be the precursor of social parasitism. After all, this hypothesis is the only one providing an explanation for the non-independent colony foundation of all true social parasites.

For the evolution of slavery, BUSCHINGER (1970) suggested a hypothesis based on behaviors observed in polydomous colonies, where brood and adults often are carried from one nest to the other. I shall return to this idea in detail later on.

A more or less separate problem is the question of how the speciation event occurred, whereby the parasite species was differentiated from the ancestral, and later host species. In principle, all the three evolutionary pathways as discussed above, need not violate the rule of allopatric speciation. 1. Predation a priori occurs between already distinct species, and the most closely related species are particularly preadapted to coexist as slave-maker and slave, respectively, once this behavior is established. 2. Intraspecific territoral behavior may be extended to raiding of related sympatric species. And 3. gathering brood stages from neighboring conspecific nests, belonging to the same supercolony, also might be extended to "raiding" on conspecific, but less familiar nests of a neighboring supercolony, or on nests of a closely related, distinct species. It is even conceivable that young queens of a polygynous species sometimes, and occasionally even successfully, may penetrate a nest of a related species.

There are, however, some serious arguments against these possibilities, and much of the observations on parasitic ants are easier explained with the assumption of a sympatric origin of parasitic species directly from the later host species.

Thus, we do not know of any instance where the ranges of two most closely related species partially overlap, the species being in parasitic relations in the contact zone, and free-living in the remainder of their ranges. On the other hand, there are a few cases in the genus *Myrmica*, where small females, "microgynes", occur together with "macrogynes" in the same polygynous nest. Some such microgynes (*M. microgyna*, PEARSON 1981; *M. hirsuta*, ELMES 1978) have been described already as separate, parasitic species. In other instances the microgynes are still believed to belong to the same species as the queens of ordinary size (*M. ruginodis*, ELMES 1976, 1987; PEARSON 1981; *Leptothorax longispinosus*, HERBERS 1984). PEARSON (1981) speculates that the interactions of the macrogyne and microgyne forms of *Myrmica ruginodis* "may provide information about the early or pre-parasitic conditon".

Before going into details, however, let us first consider some quite recently investigated examples, where we are able in fact to trace evolutionary processes in groups of socially parasitic ants.

Apparent evolutionary pathways within parasitic ant groups

The first example refers to the genera *Epimyrma* and *Myrmoxenus* where we can identify an evolutionary progression from one of the traditional types of parasitism, dulosis, to a derived type which may or may not be termed "inquilinism".

The myrmicine genus *Epimyrma* presently comprises about 10 species. All of them are parasites of *Leptothorax* (subgenus *Myrafant* SMITH 1950 sensu BOLTON 1982). *Myrmoxenus gordiagini* is a species sharing many characters with *Epimyrma* and it should presumably be included in the latter. We have studied the life history, morphology and social organization of most of these species (BUSCHINGER et al. 1983, 1986; DOUWES et al. 1988; JESSEN 1987; WINTER and BUSCHINGER 1983). They all share an identical karyotype which was not found in 39 *Myrafant* species investigated, including the respective host species (FISCHER 1987). The colony foundation of the young queens involves a conspicuously derived behavior also shared by all 8 species investigated including *M. gordiagini*: The parasitic queen, after having penetrated a host species colony, throttles the host queen with her mandibles around the neck or throat over a prolonged period, until she is dead. In all species the parasite queen, if she succeeds, is accepted by the adult host workers.