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# Notes on the Biology and Habits of the Black Ant, *Camponotus (Tanaemyrmex) compressus* (Latreille).

by

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**Introduction :** The large black ant *Camponotus (Tanaemyrmex) compressus* (L) is a familiar insect all over India and has been known to be of considerable economic importance because of its habit of attending on several Homopterous insects. Acccounts of its habits have been given by Wroughton (1892), Rothney (1895), Dutt (1912), Mukerji (1930, 1934), Negi *et al* (1930) and others and the seasonal incidence and other characteristics by Krishna Ayyar (1935, 1937). Still its life history and its behaviour towards its herds are not fully known. The present account gives further information on the insect as observed in Coimbatore during the past few years.

**Nesting :** The ant is terrestrial, building its nests in loose loamy and semi-dry soil in open places. It can occasionally build its nests in logs of wood, under stones and so on. The nests are marked, especially after soaking showers, by large craters of loose earth spread on all sides evenly to a radius of about 3 inches. The soil is heaped close to the entrance to the nest so that part of the particles excavated topple over the nest. The size of the particles brought out are fairly large, about 1 to 2 mm in width. According to necessity, expecially when there are insects to attend on, the nests increase in number and are formed within a yard of the others. The permanent nests are usually situated in sheltered places where moisture can be retained like the base of trees, sides of field embankments and so on. The entrances are fairly large, about $\frac{1}{2}$ inch breadth accommodating a number of individuals to walk abreast freely. The galleries extend in the soil to a radius of about 3 feet all round and can go up to 1 foot and occasionally to even 3 feet. The nests contain only the brood and the ants.

**Seasonal History :** The ant is active all through the year and attends on many Homopterous insects like leaf and root aphids, the cholam shoot fulgorid, *Peregrinus maidis*, membracids, Lycaenids and so on. It also feeds on extra-floral nectaries and oil glands on many plants.

The swarming goes on from April to October and the mating takes place either in flight or on the ground. Swarming depends on the receipt of rains after which large numbers emerge out from the

nests. The established colonies do not show any change during the different seasons except for shifting the site of operations from time to time.

**Organisation in the nest:** The colonies are always populous and contain 3 or more queens (up to seven have been noted), about 100 eggs, 500 larvae, 300 pupae, 100 soldiers and 1000 workers. The numbers vary in different seasons and in different nests. The temporary nests contain 50 to 100 individuals all of which are workers and no brood or any other form.

The nests are kept scrupulously clean and except for the ants no other insect or hoarded material is found.

**Life History:** The observations on the life history were made in nests kept in jars which were quite adequate for rearing the ants. However, the ants being af a suspicious nature, any interference was resented. The different stages were separated out in tubes for noting their development. These survived only with some difficulty.

The queens laid the eggs in any place at the rate of from one to four a day. The workers separated out the eggs and larvae according to their instars in different places in the nest. These were attended on by the workers. The egg stage lasted 4 to 9 days with an average of 6 days. The larvae underwent three instars with 2 to 6, 5 to 8 and 2 to 5 days in each instar with averages of 3·7, 6·2 and 3·1 days. The total larval period thus lasts 13 days. The pupal period lasted 5 to 8 days with an average of 5 days.

The larvae begin to spin the cocoon after the second moult itself and finishes it within the period of this stadium. The spinning is done by the larva bending over and using its mouth to spin the cocoon all round. The pupa is oval and sac-like without any differentiation between the anterior and the posterior ends. The pupae are also attended by the workers which are stacked in their proper place, licked and a slit made in the cocoon to help the imagines to come out.

The callows which emerge are yellowish white and turn light brown after one day, brown after two days and black and shiny after two or three days. The total life cycle comes to 24·9 days.

**Food and other habits:** The ant does not possess a sting and is, therefore, not pugnacious. But it bites with its mandibles. In spite of this the ant is one of the most successful ones and has dominated

the places where it occurs. This has been possible, as in the case of other ants of Formicinae, by its varied food, ability to withstand different weather conditions, ability to combat the attack of other ants and its adaptability to live in communes of many queens and in certain cases with inquilines in the same nest.

The ant mainly feeds on sugary solutions and the honey dew of many Homopterous insects. Krishna Ayyar includes 30 insects from 35 food plants as being attended on by the ant. It also feeds on the extra-floral nectaries and oil glands of many plants. Feeding of fatty substances has led it to attend on the bamboo aphid, *Astegopteryx sp*· and the Calamus aphid *Cerataphis variabilis*, *H.R.L*, which produce profuse wax on their bodies. The ants feed on the honey dew as well as the wax but afford the protection which the wax might have afforded the aphids.

The ants forage singly and bring home the food as repletes by storing them in the stomach. There is no concerted action for carrying the food to the nest by a group of individuals. There is no regular track which is followed by all of them. In trees and in confined places, however, the track may be common. The ants feed for a long time by themselves, without trying to give information to the others in the colony. In the case of shoot aphids very few ants feed on a large colony showing that they feed for themselves and take the food home when it has accumulated in its stomach.

The ant forms the food of many other species of ants, certain other insects, lizards and birds. There must be a great depletion of their numbers in the normal course of their living. Still in any season they are found to be the most abundant. This is brought about by the queens living for a number of years and producing brood any time of the year.

**Inquilines and Parasites:** No inquilines have so far been found in the nest or in the track of the ant.

A mite, *Acotyledon* sp., belonging to the family Tyroglyphidae, has been found living on the body of the ant in Coimbatore. It attaches itself to the leg or other portions of the body of the ant. This is the first record of parasite on the ant in this region.

**Economic Status:** This ant has been said to be of considerable economic importance because of its attendance on plant-feeding insects and transporting them from one plant to another. From the

observations made here, however, it is found that such transportation of aphids and coccids does not occur. The ant attends on them when they have settled on the plants but do not help in transporting them. The crawling nymphs are left to themselves and only after they establish themselves on the plants, the ants approach them. This has been found to be the case in the root aphids also where the dispersal of the aphid is brought about by the flight of the winged forms which settle on new plants and produce nymphs. These nymphs crawl along the leaves to the roots by themselves. When the ants which feed on the honeydew of these insects are disturbed, they do not carry the insects about. The actual transportation, if any present should, therefore, be very limited. In other parts of the world also it has been found that such transportation is limited to some forms like *Acanthomyops flavus* of Europe which rears aphids in its subterranean nests all through the year and affords all facilities for their living.

The ant is a fast runner and depends on its sight for its escape from enemies and natural calamities like rain or poisonous gases. When the nests are submerged the ants are able to swim through the water and climb the trees. They remain there till the water subsides. When insecticides are applied for their control they easily run over them and unless the area covered by the chemical is broad enough - to about a foot or so - the ants get across the barrier. Higher concentrations of hydrocarbons like BHC or Chlordane are found to kill the ants. But they make excavations a little away from the orginal site and are able to live again.

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