

## Colony Founding and Role of Parthenogenesis in *Cataglyphis cursor* Ants (Hymenoptera - Formicidae)

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*Cataglyphis cursor* is a monogynous and monodomous species (Cagniant 1976a, Lenoir and Cagniant 1986). In the Mediterranean region of France, swarming takes place in late June - mid-July. Alate females run near the nest entrance of their colony while males fly off their nest. The copulation occurs after a nuptial course (Cagniant 1976b). Later females walk into their nest where they lose their wings, they can leave the nest again the following days. Generally they are inseminated, but it is not always the case. As a consequence, during this post-swarming period which lasts a few weeks, polygynous nests can be found in the field.

In the laboratory, experimental foundations with newly inseminated queens are always unsuccessful. If a few workers are added to the queen the result is identical. As isolated females were never found in the field independent foundation does not seem to be possible with this species.

Consequently we considered the existence of fission to explain the propagation of the colonies. Examples of fission were observed in the field: workers transport other workers and brood to an empty hole which is turned into a new nest. The transport lasts generally a few days with a permanent traffic between the two nests, and up to 3 nests can be formed from a mother nest. A newly inseminated queen is then transported to the new nest. Some of these new nests are abandoned before the transport of a queen. The mother nest can also be abandoned. Finally we have close kin societies and for several weeks workers continue to pass from one nest to the other. It is a momentaneous polycaly, which can be observed in August. If no form of fission occurs the supernumerary queens are rejected by the workers. The polygynous colonies have been observed in the laboratory where they can carry on until wintering after which monogyny is always re-established. Fission is exceptional in monogynous species which found generally new colonies with isolated females.

Cagniant (1973) discovered that *C. cursor* can reproduce by thelytokous parthenogenesis in the laboratory when colonies are orphaned. As orphan colonies were never observed in the field Lenoir and Cagniant (1986) speculated that groups of workers formed by fission could produce females this way. The observations of the transport of queens related here lead to reject this hypothesis or at least to consider that as a mere accessory mechanism. To test the role of parthenogenesis 22 colonies were orphaned in the field artificially in early May before the first egg-laying of the females. In July 7 of them were found exactly at the same spot with a functional queen. We can suppose that these queens were produced by parthenogenesis but this needs to be confirmed. This result may indicate that thelytoky could be efficient in the field but parthenogenesis seems to be only a substitution mechanism in the case of the death of a queen.

### References

- Cagniant H., 1973.- C.R. Acad. Sc. Paris, 277, D, 2197-2198. Cagniant H., 1976a,b.- Vie et Milieu, 26, C, 265-276., 277-281. Lenoir A. and Cagniant H., 1986.- Entomol. Gener., 11, 153-177.