WILD BEES OF TRINIDAD

(Summary of the lecture by Dr. Fred D. Bennett of the Commonwealth Institute of Biological Control, delivered at the regular monthly meeting of the Club on 8th August, 1968.)

In Trinidad, there are probably more than 200 species of wild bees. Although several species have evolved a social system the majority are solitary. The social species belong to the genera **Melipona** and **Trigona** (sens lat). They are all stingless, produce horizontal brood combs as opposed to the vertical ones produced by the honey bee and store their honey and pollen in waxen pots. In the solitary species, each female constructs her own cells, provisions them with a mixture of pollen and nectar, oviposits and seals them. Usually each cell is completed and sealed before construction begins on the next. The larvae develop unattended and new adults emerge long after the mother bee has abandoned the nesting site.

The group of bees discussed in detail were the Euglossinae. This group in Trinidad is represented by the genera **Eulaema** (4 spp.), **Euplusia** (4 spp.), **Eufresia** (1 sp.), **Euglossa** (6 spp.) and **Exarete** (2 spp.). Members of the last, **Exarete,** as well as those of another genus **Aglae** are parasitic on other members of the group. Parasitic bees lay their eggs in cells of the host bee, the egg or larva of the host bee being destroyed either by the adult or the first stage larva, the latter then feeds on the nectar-pollen provisions. The Euglossinae are the sole pollinators of several genera of orchids including **Catasetum, Coryanthes, Gongora.** Only males visit the flowers of the orchids; the purpose of their visit is to collect a fragrance or essence. Anthuriums are also visited to collect a similar essence. This is collected by means of specially adapted brushes on the tarsi of the front legs and then transferred whilst hovering in front of the flower to special glands in the hind legs. Later this material is presumably utilised to designate territories or possibly to attract females. A research group at the University of Miami has studied the essences produced by certain orchids and has selected a range of compounds which will attract male Euglossinae. Certain of these substances such as Methyl salicylate 1, 8- cineole and benzyl acetate have been tried in Trinidad and most of the species have been attracted to these "baits".

Finally studies on **Euglossa cordata** were described. Females which are solitary nest readily in small wooden boxes. On accepting a box as a nesting site, the female blocks the round entrance hole with dark resin material. Glass tops are fitted to these boxes after nests are established enabling observations while the female is working in the nest. **Euglossa** constructs cells of a resinous material, and fills them with a viscous mixture of pollen and nectar. Up to 12 to 15 cells are constructed and provisioned one after the other. The female usually dies or leaves the nest before the developing bees emerge. Frequently one of the emerging females takes over the nest and hence the same box may be used successively by females of three or four generations. Even more frequently the nests are invaded by the parasitic bee **Odontostelis**

bilineolata. The parasite drives out the **Euglossa** female, opens recently provisioned cells, removes the egg or small larva, lays her own egg and reseals each cell. At other times nests are temporarily terminated by the action of a Conopid fly. This fly catches a **Euglossa** female in flight, inserts an egg in the abdomen and then releases her. The developing parasite eventually kills the bee.

Studies on other groups of bees were mentioned briefly.