



ETHOLOGIE 85

*19th international ethological conference
université p.sabatier toulouse france*

RESUMES
DES COMMUNICATIONS ORALES ET AFFICHEES

ABSTRACTS
OF SPOKEN AND POSTER PAPERS



VOLUME 1
24 août - 28 août 1985

TITRE INFLUENCE OF PRE-IMAGINAL EXPERIENCE ON THE BEHAVIOUR OF ADULTS ANTS

AUTEURS M. ISINGRINI^{1,2}, A. LENOIR¹ and P. JALSSON²

ADRESSE ¹Laboratoire d'Ethologie et de Psychophysiologie - Faculté des Sciences
F-37200 TOURS

²Laboratoire d'Ethologie et de Sociobiologie, Université de Paris Nord
F-93430 VILLETANEUSE

Among the social insects recognition of adults nestmates seems outwardly a casual matter. Recent data showed that discrimination is existing also for brood in some ant species. In preliminary experiments with Cataglyphis cursor (Formicidae), it was demonstrated that brood-colony recognition exists at the emergence and can be only slightly influenced during the first days of adult life. So we had to consider the possibility of pre-imaginal learning.

EXPERIMENT 1 : ADOPTIONS OF EGGS

In this experiment eggs were transferred into a recipient colony. The larvae issued from these eggs spent their whole life in the new colony. Adults born from cocoons reintroduced in their native colony where they were submitted to a choice test with nestmate larvae and larvae of the familiar colony. It was observed that the ants prefer the larvae of the recipient colony. These results demonstrate the existence of larval learning.

EXPERIMENT 2 : ADOPTIONS OF LARVAE

Larvae were transferred into recipient colonies where the brood had been previously eliminated. Adopted larvae were thus reared in the new colony until 3 to 7 days after they had emerged into adult life. Adults were submitted a choice test between nestmate larvae and larvae of the familiar colony. The individuals that have been transferred as large larvae prefer nestmate larvae and the individuals that have been transferred as small larvae, present on the contrary a preference for larvae of the familiar colony. These results permits to conclude on the possibility of reversal of the nestmate preference. When ants spent the majority of their larval life in a recipient colony they nursed more larvae belonging to this colony. It is an important argument in favour of learning during this period.

DISCUSSION

Colonial brood recognition seems to be largely developed at the emergence but it is not strictly fixed as familiarization can occur during the first days of adult life. This conclusion confirms the existence of numerous learning capacities during this period. Nevertheless the main process for brood-recognition seems to occur during larval life : the only experiments of egg or small larvae transfers permit an inversion of the homocolonial preference of the adult of Cataglyphis cursor. The information acquired during the larval period persists in the adult life through the metamorphosis. This phenomenon was known only for the feeding behaviour of some solitary insects and will be discussed in relation with the kinship or fellowship theories.