her mate (or mates), is genetically the equivalent of two or several individuals, the female and sexual consorts in a normal population of non-social animals. Hence, what may be referred to as the "equivalent size" of the reproductive population, N_d, in an idealized deme of social insects outside the nuptial season can be estimated as

$$N_d = \frac{N_t}{N_c} (Q + mQ)$$

where N_t is the total adult population of the deme, including workers, m is the average number of males that fecundated the queens assuming approximately equal sperm contributions, Q is the average number of mother queens assuming approximately equal egg contributions, and N_c is the average mature colony size. Thus in a cave deme containing 10,000 adult individuals with an average mature colony size of 1000 and single fertilizations of single queens, the reproductive population size equivalent would be only 20. We may note that a deme of 10,000 adults, the non-social condition, would perhaps be large enough and contain enough genetic variability to be stable and self-maintaining. Demes of this size are quite common in nature. But a deme-equivalent of 20 adults, the social condition, must be below the critical threshold or dangerously close.

In short, if species of social insects never become truly troglobitic it may be simply because they are unable to maintain sufficiently large cave demes. Due to limited habitable space, the Oropouche Cave could not have contained more than 20 colonies of *Erebomyrma urichi* and probably held considerably fewer. *Erebomyrma* colonies are sometimes polygynous, as we know from the single Oropouche example. If ten queens per colony is accepted as the upper limit, and each were assumed to be singly fertilized, the reproductive-population equivalent of the Oropouche *Erebomyrma* is calculated not to exceed 400. Since the excavated colony was the only obviously populous colony found, the actual equivalent was probably far less.

But let us suppose that social insects do occasionally become troglobitic; what characteristics might they be expected to have? In addition to the well-known morphological changes common to most troglophilic animals, there are several features of social structure that might be affected. There would likely be one or more of three devices to increase N_d; namely, (1) decreased colony size, (2) increased polygyny, and (3) increase in m (polygamy). The Oropouche colony of *Erebomyrma urichi* was markedly polygynous, with the added result that the estimated N_d of the colony was large (20). In fact, *urichi,* although not a troglobite, may be pre-adapted for marginal cave exis-