

TWO NEW SPECIES OF *DROSOPHILA* FROM NEW GUINEA (Diptera : Drosophilidae)

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New Guinea possesses a rich, and at present little known fauna of *Drosophila* and of related genera of Drosophilidae. Our exploratory collecting in the eastern half of New Guinea (the territories of Papua and of New Guinea) has shown that the species composition varies a great deal from locality to locality, depending presumably on vegetation and on climatic conditions, and that many of the species living there are for the time being undescribed. Species belonging to the *melanogaster* species group of the subgenus *Sophophora* have claimed our particular attention. This group includes *Drosophila melanogaster* Meigen, the favorite material for genetic research, as well as several other species which breed well in laboratory cultures and have been studied genetically to some extent (*D. ananassae* Doleschall, *D. serrata* Malloch, *D. montium* de Meijere, and others). Two other species which we found to be excellent laboratory animals and presumably well suited for genetic studies, proved to be nameless. They are described below.

Drosophila mayri Mather and Dobzhansky, n. sp. Fig. 1.

Arista with 8-10 branches (counting the terminal fork as 2), 9 being the mode. Antennae and front tannish yellow, face, cheeks, and proboscis lighter, bristles black. Orbital bristle 2 about 1/3 other two. Orals 1 and 2 about equally large. Greatest width of cheeks less than 1/6 greatest diameter of eyes. Eyes bright red.

Acrostichal hairs in 6 rows, often irregular. Anterior scutellars convergent. Thorax and legs tannish yellow, bristles black. Sterno index about 0.5. Abdomen tannish yellow, ♀♀ with dark brown to black bands on posterior margins of tergites 2, 3 and 4, wider in middle and narrowing laterally; tergite 5 diffusely dark on posterior margin, tergites 6 and 7 usually light; posterior margins of tergites 2 to 5 with 3 or 4 strongly enlarged hairs on either side, other hairs on these segments not particularly prominent. In ♂♂, posterior margins of abdominal tergites diffusely brown or light, marginal hairs less strongly enlarged than in ♀♀.

Wings clear to light dusky. Costal index 1.78-2.09 (mean 1.92), fourth-vein index 2.50-2.71 (mean 2.63), 4c index 1.34-1.54 (mean 1.49, 25 specimens measured). Costal section 3 with heavy bristles on basal 1/2 or 2/5.

The 1st and 2nd joints of the front tarsi in ♂♂ carry sex-combs, the 1st having 17-23 teeth (mean 19.8), and the 2nd 13-18 teeth (mean 16.4, 25 specimens counted).

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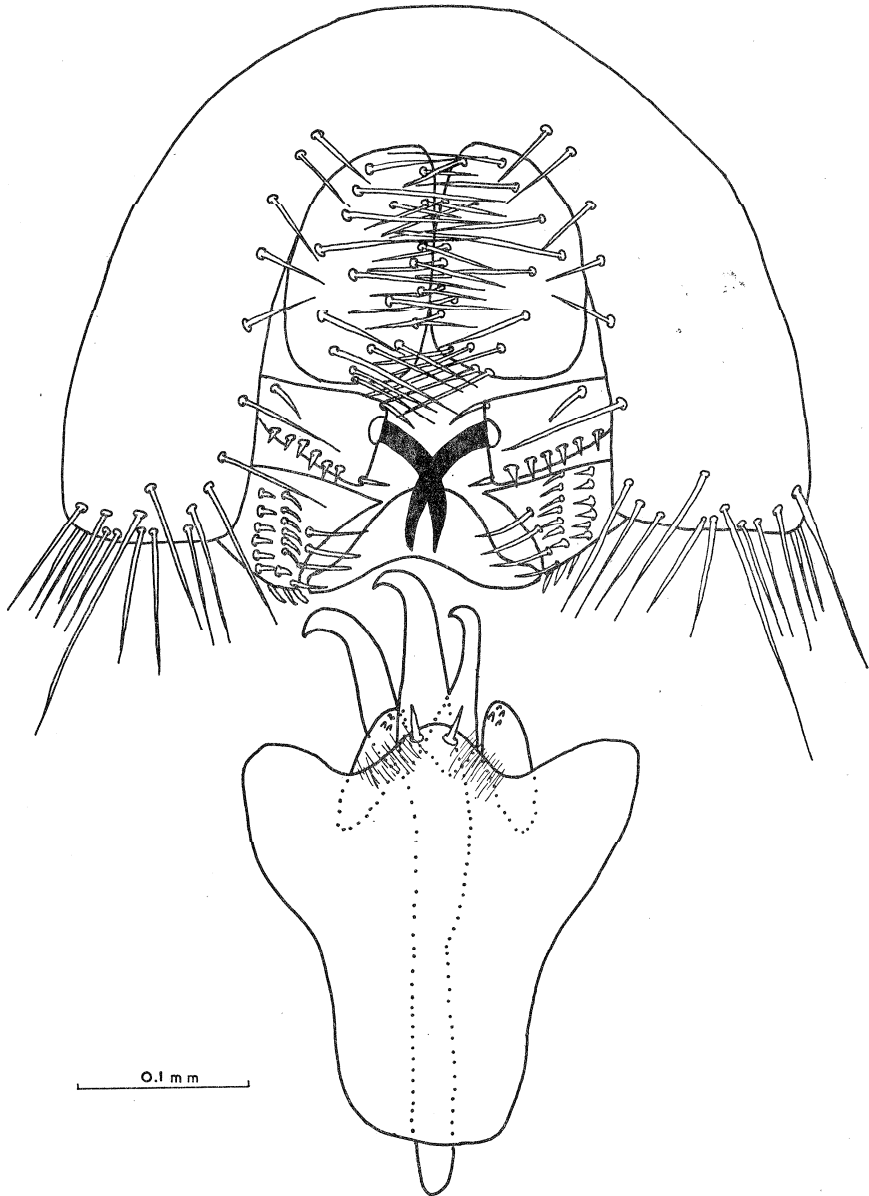


Fig. 1. ♂ genitalia of *Drosophila mayri* Mather and Dobzhansky, n. sp.

Length: body 1.9–2.5 mm (mean 2.24) in ♀♀, 1.8–2.0 (mean 1.86) in ♂♂; wing 1.8–2.3 mm (mean 2.08) in ♀♀, 1.7–1.9 (mean 1.85, 25 specimens measured) in ♂♂.

Testes amber yellow, spiral, about 5 inner tight and 1½ outer loose coils. External ♂ genitalia as shown in Figure 1. Spermathecae rudimentary, the capsules only as large

as the parovaria, unsclerotized, containing no sperm in inseminated ♀♀. Ventral receptacle a long, slender, irregularly coiled tube, which may contain sperm.

Eggs with 2 filaments, expanded in apical 1/3. Puparia brownish yellow, anterior spiracles each with 12 branches borne on a short stalk.

Chromosomes. Metaphase plates contain 2 pairs of about equally large metacentric, 1 pair of acrocentric, and 1 pair of dot-like chromosomes. The 6 individuals examined were all alike, indicating that the X and Y chromosomes are probably similar in shape. Salivary gland cells show 5 long and 1 very short strand radiating from a common chromocenter. The karyotype is, thus, like those in *Drosophila melanogaster* Meigen and several related species.

Relationship. Belongs to subgenus *Sophophora*. Resembles *D. serrata* Malloch, but is easily distinguished by coloration of abdomen, less polished body surface, and structure of genitalia.

DISTRIBUTION: Fairly common in Bulolo (type locality), and Lae, in New Guinea, V, VI-1960, collected by the authors. Type in Australian Museum, Sydney. Named for Ernst Mayr, eminent biologist and explorer of the fauna of New Guinea.

✓ *Drosophila szentivanii* Mather and Dobzhansky, n. sp.

Fig. 2. = *bipedinate* Pude

Arista with 9-10 branches (counting the terminal fork as 2), 9 being the mode. Antennae, front, face, cheeks, and proboscis yellow, bristles brown. Orbital bristle 2 about 1/3 other 2. Oral 2 about 2/3 the 1st and 2× as long as the following ones. Greatest width of cheeks less than 1/6 greatest diameter of eyes. Eyes bright red.

Achrostichal hairs in 6 rows between dorsocentrals, 8 rows immediately in front of the latter, regular. Anterior scutellars convergent. Thorax and legs yellow, bristles brown. Sterno index about 0.5. Abdomen yellow, posterior margins of tergites more or less dusky in older specimens, yellow in younger ones.

Wings clear. Costal index 1.46-1.63 (mean 1.54), fourth-vein index 2.21-2.76 (mean 2.36), 5X index 2.12-2.46 (mean 2.23), 4c index 1.50-1.76 (mean 1.63, 25 specimens measured). Costal section 3 with heavy bristles on basal 2/5.

Sex-combs on the 1st joints of the front tarsi in ♂♂, and a single tooth on the 2nd joints. The sex-comb consists of 2 sections, usually separated by a small gap; proximal section with 4-7 teeth (mean 5.70) and distal one with 6-9 teeth (mean 7.23, 20 specimens counted).

Length: body 2.0-2.2 mm in ♀♀, 1.8-1.9 in ♂♂; wing 1.8-2.0 mm in ♀♀, 1.8-2.0 in ♂♂ (25 specimens measured).

Testes amber yellow, spiral, about 4 inner tight and 1 outer loose coil. External ♂ genitalia as shown in Figure 2. Spermathecae urn-shaped, length about 1/3 greater than width, brown in color, with a ring-like thickening on proximal margin, full of sperm in inseminated ♀♀. Ventral receptacle with about 6 rather irregular loops.

Eggs with 2 slender filaments, expanded in apical 1/4. Puparia yellow, anterior spiracles with about 10 branches borne on a short stalk.

Chromosomes. Metaphase plates consist of 4 pairs of metacentric chromosomes, 2 large, 1 intermediate, and 1 small in size. Salivary gland cells have 1 very long, 3 medium

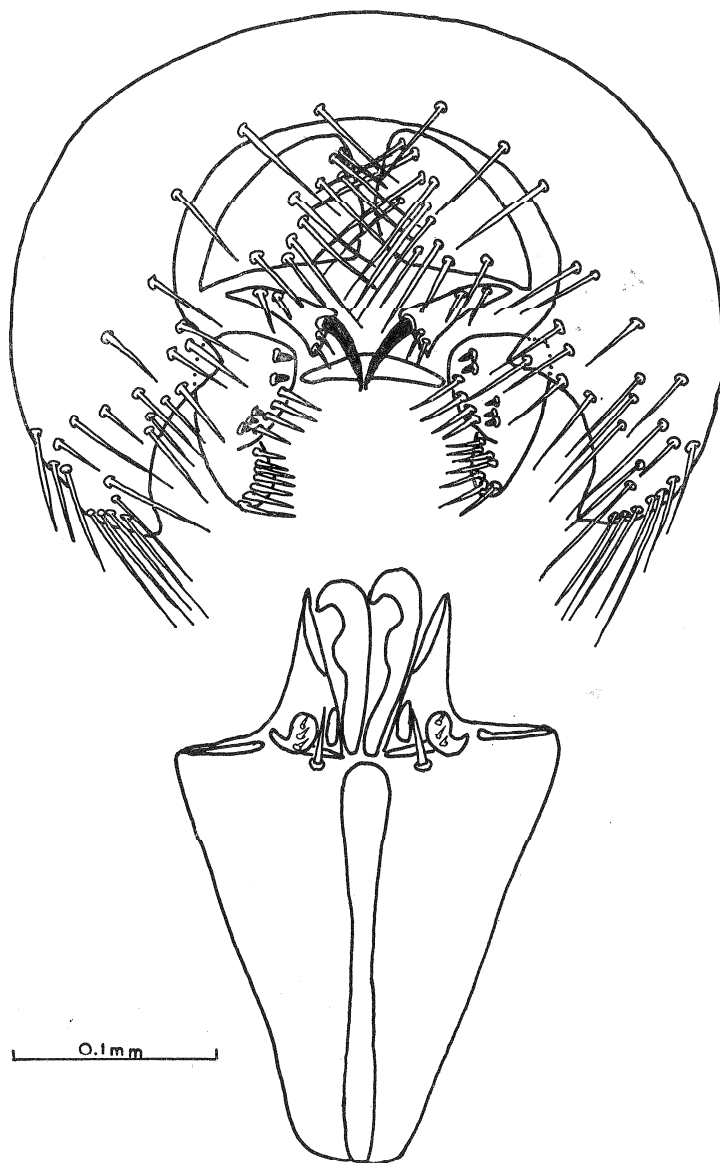


Fig. 2. ♂ genitalia of *Drosophila szentivanii* Mather and Dobzhansky, n. sp.

long, and 2 relatively short strands, these last representing the 2 limbs of the X-chromosome. The smallest metacentric chromosome is apparently entirely heterochromatic. This karyotype resembles that in *Drosophila bipectinata* Duda.

Relationship. Belongs to subgenus *Sophophora*. A distinctive species, in New Guinea

somewhat resembling *Drosophila ananassae* Doleschal, easily distinguished by presence of sex-combs in ♂♂ and by darker bristles.

DISTRIBUTION: Lae in New Guinea (type locality), V, VI-1960, collected by the authors. Type in Australian Museum, Sydney. Named for J. J. H. Szent-Ivany, the indefatigable student of the entomofauna of New Guinea.

Acknowledgment. We are obliged to Professor Marshall Wheeler, of the University of Texas, for having examined the two species described above and compared them with their relatives.