almost to apex of dististyle, cylindrical, nearly straight, and provided with the usual long curved hairs. Tergal spur with deep keel, sharply bent downward toward apex, the free part broad and very short. Length 3 mm.; wing 1.9 mm.

Female: two defective specimens believed to belong here, in general like the male in coloring, but with the abdomen still darker. Intermediate antennal segments fusiform with short necks. Basitarsal-tibial ratio of fore legs, 1.65.

Piti, May 23, Swezey.

Holotype in the Cornell University collection.

This species falls in group B of the subgenus *Chironomus* as defined by Edwards (1929), but differs from the members of the three series of this group in the form of the hypopygium, the dististyle lacking the tuft of stout, longish hairs at the tip on the inner side characteristic of series 1, and in having well-developed, bare superior appendages and distinct frontal tubercles, differing in this respect from series 3 (*Xenochironomus*).

**8. Chironomus eximius**, new species (fig. 1, *l*).

Male: head, including basal antennal segment, brown; flagellum and its hairs paler brown; palpi yellowish. Thorax reddish yellow, including vittae of mesonotum, pleura, metanotum, and sternum; the humeri, scutellum and space between the thoracic vittae pale yellow, whitish pruinose, the scutellum more shining. Anterior abdominal segments pale yellow, with greenish tinge in some specimens, posterior segments darkened; in some cases the abdomen is more uniformly yellowish brown. Legs yellow, extreme tips of tarsal segments darkened. Wings hyaline, more or less milky, the crossvein slightly darkened. Squamae fringed. Halteres yellow, apex of knob dark.

Antennae with 12 segments, the last segment nearly three times as long as segments 2 to 11 combined; frontal tubercles present; palpi as in the preceding species. Pronotal collar complete, with notch anteriorly in the middle. Venation as in the foregoing *C. insolens*. No tarsal beard; proportions of segments of fore legs, 33:28:50:24:23:21:11; the basitarsal-tibial ratio therefore about 1.75. Fore tibiae with scale, middle and hind tibiae each with two combs, each comb with a short spur; empodium and pulvilli well developed. Hypopygium (fig. 1, *l*) resembles that of *C. dorsalis* of Europe, with the superior appendages well developed, bare, somewhat enlarged toward the apex. Inferior appendages nearly straight, with the usual curved hairs. Dististyles narrowed apically, with the tuft of hairs on the inner side. Tergal spur slender. Total length 4 mm.; of wing, measured from the humeral crossvein, 2.2 mm.

Piti, July 5, May 2, Swezey and Usinger; Inarajan, May 7, July 25, Swezey and Usinger; Sumay Road, June 23, Swezey and Usinger. Holotype in the Cornell University collection; paratypes in the collections of Cornell University and the Experiment Station, Hawaiian Sugar Planters' Association.

Two female specimens collected July 5 and believed to belong here differ from the males in having darker thoracic markings and the brown coloring of the abdomen more extended, fore legs more or less brownish tinged. Other female specimens from other parts of the island have the abdomen a uniform brown, in some cases almost black. The latter closely resemble those of *C. insolens* in coloring, differing in having a larger leg ratio (1.75).