

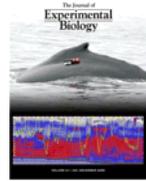
Sensory coding of nest-site value in honeybee swarms

Thomas D. Seeley and P. Kirk Visscher

Presentation by Zarif Hasan

About the Journal

- The Journal of Experimental Biology is a leading journal in comparative animal physiology and is published by The Company of Biologists which is a not-for-profit charitable organization run by biologists for the benefit of the biological community. It was first launched in 1923 as The British Journal of Experimental Biology and has published papers continuously up to the present.
- The impact factor of this journal is 3.



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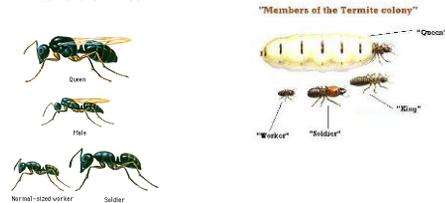


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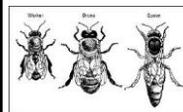
Eusociality

"In eusociality, an evolutionarily advanced level of colonial existence, adult colonial members belong to two or more overlapping generations, care cooperatively for the young, and are divided into reproductive and nonreproductive (or at least less-reproductive) castes."

-Edward O. Wilson



The Honeybee



- Keystone pollinator
 - Approximately one third of the human diet can be traced directly or indirectly, to bee pollination.
 - About 130 agricultural plants in the United States are pollinated by bees, and the annual value of honey bee pollination to U.S. agriculture is estimated at over \$9 billion.
- Distributed across all continents except Antarctica.

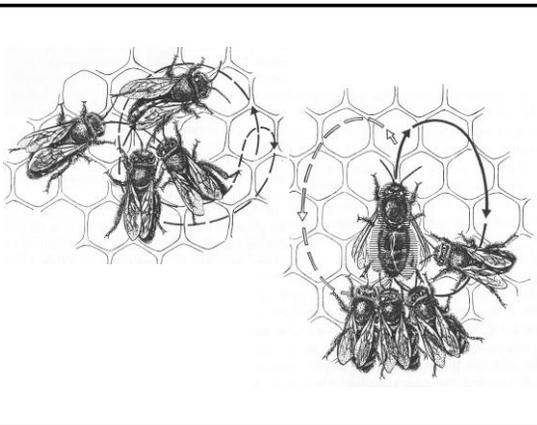
Honeybee Lifecycle

- The age of the worker determines what its role is in the hive.
 - After a bee emerges from its pupa its role is to clean cells and warm the brood
 - After three days the bees role is to feed larvae
 - The oldest bees are scouts who forage for food and determine where the nest site will be.
 - They communicate amongst other scouts through waggle dances.

Waggle dancing and how it was discovered

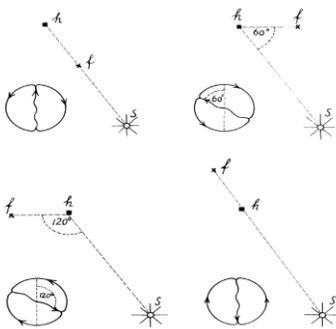
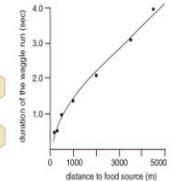
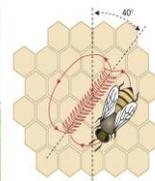
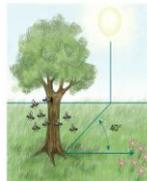


Karl von Frisch
20 November 1886 – 12
June 1982



What it Means

A waggle dance can determine the direction and distance of the potential nest site.



Choosing Nest Sites

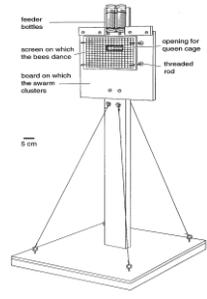




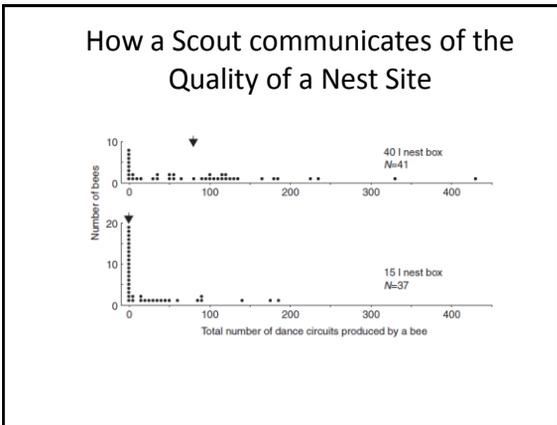
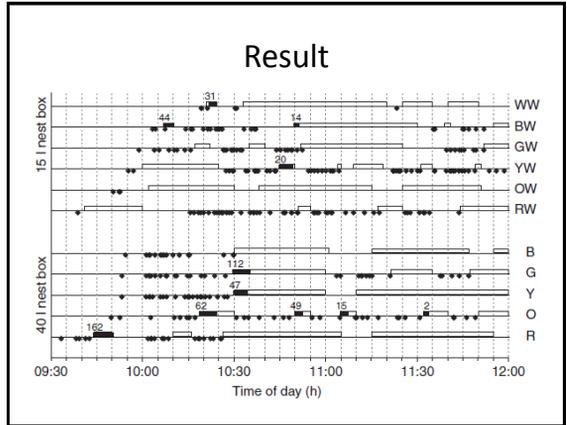
- The preferred nest site for a honeybee colony is tree cavity that has a volume of 40 L.



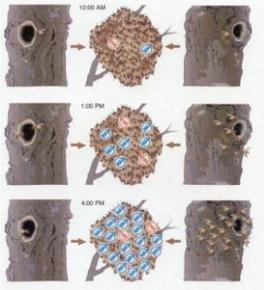
Methods





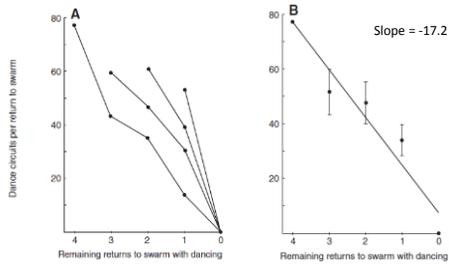


Quorum Sensing



- The hive deals with noise by having a high threshold.

Decay Rate of Waggle Dancing



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