

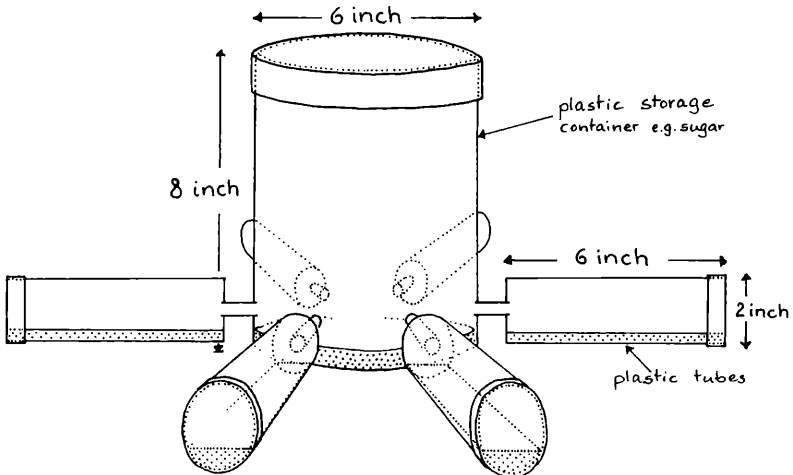
## How overcrowding is avoided by ants - Investigations on *Lasius niger* L. (Hym., Formicidae) -

Christopher Barlow

**Zusammenfassung:** 8 Königinnen der Ameisenart *Lasius niger* L. wurden nach ihrem Hochzeitsflug zusammen in ein künstliches Nest gebracht und nach einer Woche je 2 zusammen in einen Raum eingesperrt. Jede legte in der Folgezeit ein paar Eier und zog einlge Arbeiter groß. Die 8 "Nester" hielten sich 6 Monate lang nebeneinander, ohne daß eine Vermischung stattfand. In einer Nacht aber wurden 7 der 8 Königinnen kampflös in einer offensichtlich gemeinsamen Aktion aller Arbeiter geköpft. Diese Beobachtung läßt vermuten, daß es sich hierbei um einen normalen Vorgang handelt, um eine Übervölkerung zu vermeiden.

Many aspects in the behaviour of ants are still shrouded in mystery and not yet investigated thoroughly or their meaning understood. In my suburban garden I have been watching ants for many years, especially the common black ant *Lasius niger* L.

To obtain more details about the hidden life in a nest I started using artificial "nests". These are made of a simple container of clear plastic in the middle, surrounded by several (6 or 8) smaller tubes of clear plastic, linked with the main room by narrow gangways. The bottom of all containers are covered with mortar. Each room is covered by a lid and can be opened, if necessary. (Compare the drawing.)



For an experiment I started in 1991 I took new queens from a mating flight. I used eight queens and put them in a cube shaped container that had been half-filled with tile cement. Only a simple inverted "T" shaped tunnel was made in the sides with no communicating lengths. The queens could move freely but after a week they ceased their wanderings. It was at this stage that I temporarily sealed two queens into each chamber.

For a long time they each individual queen kept as far apart from its neighbour as possible and by November I had removed the seals, they reared a few ants each. All of the queens stayed in their respective chambers.

They had been in the nests for six months and I was beginning to think that nothing would happen because there appeared to be no mixing of any kind between the nests. But one night in late spring 1992 I found all the queens except one dead. Seven were decapitated in one night. The deaths were so identical that I presumed little struggle had taken place, or, that the killings were so swift that the queens did not have time to struggle.

Whatever happened during the night took cooperation by the workers, although I never saw them together at all. They had chosen one queen and all of the others were surplus. This smooth operation also suggested the behaviour to emerge was quite normal and appropriate to the circumstances of overcrowding. Which leads me to the thought that an increase in a population density probably does the same.

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