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## Sur Quelques Exemples d'un Raisonnement Collectif Chez les Abeilles

Gaston Bonnier

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Bonnier, G. 1907. Sur quelques exemples d'un raisonnement collectif chez les abeilles. C.R. Acad. Sci. de France. 145:1380-1385.

First Bonnier describes the following experiment: He placed branches of boxthorn (Lycium barbarum) in buckets of water and placed these near a hive. When placed in the afternoon nothing happened. When put out before sunrise, a bee (in the seeking stage) found this source of honey and after buzzing around for awhile, started collecting. After a time other bees joined until 5 bees were gathering nectar. All were marked. The next day all 5 bees, but no more were working the flowers. One bee was replaced during the day. Then the number of branches were increased to 20. The number of bees increased to 11. So it seems that the bees regulate the number of workers collecting from a certain group of flowers. Furthermore, Bonnier found that the additional bees added when the flowers were increased, did not necessarily come from the same hive. His exper. was repeated several times.

Bonnier has observed bees removing a piece of twine from a hive (the twine was used to fasten a foundation wax for the comb). The twine was carried out of the hive. Then 5 or 6 bees lined up beside it, grabbed it in their mandibles and, with no chief or order, all flew simultaneously and carried the twine a few meters from the hive.

In another series of observations Bonnier saw bee workers (in "seeking" stage) find lumps of sugar placed in accessible but obscure places. The bee evidently recognized the sugar as a sweet substance, but could do nothing about it (Bonnier marked the bee and watched it go back to the hive). Later this bee and others were going to a watering pond from the hive, gathering water, going to sugar lumps and disgorging water on them, gathering the syrup thus formed and traveling back to the hive.

In another experiment the following was noted: Bonnier had been placing sugar syrup on leaves for the bees, one day he replaced this with honey. After a bit a whole cloud of bees came from the hive to this area. Bonnier had to rush to the house and get a veil. Evidently the bees in the colony had recognized the honey brought in by workers. They probably thought (!) this came from another hive in a state ## which would allow raiding; so the colony decided (!) to raid, but when they arrived at the indicated place no hive was found, although the bees searched everywhere for some time.

Bonnier says the above observations show a collective intelligence. He uses the super-organism idea and says this organism has a "brain" which has a certain slowness.

Bonnier 1907  
Bonnier