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PHLEBOTOMUS SANDFLIES IN THE WEST INDIES

by G. B. Fairchild.

(Gorgas Memorial Laboratory Panama, R.P.)

When my colleague, Dr. Harold Trapido, found Phlebotomus sandflies in Puerto Rico two years ago, we were both greatly excited, for these little midges had been unknown on any of the Greater Antilles previously, though a French entomologist had reported them from Guadeloupe several years ago. We therefore determined to visit as many of the West Indian islands as we could whenever the opportunity offered, as we felt it was very probable that they would be found on at least the larger islands. The opportunity finally came, and we were able to spend ten days each on Jamaica, Cuba and Hispaniola, verifying our guess by finding the little flies on all three islands.

Phlebotomus sandflies are small biting flies, about a third to a half the size of a mosquito. They are whitish or grey, very hairy, including their rather narrow and pointed wings, and with long legs. They belong to the family Psychodidae, which includes also the moth midges and sewer flies. Like these, their wings are held out at an angle from the body, not folded over one another like mosquitoes. All the Psychodidae have the curious habit of making short hopping flights of a few inches at a time, and of running in short jerks. They may be told easily from the salt marsh sandflies or midges, which belong to another family, the Ceratopogonidae, by their larger size, lighter color, hairiness and long legs.

Those species which bite man are usually strictly night flyers. Their bite is very sharp indeed, much more painful than that of the larger mosquitoes. Many kinds feed by preference on lizards, frogs, birds or wild animals and seldom or never attack man. Of those which do bite man, a number carry several serious diseases, both in the Old World and in the American tropics. In India, China and parts of Tropical Africa and the Mediterranean area, Kala Azar is a very serious problem, killing many people each year. In Peru Orroya fever or Carrion's disease is an ever-present menace to new-comers, who are not immune, in the coastal valleys. Over much of the tropics of both hemispheres oriental sore in various forms and under many names causes disfiguring scars and even serious illness. None of these diseases have so far been reported from the West Indies, and probably do not occur there. Sandfly or Papataci fever, however, has been suspected to occur in the West Indies. It is a short, sharp fever caused by a virus much like dengue or "breakbone" fever in its symptoms, but less severe and never fatal. Since Phlebotomus, the carrier of this disease, was unknown in the West Indies, it was thought the disease also could not occur, but the discovery of these insects on Guadeloupe and Puerto Rico threw the matter into a new light, and was one of the reasons for our trip.

Being nocturnal insects, sandflies hide away during the day, and being small and delicate, they require a rather high degree of humidity. These conditions of darkness and dampness are fulfilled in various types of holes and crevices. Crevices in old walls and ruins, animal burrows, hollow trees, and often the deep cracks between the buttressed roots of certain kinds of large trees are favorite hiding places. Where the species are habitual biters of man, as in Italy and Peru, they rest during the day in dark corners of the rooms, behind pictures, and in the cracks in mud or adobe walls. To secure specimens from such places it is only necessary to blow a little tobacco smoke into the crevice. This irritates the flies, and at the same time partially stupefies them, so that they come hopping out and can be easily taken with a suction tube or collecting jar. Alternatively, they may be secured with a matchstick moistened with alcohol, to a vial of which they are then transferred.

The larvae of sandflies are rarely seen. They are minute, rather hairy, whitish, caterpillar-like larvae and live in dark moist situations. Their food consists of animal and vegetable detritus, such as the remains of dead insects, dead leaves, etc. The life cycle is rather long, being from one to two months in warm climates.

In Jamaica we found sandflies rather uncommon but well distributed over the island up to an elevation of about 1300 feet. We took a total

of 95 specimens in 10 days at 13 different localities, though search for them was made in 40 localities. Near Kingston we found them in a hole under the roots of a silk cotton tree near Rockfort, and in the deep crevices between the buttressed roots of Tom Cringle's "Duppy" tree near Ferry River. Our richest haul was made at another silk cotton tree at Melrose Hill, near Williamsfield, where we took over 50 specimens. We failed to find them at Newcastle or Cornpass Gap above Bath, though suitable hiding places were abundant. These places may be too cold and wet for the Jamaican species. In general, our best luck was in silk cotton trees, although we got a few in holes and crevices associated with other trees, and in crevices and shallow caves in limestone rock.

The specimens we secured in Jamaica appear to belong to but two species, but with the short time at our disposal it would be foolish to say that other species do not occur. All but four of our specimens belong to a new, apparently endemic species. These four, although practically indistinguishable in life, appear to be subspecies of a form found also on Hispaniola and Puerto Rico. All were taken near Kingston, and may represent a recent importation from elsewhere. There are other methods of collecting, such as the use of light traps, sheets of paper covered with castor oil placed at likely hiding places to trap flies as they come out at night, and the use of animal or human baits to attract the females at night. We did not have time to try out these methods, but they should be tried in Jamaica.

In Cuba and Hispaniola we had equally good luck, securing two species from each island. Both Jamaican species and one of the pair from each of the other islands are closely related to each other and to the species from Puerto Rico, the commoner Jamaican and Cuban forms being the most distinct. The other two species from Cuba and Hispaniola belong to a different group, though closely related to each other. Further search in Jamaica may very well turn up another species belonging to this last group.