

Drosophila funebris

as a Host of the

Fungus Stigmatomyces

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On February 10th, 1931, a **Drosophilid** fly appeared on my bedroom window. Now Drosophilids are apt to turn up on any window at any time of the year and somehow always find their way into my cyanide jar. But this one was not behaving quite normally; it had either been out the night before and had fallen into a dust heap, or it was decidedly ill. Therefore I made certain that it entered my poison bottle immediately.

Upon examination later, the fly was found to be quite heavily infested with what seemed like minute, swollen, yellowish bristles projecting at odd angles from its body—not at all normal bristles of Diptera and certainly not the armature of the normally smooth-looking *Drosophila*. Professor Spencer of the Department of Zoology at the University, to whom I submitted the fly, suggested that the “bristles” were probably the fruiting bodies of a species of **Laboulbeniaceae** and this was verified by Professor F. Dickson of the Department of Botany.

Any form of life that might turn out to be parasitic on insects is worth investigating so I looked up references on this growth and found that the fungi of the **Laboulbeniaceae** are rather closely related to the mildews, and though in all cases, are so small as to necessitate the aid of a microscope in studying them, yet are exceedingly interesting because of their peculiar habits. Approximately 152 species have been described up to the present, belonging to 28 genera and their distributional records show a few only in Europe, a few in the tropics of Asia, Africa and America, but a comparatively large number of species in North America. The known species live on insects, particularly those that are found in damp places or are entirely aquatic such as certain Diptera, Neuroptera and Coleoptera. They seem to favour beetles especially as hosts possibly because of the fact that many beetles hibernate as adults and so are admirably adapted to carrying the fungi through the winter.

Armed with this information, a search was made of the house in which the diseased fly had appeared and several more infested specimens were found on the windows in the basement. A further search showed that this species of fly was breeding in a mixture of rotten potato and carrot which was lying in a corner. Curiously enough, another species of Drosophilid fly was much more numerous in the basement and proved to be breeding in the same material but specimens found were entirely free of the fungus.

One of my references, Harshberger, states (a) that these fungi do not annoy or in any way hurt their hosts and (b) that they are often exceedingly specific in their attachment, being in some cases attached

seems to extend this information for in connection with the first point (a) in all cases the flies were very obviously bothered by the fungus and kept incessantly rubbing as much of their bodies as they could reach with their legs. Moreover, in the cases of the more heavily infested flies, there appeared to be a very definite weakening of the hosts which were sluggish, and when kept in confinement with uninfested flies caught in the same basement, died very much more quickly than the latter. This might, however, be attributed to the fact that the infested flies were probably considerably older than the others. In connection with the second point (b) namely specificity of attachment on the host, in all cases examined the fungus seemed capable of growing on any parts of the flies' bodies except on the wings and perhaps on the eyes.

Professor Dickson was kind enough to trace out the material secured and tells me that the parasite belongs to the genus **Stigmatomyces** of which one species **Baeri** attacks houseflies in Europe (Germany) and in North America. Another species of the same genus has been reported as occurring on flies of the genus **Drosophila** and on the same species as those in my collections which I traced out to **funnebris** in Sturtevant's (1921) key.

To work out the history of this fungus and its method of attaching itself to the flies, I am maintaining colonies of **funnebris** (which is reported chiefly as breeding in vinegar vats but also in decaying animal matter especially in material which has been preserved in formalin and has dried out) and Professor Dickson in investigating the sporulation and growth of the fungus. Until further work has been done, we cannot definitely state the name of this species of **Stigmatomyces** which differs from most of the members of the Order **Laboulbeniaceae** in being an aerial form and in being so large as to be readily perceptible to the naked eye.

Acknowledgment.

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