

Honeybee Democracy

Honeybee Democracy: Thomas D. Seeley Princeton University Press, Princeton, New Jersey 08540. ISBN 978-0-691-14721-5 Published 2010.

Thomas D. Seeley, a Cornell University professor, spent more than 30 painstaking years studying bees. The product of this work is a book, *Honeybee Democracy*, with 230 beautifully illustrated pages detailing the life, social habits, and the lifestyle of bees.

The book can appeal to both zoologists and laymen. Each section is well-referenced for the specialist and contains a summary for the more casual reader. Figures and pictures are instructive and effective.

These beautiful creatures, living in dense societies, are able to make collective, speedy, and accurate decisions. Dr. Seeley compares this decision-making process to New England town hall meetings. He also talks about the successful application of these techniques in meetings he chairs at Cornell. Dr. Seeley shows how human societies could improve their decision-making by adopting some of the methods bees employ.

Dr. Seeley concludes by writing:

Some have said that honeybees are messengers from the gods to show us how we ought to live: in sweetness and in beauty and peacefulness.

Dr. Seeley's book also has value for its lessons in the history of scientific research.¹ In the summer of 1944, for example, Karl von Frisch, a German zoologist, made the revolutionary, Nobel Prize-winning discovery that the worker honeybee can inform her hive-mates of the direction and distance to a rich food source by means of a "waggle dance."

One of von Frisch's students, Martin Lindauer, in the spring of 1949, noticed a golden mass of bees, a swarm, hanging on a bush and several bees performing a waggle dance on the swarm of the bees. Lindauer also noticed that many of the dancers arrived at the swarm dirty and dusty. When he examined these dancing bees closely he reported they were "black with soot, red with brick dust,

white with flour, or gray and dusty as if they had been grubbing a hole in the ground." The black bees covered with soot reminded him of a chimney sweep (page 13-14), and he ascribed to them the coined phrase "dirty dancers." The bees were actually making a life-and-death decision: where to establish a new hive (home). Choosing a wrong site can be fatal, and it is indeed remarkable that most of the time the swarms make the right choice, with several thousand bees following the advice and signals every spring of a few hundred dirty dancers to reestablish themselves in a new location.

These eminent researchers made important observations and sound scientific discoveries on shoestring budgets. Thomas Feeley, utilizing modern techniques, was able to confirm in a very scientific method what Karl von Frisch and his student Martin Lindauer had already observed.

Often, young investigators tell me that they would do great research if only they had the staff and money. My usual answer is that many major discoveries in science were made by individuals who were curious. They observed an event and followed up with great patience, sometimes experimenting on themselves.¹

Muslims, based on the two verses of the Qur'an mentioned below, have always had an interest in bees. As children, we were told that honey is good for the health and that the Qur'an mentions it as having healing properties.

وَأَوْحَىٰ رَبُّكَ إِلَى النَّحْلِ أَنِ اتَّخِذِي مِنَ الْجِبَالِ بُيُوتًا وَمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُونَ ثُمَّ كُلِي مِن كُلِّ الثَّمَرَاتِ فَاسْلُكِي سُبُلَ رَبِّكِ ذُلَالًا يَخْرُجُ مِنْ بُطُونِهَا شَرَابٌ مُّخْتَلِفٌ أَلْوَانُهُ فِيهِ شِفَاءٌ لِلنَّاسِ إِنَّ فِي ذَٰلِكَ لَآيَةً لِّقَوْمٍ يَتَفَكَّرُونَ

And your Lord revealed to the bees: Build your hives in mountains, trees and in what people build. Then eat (for females) from every fruit and follow (for females) your Lord's enslaved paths, from their bellies (for

females) exits drink of different colors, in it is healing for people. These are signs for those who contemplate.²

From Seeley and other investigators we now know female bees do the bulk, and possibly all, of the work done in a bee colony. In narrating the behaviors of the honeybee, the Qur'an uses the feminine gender. The ancient exegetes gave various linguistic explanations for this. One was that the generic word (*ism jins*) for bees can be either masculine or feminine.³ Another was that this word in the Hijazi dialect was feminine.⁴

At the time of the revelation of the Qur'an, people did not know the details of the distribution of work among the bees living in a hive. They did not know that those actively working in the hive were females and that the function of producing honey and collecting nectar from fruits belonged to female bees. Therefore, it is interesting, indeed, that in listing the duties of bees, the Qur'an used the mode of conjugation in the Arabic intended for the female gender. To translate the honeybee in question with

the addition of the adjective "female" before the honeybee would be natural.

Book Review By:

Faroque Ahmad Khan, MB, MACP
Professor of Medicine
State University of New York at Stony Brook
Consultant King Fahd Medical City
Riyadh, Saudi Arabia
Associate Editor, JIMA

References

1. Khan FA. Clinicians as effective researchers. *J Islam Med Assoc.* 2010;42:9-14.
2. The Glorious Qur'an, Chapter 16, Verses 68-9.
3. Fakhr al-Dīn Abū `Abdullah Muḥammad ibn `Umar ibn al-Ḥusayn al-Rāzī. *Al-Tafsīr al-kabīr (Mafatīḥ al-ghayb)*. Available from <http://www.altafsir.com>
4. Abū Ḥayyān Muḥammad ibn Yūsuf al-Andalusī. *Tafsīr al-baḥr al-muḥīṭ*. Available from <http://www.altafsir.com>.