has prevented me from describing the predatory forms of *M. melliger* as distinct species. I leave the matter to be decided by some future investigator who can devote months or even years to the study of our desert ants.

Although my observations are incomplete, they prove nevertheless that the conditions in the majority of the subspecies and varieties cannot be the same as those described for *M. horti-deorum.* If such deserticolous forms as *M. orbiceps, mendax, mimicus, semirufus* and *navajo* ever produce repletes, the sweet liquid used for this purpose cannot be obtained from oak-galls, for the very simple reason that oaks do not grow in the deserts. And as the low, dry, halophytic and xerophytic vegetation of these regions develops very few galls of any kind, honey would have to be supplied by coccids and aphids, and these, too, are by no means abundant on desert plants.

That repletion, nevertheless, may be merely a sporadic or temporary condition among the different American *Myrmecocysti* seems to be indicated by the manner of its occurrence among other ants. It will therefore be advisable to review the observations that have been made on the replete habit in general, especially as such a review will also show some of the phylogenetic stages through which the typical *M. melliger* and *mexicanus* and the variety *horti-deorum* have, in all probability, passed.

Repletes are known to occur only in the Camponotinæ and Dolichoderinæ, the two subfamilies comprising the ants most given to feeding on the sweet excretions of Homoptera and the exudations of the galls and nectaries of plants. Structurally these ants differ from most of the species of Ponerinæ, Dorylinæ and Myrmicinæ in having a thinner and more pliable chitinous investment over the whole body, and especially over the gaster. When out foraging on the surfaces of plants the individual worker is therefore able to collect and carry home a considerable amount of honey by greatly distending its crop. This leads to a separation of the gastric sclerites and the transparent intersegmental membrane is exposed to view, permitting the light to shine through the limpid contents of the crop, while the remaining abdominal organs are crowded up against the posterior wall. This distension, which may be called incipient repletion, is often seen in the workers of our various species of *Formica, Lasius, Camponotus, Prenolepis, Brachymyrmex,* etc. that are returning to the nest from a visit to their herds of aphids and coccids. Any of the workers of the colony, especially while in their callow or semicallow stages, may assume this incipient repletion, which is very slight compared with the perfect repletion of *Myrmecocystus.*

The relatively insignificant distension of the gaster in the foraging workers of the ants above mentioned is the generalized basis from which the more specialized condition of the true honey ants has arisen, first, by restricting the repletion to certain workers in the colony (physiological division of