

XII. Male Genitalia of Some Representative Genera of American Drosophilidae¹

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To enable research workers elsewhere to determine the identity or non-identity of their material with reasonably well authenticated specimens, we are illustrating the male genitalia of representative species of a number of American genera of Drosophilidae. The identifications were made by the senior author, the dissections and drawings were by the junior author, and the final figures were prepared by Linda Wheeler.

Other American genera which have been illustrated by comparable figures are: *Laccodrosophila*, *Zapriothrica*, *Zygothrica* (Wheeler 1968); *Scaptomyza* (Wheeler and Takada 1966); *Mycodrosophila* (Wheeler and Takada 1963).

We are also illustrating a few species whose generic position is unclear, and some of the species have been illustrated earlier by others: *Rhinoleucophenga obesa* (Malogolowkin 1946), and *Paracacoxenus guttatus* (Hardy and Wheeler 1960, McAlpine 1968).

Taxonomic and nomenclatural changes made here are as follows:

Clasptoromyia Malloch — *Cladochaeta* Coquillett: New Synonym.

Cladochaeta inversa (Walker): New Generic Combination.

Cladochaeta floridana (Malloch): New Generic Combination.

Cladochaeta sturtevanti: New Species.

McAlpine (1968), after studying the type-species of *Gitona* (*distigma* Meigen), decided that the three North American species assigned to this genus were incorrectly placed. Although their generic affinity is not known, two of the species (*americana* and *sonoita*) have a bare arista but the third (*bivisualis*) has short hairlike branches very suggestive of some species placed by Duda in *Rhinoleucophenga*. Three examples are shown in Fig. 9. An interesting feature is the presence of a third row of setae (Duda wrote: *dreizeilig gefiedert*), especially evident on *bezzii* and *stigma* and also present on *bivisualis*. It may be that *Rhinoleucophenga*, *Gitonides*, and the American "*Gitona*" form a natural group.

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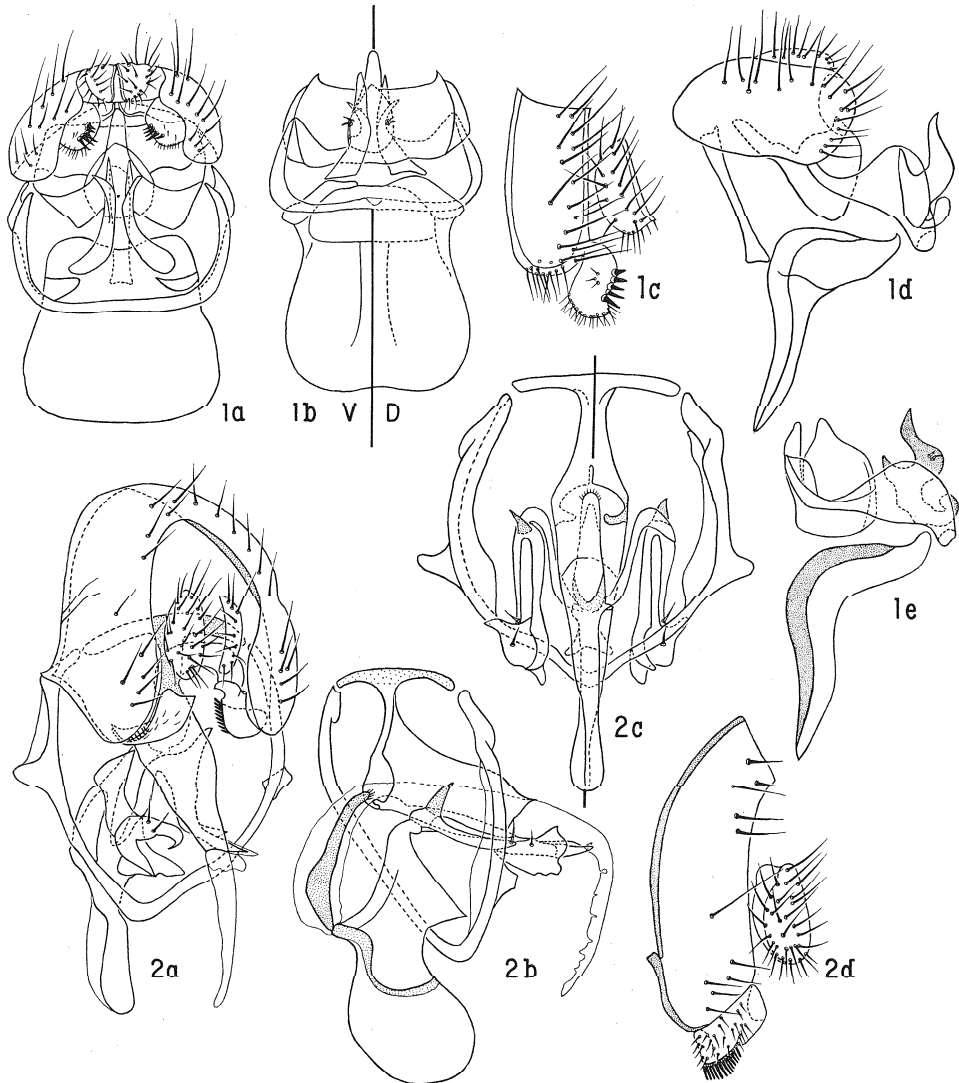


FIG. 1. *Amiota (Amiota) minor* (Malloch). Described in *Phortica*. Type-locality: Illinois, Dubois. Fig. specimen: Tennessee (Great Smoky Mountains N. P.); ♂♂ agreeing: Alabama, Georgia, Michigan, Nebraska, Washington. In this figure, and most others, are illustrated a view of the genital complex, hypandrium in ventral (V; left) and dorsal (D, right) aspects, genital arch and clasper, and one or two lateral views of the inner genital complex. Some figures also show the seventh sternite (7 st).

FIG. 2. *Amiota (Phortica) albavictoria* Patterson and Mainland. Type-locality: Mexico, Hidalgo. Fig. specimen: Panama (Boquete).

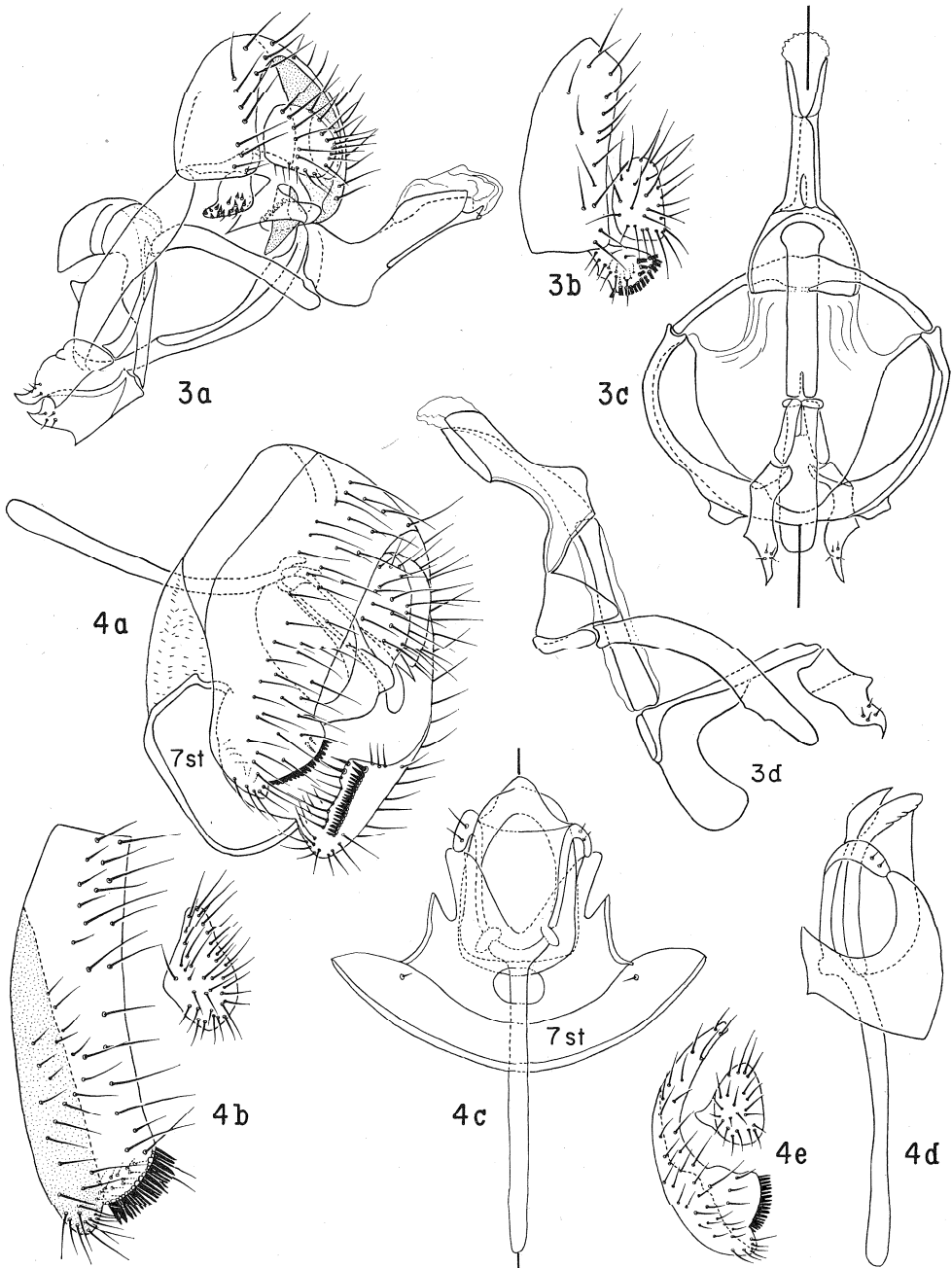


FIG. 3. *Amiota (Sinophthalmus) picta* (Coquillett). Described in *Sinophthalmus*. Type-locality: California, mountains near Claremont. Fig. specimen: California, Santa Anita Canyon.

FIG. 4. *Rhinoleucophenga obesa* (Loew). Described in *Drosophila*. Type-locality: Texas. Fig. specimen: Texas, Austin. Fig. 4e shows the appearance of the clasper when not compressed beneath a coverglass.

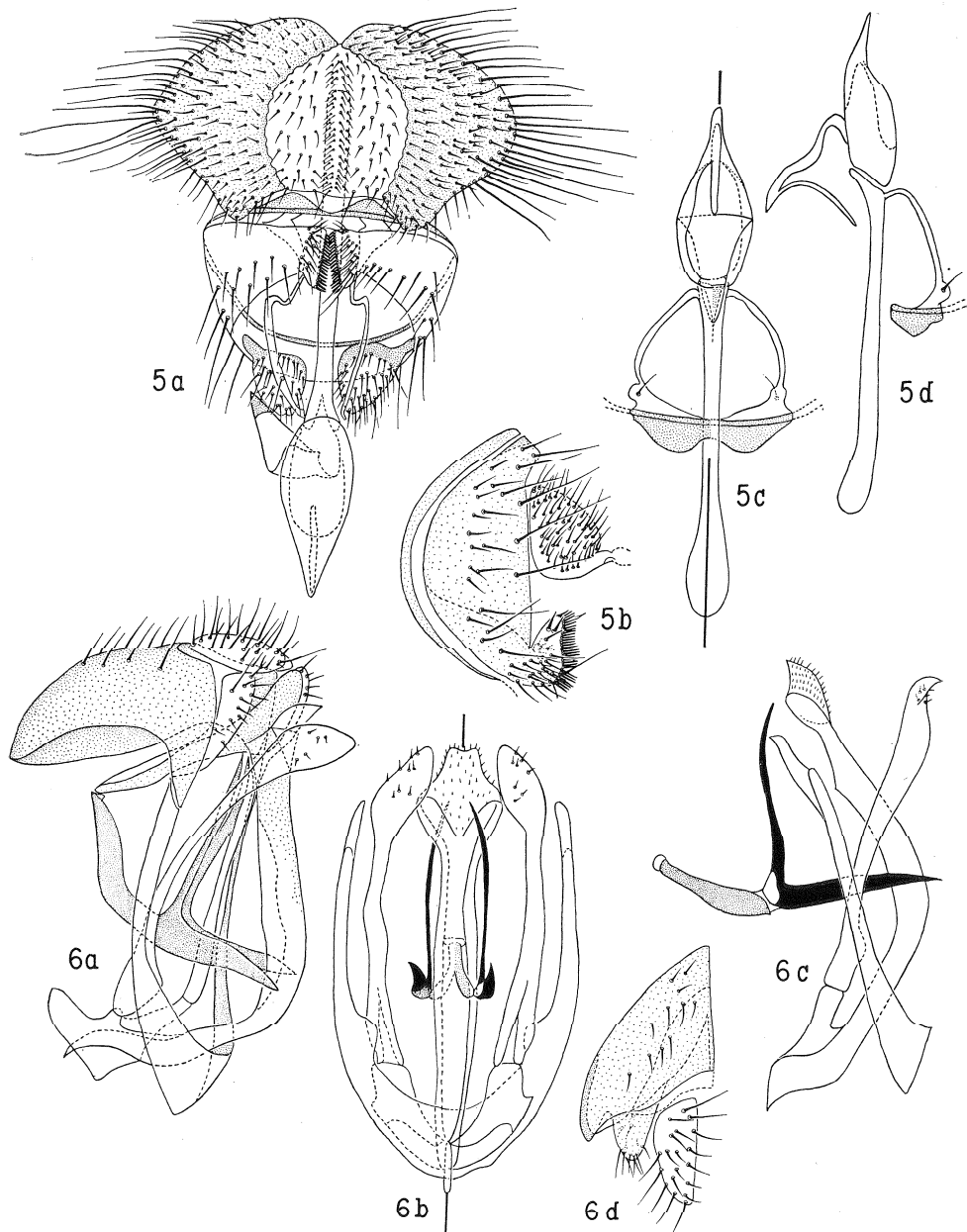


FIG. 5. *Trachyleucophenga* sp. (? = *flavocostata* Hendel). Type-locality of *flavocostata*: Colombia, Aracataca. Fig. specimen: Eunice, Louisiana. The specimen agrees very well with the original description.

FIG. 6. *Paracacoxenus guttatus* Hardy and Wheeler. Type-locality: Washington. Fig. specimen: Hood River, Oregon (paratype ♂). This species has also been illustrated by Hardy and Wheeler (1960) and by McAlpine (1968).

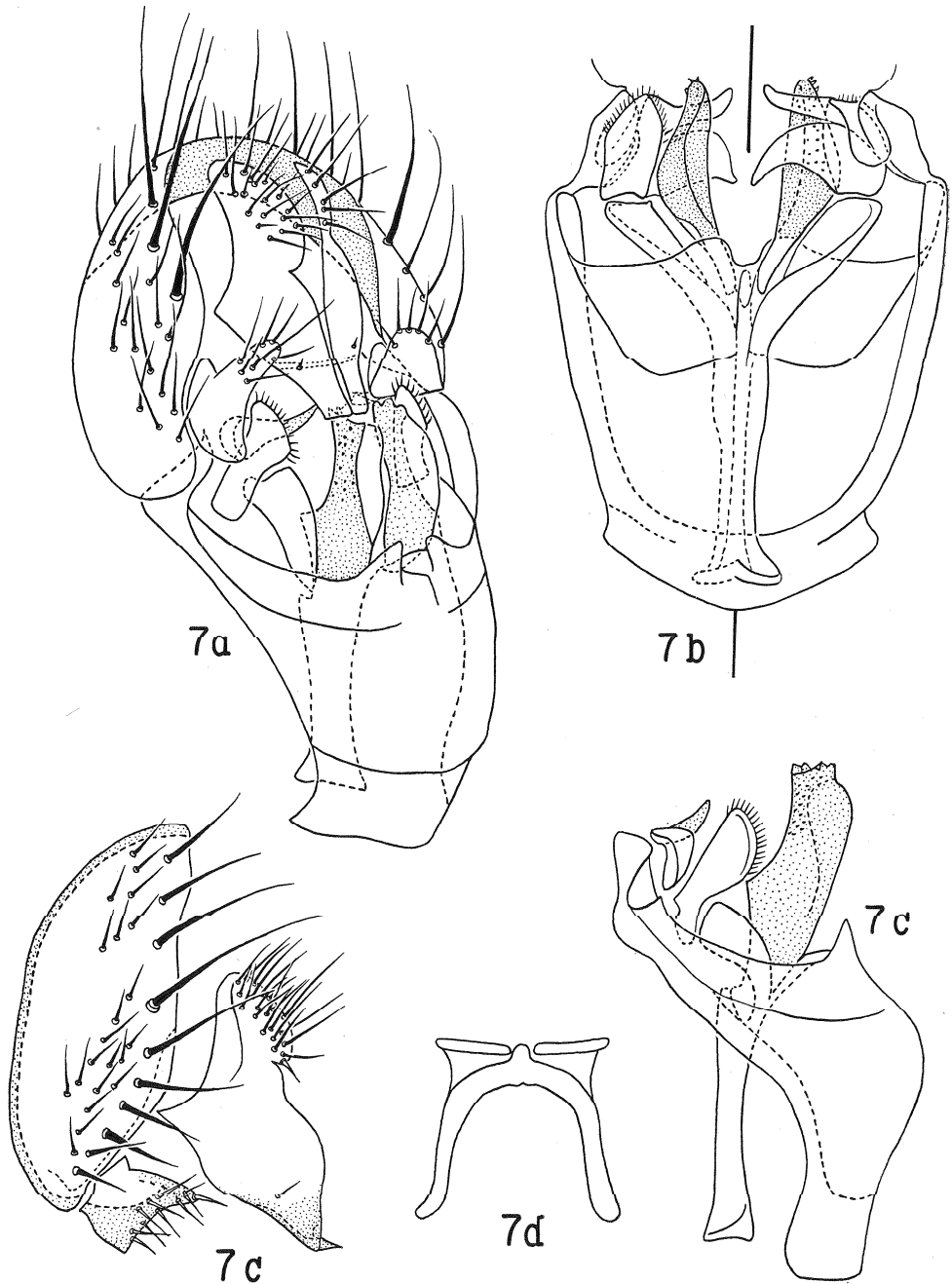


FIG. 7. *Orthostegana acutangula* Hendel. Type-locality: Bolivia. Fig. specimen: El Recreo, Nicaragua. Additional specimens from Panama Canal Zone and Colombia. The mid femora and tibiae are exceptionally spinose.

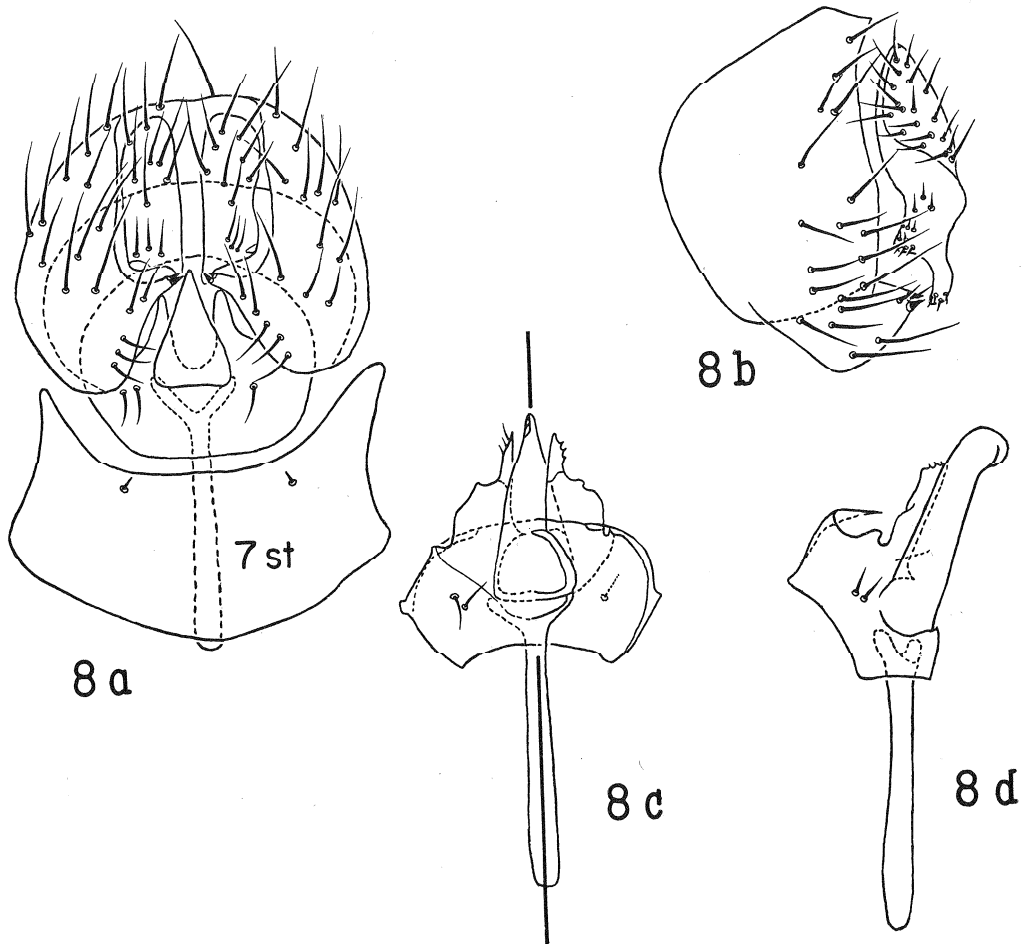


FIG. 8. *Gitona americana* Patterson. Type-locality: Texas. Fig. specimen: Austin, Texas.

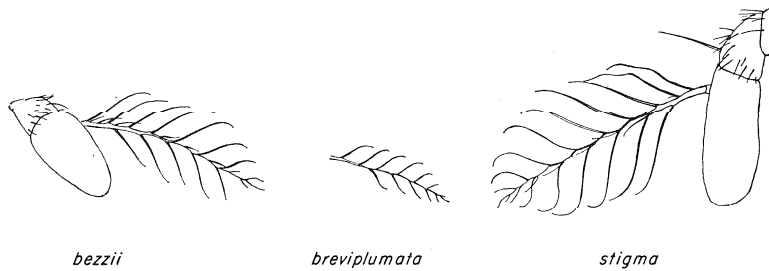


FIG. 9. Aristal patterns of *Rhinoleucophenga* species: *bezzii* Duda, *breviplumata* Duda, and *stigma* Hendel (after Duda).

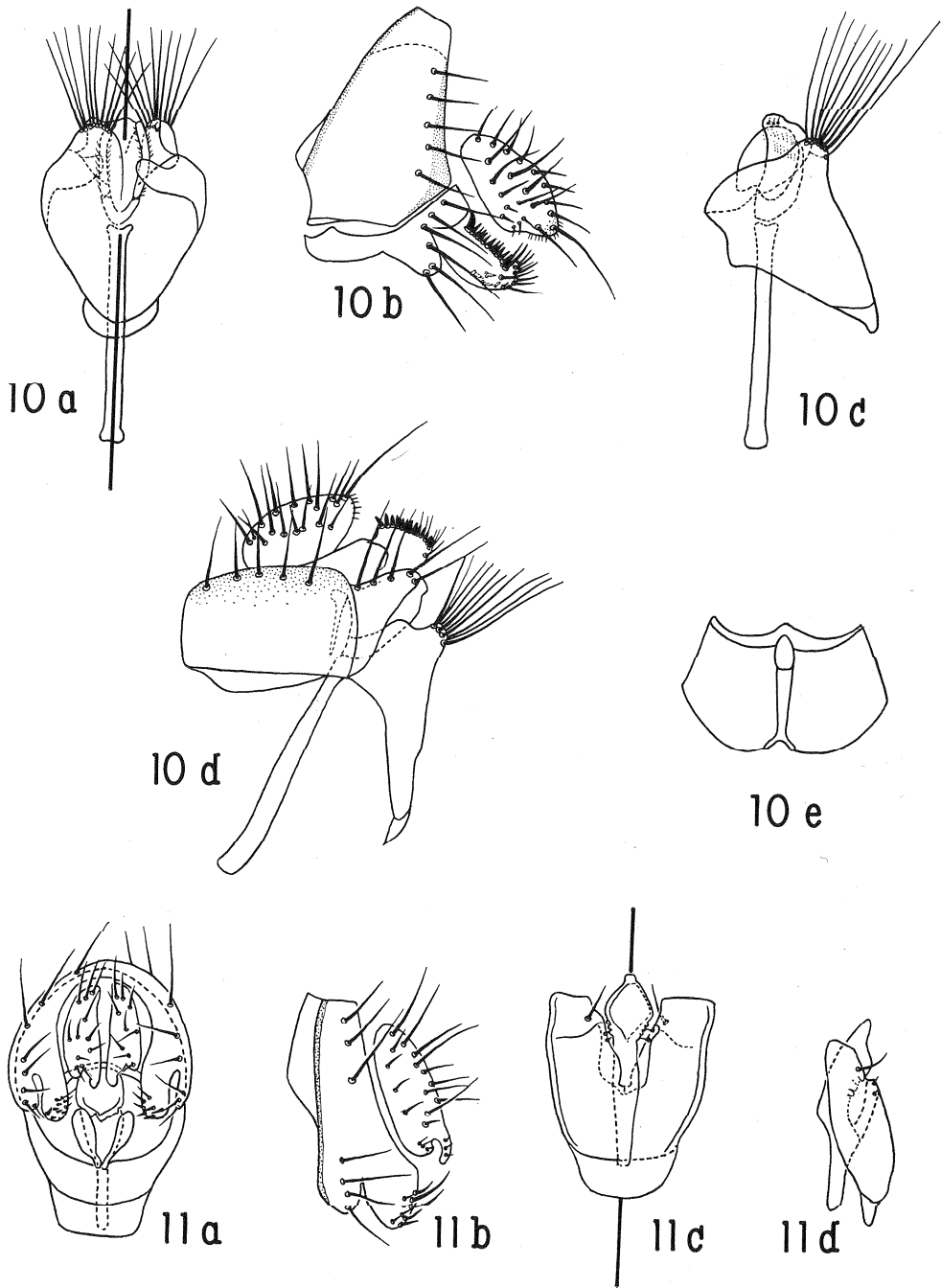


FIG. 10. *Neotanygastrella chymomyzoides* Duda. Type-locality: Bolivia & Peru. Fig. specimen: Colombia (Buenaventura). The sp. is widespread, and occurs in two forms—fore tarsi pale (figured) or black.

FIG. 11. *Paraliodrosophila bipartita* Duda. Type-locality: Costa Rica, Suiza de Turrialba. Fig. specimen: Costa Rica (La Lola).

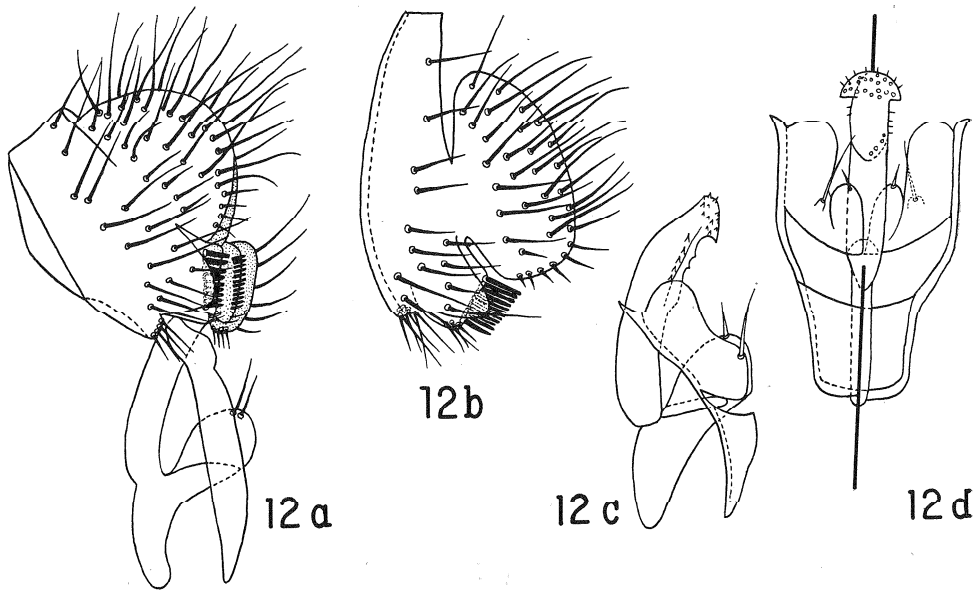


FIG. 12. *Drosophila (Siphlodora) sigmoides* Loew. Type-locality: U.S.A., Texas. Fig. specimen: S. Carolina (Myrtle Beach S. P.).

THE CLADOCHAETA-CLASTOPTEROMYIA-DIATHONEURA COMPLEX

The male genitalia of 12 species from this complex are illustrated here in Figures 14–25, and preparations of an estimated additional 75 species have been examined. It is clear that a wide variety of species are included in this complex and, in general, generic limits are not apparent (see also the remarks of Frota-Pessoa 1947). On the other hand, there is a cluster of about 30 species from the Neotropical area which is consistently distinctive in the structure of the male genitalia. This group includes both *Cladochaeta nebulosa* and *Clastopteromyia inversa*—both of which are the type-species of their respective genera. Accordingly, the following synonymy is made:

- ✓ **Cladochaeta** Coquillett 1900: 263. [Report on a collection of Dipterous insects from Puerto Rico. Proc. U. S. Nat. Museum 22: 249–270]. Type-species: *C. nebulosa* Coquillett 1900.
 =**Clastopteromyia** Malloch 1924: 31. [in Malloch, J. R. and W. L. McAtee: Flies of the family Drosophilidae of the District of Columbia region, with keys to genera, and other notes, of broader application. Proc. Biol. Soc. Wash. 37: 25–42]. NEW SYNONYM. Type-species: *Drosophila inversa* Walker 1861.

Within this group of species, most of which are undescribed, there is an interesting sequence of variation in aristal branching (Fig. 13), with the species of *Cladochaeta sensu* Coquillett being one extreme (Fig. 13a, 13b) and *inversa* and its close relatives (*Clastopteromyia sensu* Malloch) representing the other (Fig. 13f). A tabulation of 15 assorted species which are presently considered to belong to this complex shows that only one of them has an aristal branching pattern of the types in Fig. 13—*Diathoneura bomplandi* Malloch; it has 5 dorsal

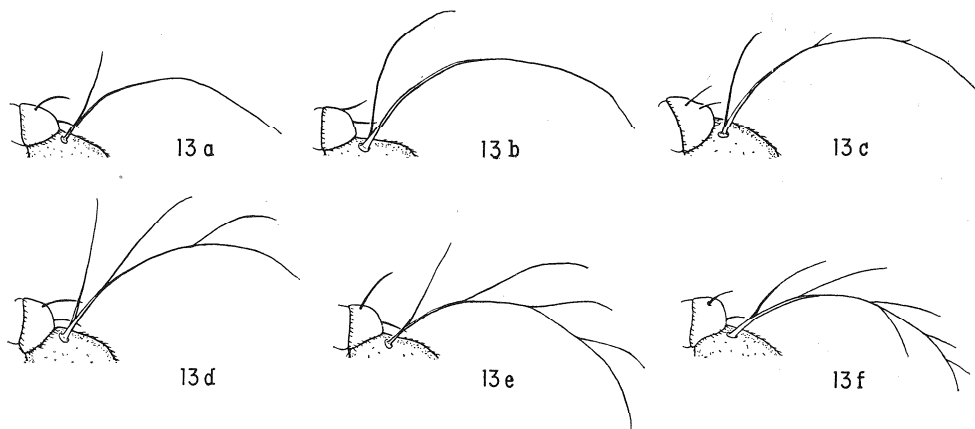


FIG. 13. Aristal patterns of various species of *Cladochaeta*.

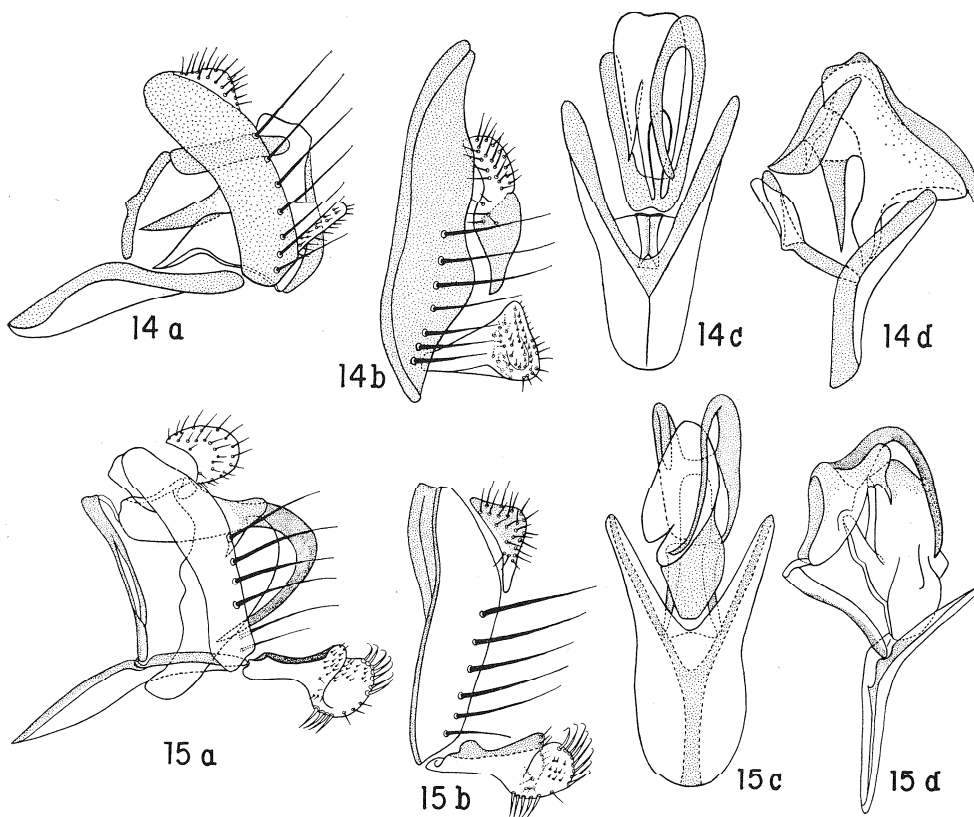


FIG. 14. *Cladochaeta nebulosa* Coquillett. Type-locality: Puerto Rico, Arroyo. Fig. specimen Cuba (Santiago de Cuba, Puerto Boniato). Other ♂♂ checked: Haiti (Kenscoff); El Salvador (San Salvador). Other material agreeing morphologically: West Indies (Jamaica; St. Lucia; St. Vincent).

FIG. 15. *Cladochaeta infumata* (Duda). Described in *Dialthoneura*; transferred to *Cladochaeta* by Wheeler 1963. Type-locality: Costa Rica, Suiza de Turrialba. Fig. specimen [compared with *type*]: Panama (Boquete).

and one ventral branch in addition to the terminal fork. The branching patterns of the other species are as follows:

- 9 dorsal, 4 ventral, plus fork: *Clastopteromyia longipennis* Malloch
Drosophila superba Sturtevant
- 6 dorsal, 3 ventral, plus fork: *Diathoneura nubeculosa* Duda
Diathoneura nigrescens Duda
Drosophila splendida Williston
Drosophila opaca Williston
- 5 dorsal, 3 ventral, plus fork: *Diathoneura qualivittata* Duda
Diathoneura guttipennis Duda
Diathoneura euryopa Duda
Diathoneura nigrifrons Duda
Diathoneura laticeps Duda
Clastopteromyia albinota Wheeler
- 5 dorsal, 2 ventral, plus fork: *Clastopteromyia aberrans* Wheeler
- 4 dorsal, 2 ventral, plus fork: *Drosophila dubia* Sturtevant

The new generic synonymy discussed above requires that the following species show the altered nomenclature:

✓ *Cladochaeta floridana* (Malloch), NEW COMBINATION. Described in *Clastopteromyia*. The figured male (Fig. 18) has the arista-type shown in Fig. 13f. A female from the Archibold Biological Station, Florida, has the arista-type of Fig. 13d, and has the crossveins more heavily darkened. The holotype (USNM) appears to have one more dorsal branch than that of Fig. 13d, but has equally dark crossveins. It may well be that two species are involved and if so, the figured male is more likely to be an undescribed species.

✓ *Cladochaeta inversa* (Walker), NEW COMBINATION. Described in *Drosophila*; is the type-species of *Clastopteromyia*. The figured male (Fig. 16) has the arista-type shown in Fig. 13f; a few specimens from the same locality have one less dorsal branch.

✓ *Cladochaeta sturtevanti* NEW SPECIES. Holotype male, allotype and 13 paratypes, Arcadia, California, August through November, 1949, M. R. Wheeler, coll. Also 17 paratypes from nearby California communities: Pasadena, Tujunga Canyon, and Santa Anita Canyon. The relationship with *Clastoptera* nymphs was described by Wheeler (1952: 181).

We are pleased to name this species for the late Professor A. H. Sturtevant.

The arista is shown in Fig. 13f; a few specimens have one less dorsal branch. The male genitalia are shown in Fig. 17. It is otherwise very similar to *inversa*.

Another (undescribed) species apparently occurs in northern California. We have seen two specimens from Mill Valley, Marin County with the body noticeably larger and darker, and with the wings much more heavily clouded.

✓ *Diathoneura infumata* Duda was earlier removed to *Cladochaeta* by Wheeler (1963) after examining the holotype from Costa Rica.

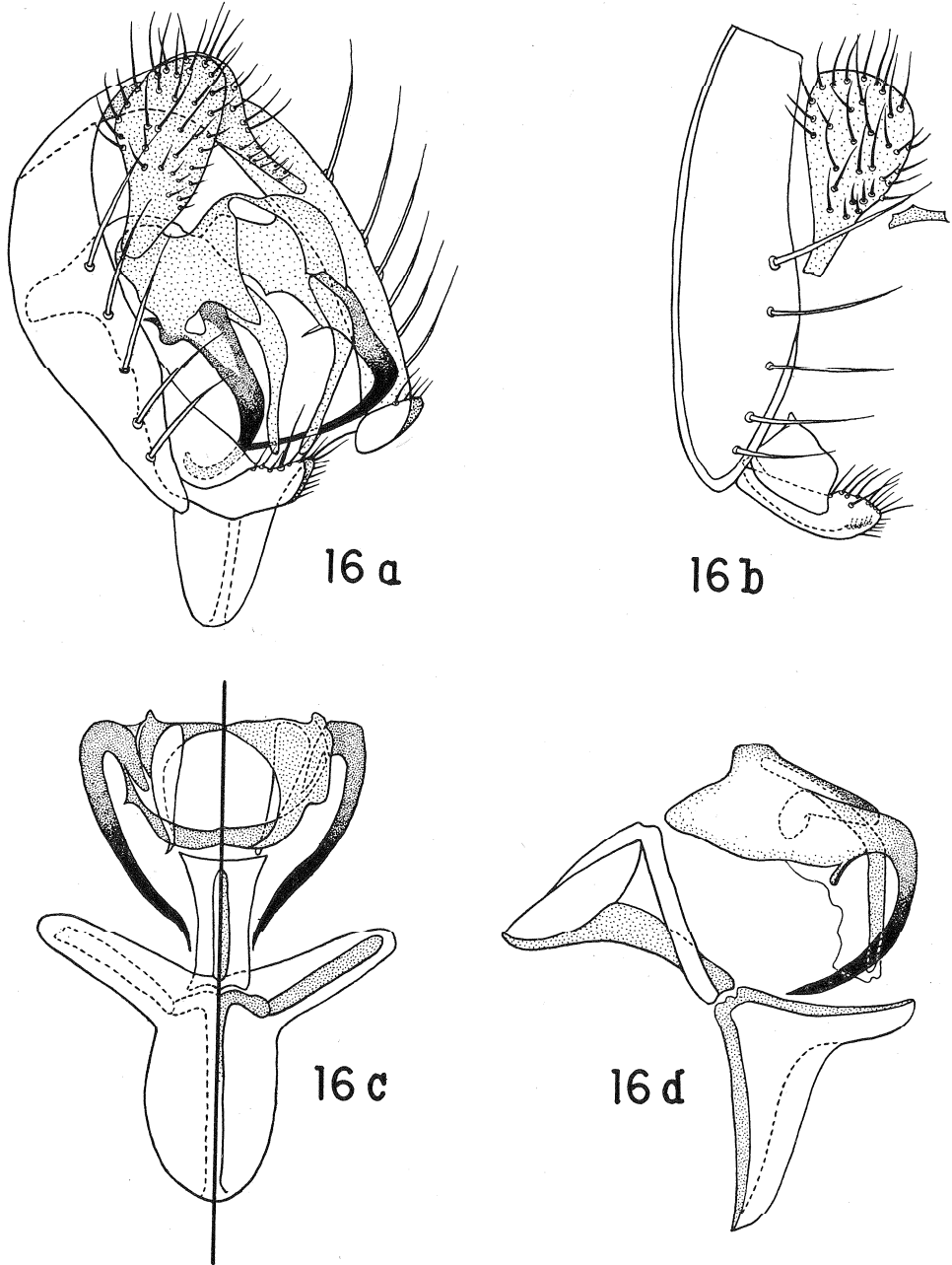


FIG. 16. *Cladochaeta inversa* (Walker), NEW COMBINATION. Described in *Drosophila*; is type-species of *Clastopteromyia*. Type-locality: United States. Fig. specimen: Canada, Marmora, Ontario. This appears to be widespread over the northeastern U. S. It may also occur as far west as Wisconsin, Michigan and Minnesota, but male specimens have not yet been checked.

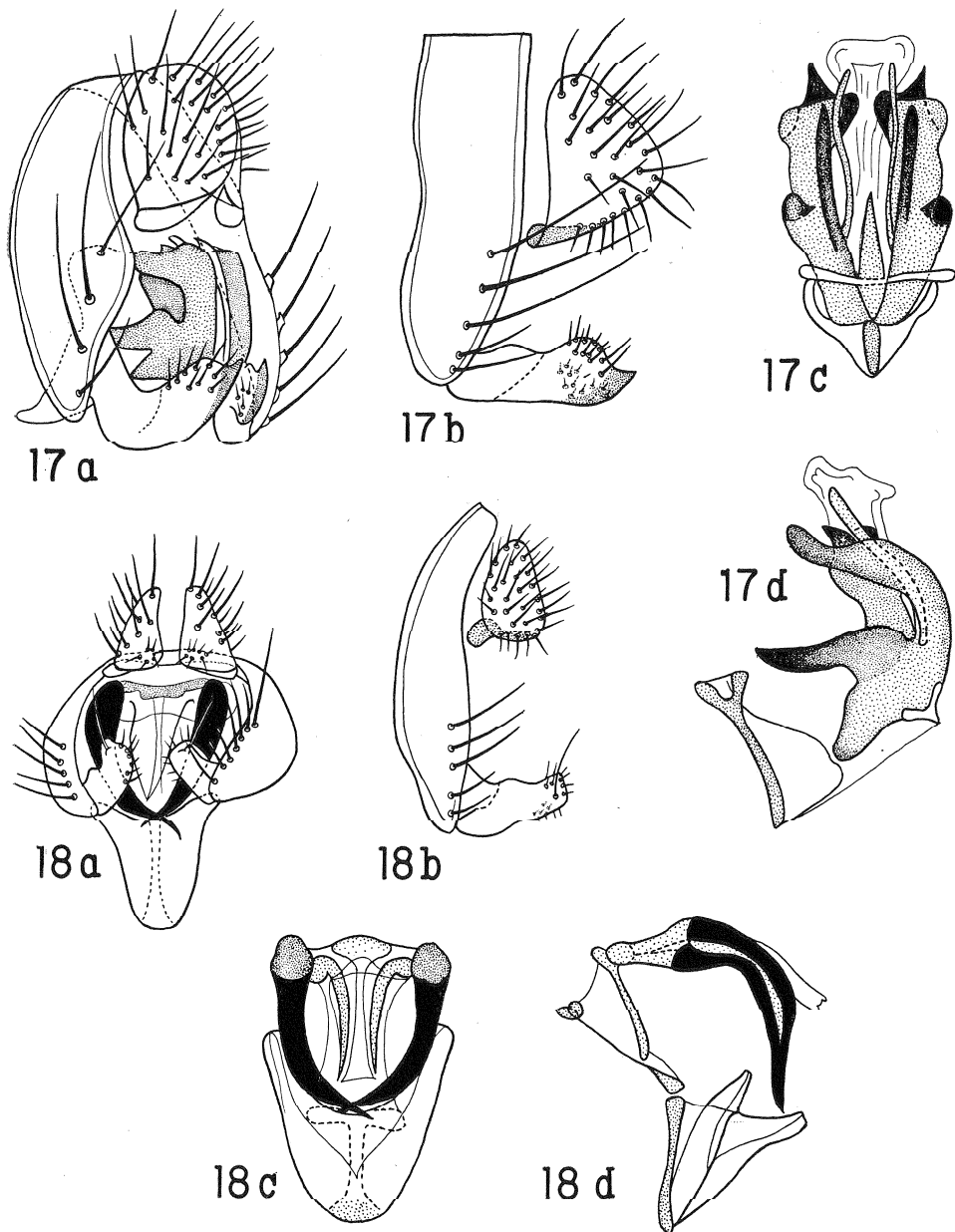


FIG. 17. *Cladochaeta sturtevantii* n. sp. Fig. specimen: California, Arcadia. Specimens from northern California appear to be another (undescribed) species.

FIG. 18. *Cladochaeta floridana* (Malloch)[?], NEW COMBINATION. Type-locality: Florida, Fort Lauderdale. Fig. specimen: Florida, Hollywood. [Species identity uncertain; see text].

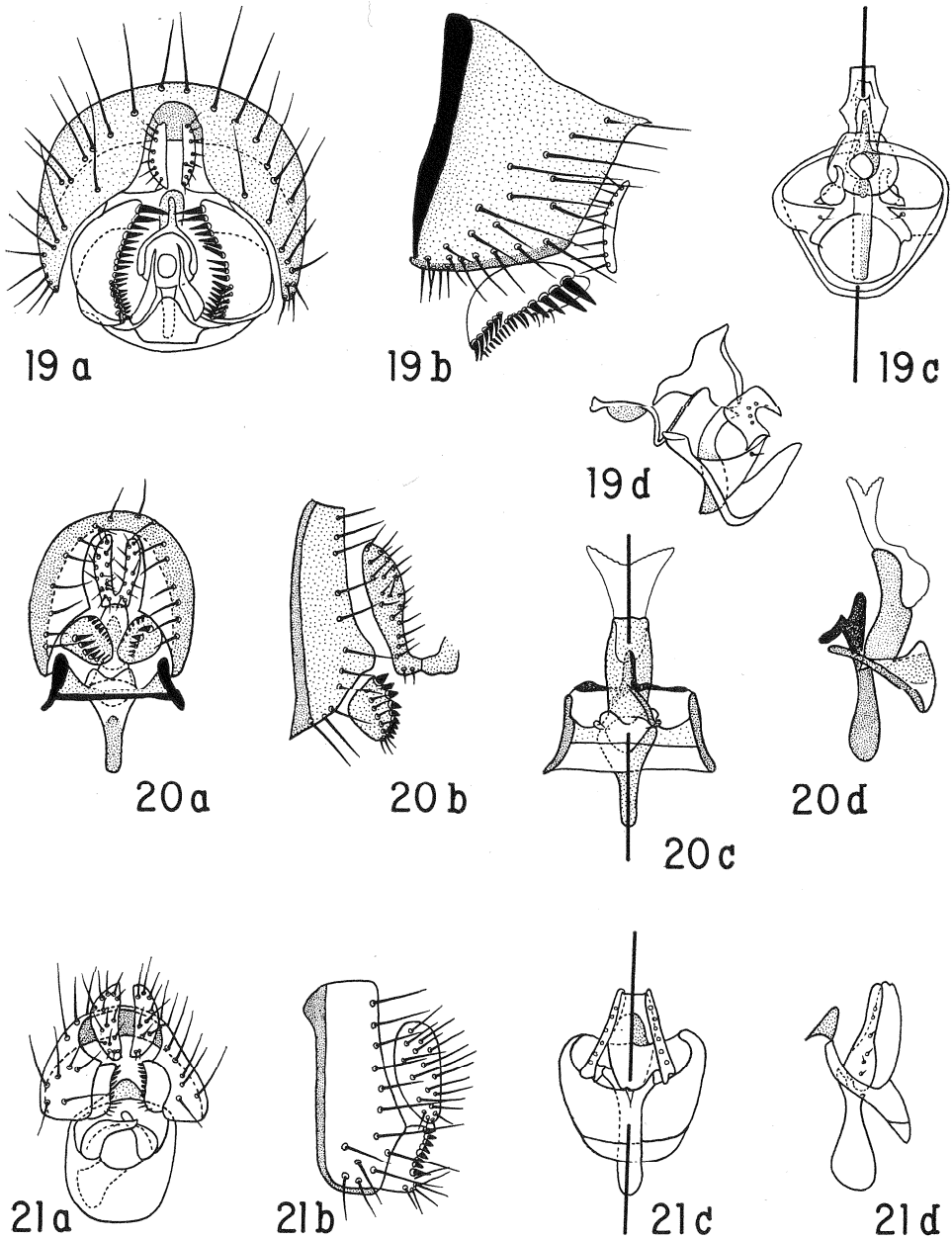


FIG. 19. *Drosophila metallica* Sturtevant [?]. Type-locality: Cuba, Bartle. Fig. specimen: Panama, Boquete. There are at least 6 similar species in the Caribbean-Central American area; the form figured may not be *metallica sensu strictu*.

FIG. 20. *Drosophila nana* Williston. Type-locality: West Indies, St. Vincent. Fig. specimen: West Indies, St. Vincent.

FIG. 21. *Drosophila opaca* Williston. Type-locality: West Indies, St. Vincent. Fig. specimen: Panama Canal Zone, Barro Colorado I.

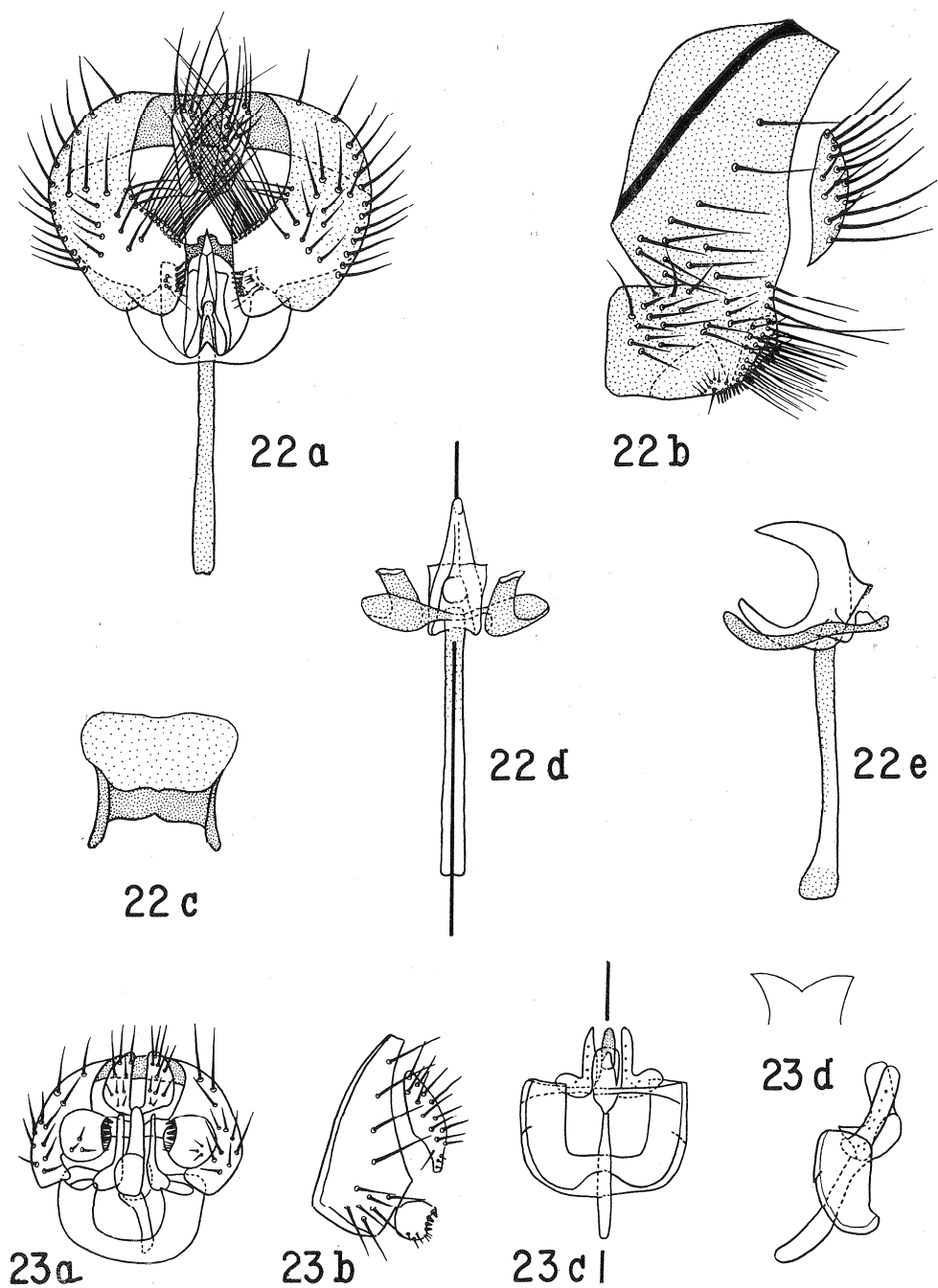


FIG. 22. *Diathoneura tessellata* Duda. Type-locality: Costa Rica, Suiza de Turrialba. Fig. specimen [compared with *type*]: Panama (Boquete); also examined from Costa Rica (Palmar).

FIG. 23. *Diathoneura laticeps* Duda. Type-locality: Costa Rica, Suiza de Turrialba. Fig. specimen [compared with *type*]: Costa Rica (La Lola).

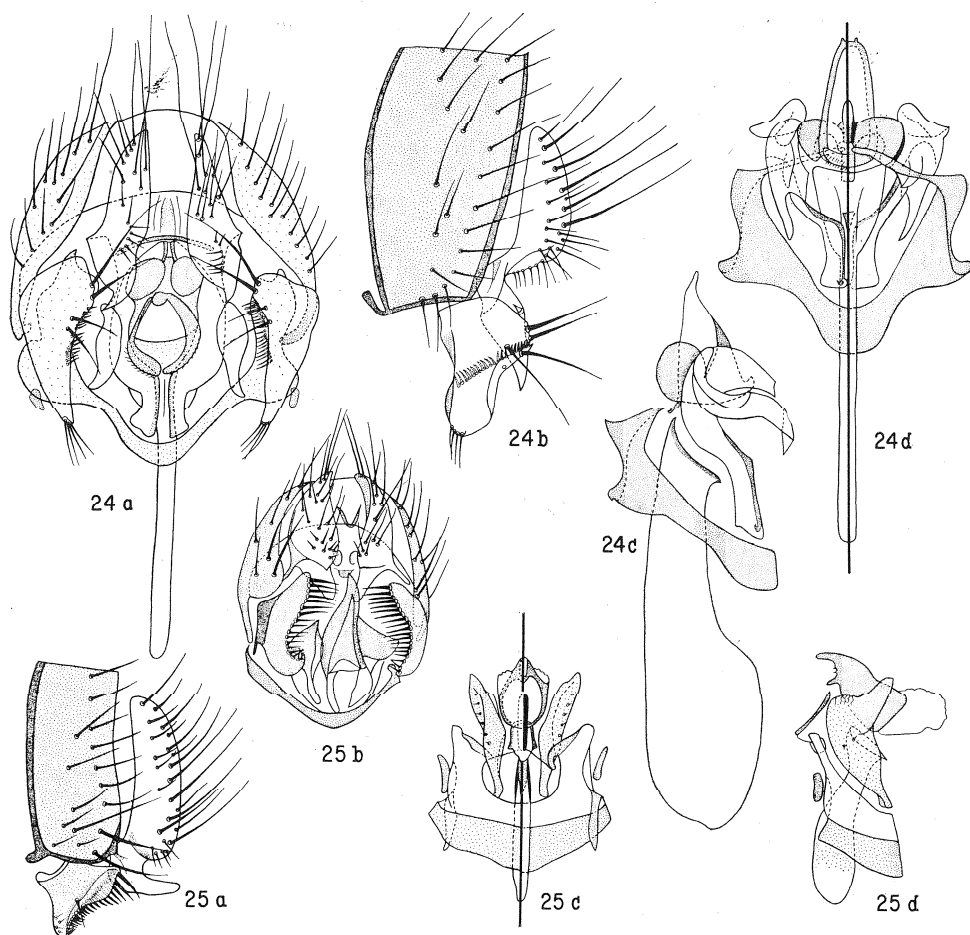


FIG. 24. *Clastopteromyia longipennis* Malloch. Type-locality: Costa Rica, San Mateo, Higuito. Fig. specimen: Panama (Boquete, Chiriqui Pr.).

FIG. 25. *Drosophila superba* Sturtevant. Type-locality: Guatemala, Trece Aguas, Alta Vera Paz. Fig. specimen: Costa Rica (La Lola) and Colombia (El Recuerdo, Sierra Nevada de Santa Marta).

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