

"But all the chambers and galleries occupied by one species opened freely into those occupied by the other and the apartments of each were intertwined indifferently. Instead of one species having appropriated one, the other the adjacent portion of the nest, they interdigitated from end to end in such wise that there was not a fragment of the nest the size of an egg that did not contain both species. The whole nest was four or five decimeters in diameter. This case is therefore very different from that of the double or compound nests of Europe, where two or more hostile species sometimes have interlacing but not intercommunicating galleries.

"We are concerned with a peaceful association for the purposes of lodging and forming files, but without mixing or a common *ménage*, *i.e.*, with an independent life of the two species side by side. Hence 'parabiosis,' to give it a name, which seems to me applicable to such a type of association of the two species, though very frequent, is not constant. I have also found the nest of each species in isolation, *i.e.*, apart from the other.

"Nature seems sometimes to produce associations analogous to the one here described, as *e.g.*, that of the carrion crow and hooded crow (*Corvus cornix* and *Corvus corone*) both here in Switzerland and in the north, but in this case parabiosis is less accentuated and is restricted to flocking and flying together."²

Later, in his taxonomic studies on neotropical ants, Forel described the two ants observed in Colombia as *Crematogaster limata* Smith subsp. *parabiotica* Forel (1904), and *Dolichoderus debilis* Emery subsp. *parabiotica* Forel (1912). The latter is now assigned to the subgenus *Monacis* in Emery's revision of the *Dolichoderinae* in the "Genera Insectorum" (1912).

In the winter of 1911-12, while collecting ants in Central America, I was able to confirm Forel's observations on the very same species. Apart from a brief reference in a paper on the Acacia-ants (1912, p. 126) my observations have not been published. I therefore subjoin the pertinent paragraphs from my notebooks written in Panama and Guatemala:

Ancon, Panama, Nov. 10, 1911.—Found a flourishing colony of *Dolichoderus* and one of *Crematogaster* living in parabiosis. The nest was in single colony and without the slightest display of mutual hostility. The galleries were slender and ran lengthwise mostly. Though interwoven and more or less inosculating throughout, each gallery contained ants, larvae and pupae of only one species. The nest was disturbed and the ants kept running about in the galleries and on the bark of the tree as if forming a strip of deadwood about 14 inches long in the cleft of a living tree. The

² An even more striking example is that of our common tent-caterpillar (*Malacosoma americana*) and the imported gypsy-moth caterpillar (*Lymantria dispar*). During late May partly grown individuals of the latter species are often seen peacefully nestling among the tent-caterpillars in their silken webs. This association is the more interesting because it has originated in Massachusetts within the past fifty years.