

FLIES OF THE GENUS DROSOPHILA AS POSSIBLE  
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It was pointed out by Howard (1900) that the habits of certain species of *Drosophila* are such as to make them possible carriers of typhoid fever or other diseases. It is the purpose of the present paper to record certain observations bearing on this possibility.

*Drosophila melanogaster* Meigen (*ampelophila* Loew).\*—This cosmopolitan species was bred from human excrement by Howard, and there are a few other such breeding records from tropical regions; but I am very doubtful of the specific determinations in the latter cases. My own observations in the American tropics indicate that *D. melanogaster* is there extremely rare as an excrement fly, while *D. caribbea* (see below), which resembles it very closely, is common about excrement. Howard's breeding record almost certainly rests on a correct specific determination; and, this being the case, the habits of the adult flies are such as to make them open to suspicion, for *D. melanogaster* is always common about unprotected fruit in grocery stores and houses. Nevertheless, the species is a decided rarity about excrement, usually breeding in decaying fruit, and so is probably not an efficient disease carrier.

*Drosophila caribbea* Sturtevant.—This species, common throughout the American tropics, has habits very similar to those of *D. melanogaster*, both in larval and in adult life, but is much more frequently attracted to excrement. In Panama I have found it not uncommon about such material; and in Havana, Cuba, Mr. J. R. Taylor, of Las Animas Hospital, showed me specimens bred from the feces of a dysentery patient.

*Drosophila busckii* Coquillett, and *D. funebris* Fabricius.—These two species, both widely distributed and probably cosmopolitan, were both recorded by Howard as caught on human excrement. It seems probable from their habits that they would breed on such material; but they are not likely to be important as disease carriers, since they are not common about food. *D. busckii* frequently breeds on potatoes and other foodstuffs, but not until they are seriously decayed.

\* The writer has in press (Bull. Amer. Mus. Nat. Hist.) a synopsis of the Nearctic species of *Drosophila*, containing keys that include all the species of the genus known from the United States.

*D. repleta* Wollaston.—This species is common from Massachusetts and Indiana, south to Brazil, and also occurs in the Old World. Unlike many other species of the genus, it is most frequent near houses. It is attracted to various organic substances, and it has the peculiar habit of coming to rest frequently on a white surface. In the eastern states the form is most easily collected about urinals that are not kept clean or thoroughly disinfected—such places as are frequently to be found in saloons or railway stations. The next most likely place to find the species is in kitchens or restaurants, especially on bread or on white walls or tablecloths. I have seen it frequently both in restaurants and in urinals in Boston, New York, Washington and elsewhere.

In Cuba *D. repleta* literally swarms around any place where excrement is allowed to remain in quantity. It is by far the commonest fly in such places, as Dr. C. W. Metz and I have observed at Guines, Aguada Pasajeros and elsewhere. Isolated deposits are not favorable, being usually attacked chiefly by species of Leptocera (*Limosina*) and *Sepsis*—which forms are practically never found about food and are therefore not dangerous.

*D. repleta* has a wide range of breeding habits, so that control measures would be difficult. It breeds on various kinds of fruit (banana, pineapple, tomato, etc.), though it is not so common on fruit as are several other species of the genus. It will also breed on decayed potatoes, flour paste, moist bran, and various similar substances. Although it has not been bred from excrement, there can be little doubt that it does use such material for larval food.

The literature would lead one to suspect *Drosophila melanogaster* as the most dangerous species, with *D. funebris* and *D. busckii* of doubtful significance; but more detailed observations lead to the conclusion that none of these three species can be particularly dangerous, whereas *D. repleta*, and *D. caribbea* in the tropics have habits of such a sort as to make them important as possible disease carriers.

#### PAPER CITED

Howard, L. O. 1900.—A Contribution to the Study of the Insect Fauna of Human Excrement. Proc. Wash. Acad. Sci., 2: 541.