Certainly, the allopatric speciation model (e. g. MAYR 1963; FUTUYMA and MAYER 1980) is the most convincing, parsimonious and well-documented mechanism of species multiplication when solitary forms are considered, or social insects having monogynous colonies.

In polygynous species, on the contrary, where several or even numerous functional queens may coexist in a nest, and where young queens may be recruited into existing colonies every year, a single atypical, "deficient", specimen is well able to survive, and even a certain fraction of "deficient" queens need to immediately lead to a serious handicap or even to the extinction of the colony. Certain hereditary "deficiencies" may well be able to propagate in such conditions. In the sense of WEST-EBERHARD (1986) they may not be "deficiencies", but intraspecific alternative reproductive strategies adapted to varying environmental conditions.

For a better understanding of the following I will recall that numerous ant species or genera, among them those most seriously affected by social parasitism, are forming enormous populations over huge areas, and that locally, again often over considerable areas, very high population densities are found. Thus, *Leptothorax acervorum*, host species of at least four social parasites (see above), has a holarctic distribution with highest population densities (up to four nests per m^2) in arctic and alpine coniferous forests. Also the genera *Formica* and *Lasius* have holarctic ranges with many species found from W-Europe through E-Asia. At present, numerous subpopulations of these species are isolated, e. g. in mountainous areas, or islands, and very probably the degrees of such isolations have changed many times throughout the Pleistocene and in earlier epochs.

A genetic "deficiency" of the kind taken into conservation here may be a disturbance in the caste-determination system, for example causing a higher production of young queens at the cost of worker formation. In a monogynous species such genes for an ill-balanced queen-worker ratio would not spread but quickly be eliminated. In a polygynous species forming polydomous supercolonies such genes should naturally occur, and even quite frequently.

We may expect a general competition for sexual reproduction if there is any genetical variation among conspecific queens coexisting in a colony (WEST-EBERHARD 1981). ROSENGREN and PAMILO 1983 discuss the possibility that some queens might become "cheaters", producing only sexuals at the expense of queens producing supporting workers as well.

Genes for an unbalanced, queen-biased caste ratio in such conditions need not emerge as new mutations, they might just represent atavistic states (cf. ELMES 1976). In primitive ant societies the numbers of workers are lower than in the higher evolved ones, and the workers are usually more queen-like in their morphology. Perhaps the often intermorphic condition of workers in many slave-maker species is due to this fact: In *Harpagoxenus sublaevis*, *Protomognathus americanus*, and *Epimyrma* spp. the ovaries of workers often have as many ovarioles as those of the queens, and in *Chalepoxenus* the workers even possess receptacula. *Epimyrma* and *Myrmoxenus* workers are exceptional among the Myrmicinae in having at least rudimentary ocelli, which usually are present only in queens of this subfamily. And the worker numbers of slave-maker species are generally lower than in related, comparable non-parasitic species.

Let us now assume that a given supercolony of a polygynous, independent ant contains too many "deficient", predominantly queen-producing queens. Its workerforce will decrease, and perhaps a neighboring, "sound" population will invade its area. But many young queens bearing the deficient genes can infest this "sound" population. There is no mechanism perceptible which would really eliminate these genes, except for the extinction of the whole species. In nature, it is better conceivable that the frequencies of "normal" and "deficient" genes or genotypes will fluctuate interdependently like predator and prey or host and parasite populations (cf. POOLE 1974).