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Individual personalities within a honeybee colony

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Individual differences, often referred to as personalities or behavioral syndromes, are an important new area of investigation in the biological and social sciences and are being investigated in many animals and humans. Differences in personalities are something we hold dear as humans because they not only make us who we are, but lead to role specialization, and thus contribute to the maintenance of a functioning society. It is likely that personality differences can serve a similar role in an insect society. I have hypothesized that some individuals in the hive have an 'affiliative' personality: that throughout their lifetime they perform tasks that require interacting with their nestmates. I have also hypothesized that there are 'non-affiliative' bees that perform non-interactive tasks throughout their life. Detailed observations on individual bees can be achieved with an observation hive, a glass-walled bee hive that allows for monitoring of activity within the colony without disturbing the insects. We built observation hives and recorded the behaviors of individually marked, same-age bees throughout their 5 week lifetime for four different hives. Tasks were placed into the categories of affiliative or non-affiliative based on the criteria of whether the task does or does not require interaction with another individual. Analyses are ongoing but results thus far suggest there are inter-individual differences in several social behaviors. Investigation of individual differences in personalities within the social insect colony could provide insight into the role of specialization during social evolution. Further research can illuminate how personalities may contribute to the fitness and success of the colony.