## BOOK REVIEW

## All you always wanted to know about what a bee knows

### Klaus Lunau[1]

**Book review.** Buchman, S.L. 2023. *What a Bee Knows: Exploring the Thoughts, Memories, and Personalities of Bees*. Island Press, Washington; 278 pp, 19 photos and illustrations. ISBN 9781642831245 [paperback].

———————————

Bees are intelligent creatures, skilled at locating and exploiting the best sources of nectar and pollen for their offspring, even among thousands of flowers competing for visits. For garden owners, bees and their buzzes complete the idyllic setting; for farmers, they are crucial for the pollination and seed production of 80% of global crops; and for beekeepers, they are cherished companion animals (Ollerton, 2021). For scientists, bees are among the most cooperative and motivated experimental subjects. In controlled tests, they readily make decisions to earn sugar water as a reward. Once their honey stomach is depleted during a brief stopover in the nest, they autonomously return to the test arena. Over the years, a wealth of knowledge has been accumulated on bee decision-making and personality (Chittka & Thomson, 2001; Menzel, 2012; Chittka, 2022). This body of knowledge has now been made accessible to a broader readership.

Stephen Buchman's latest book, *What a Bee Knows: Exploring the Thoughts, Memories, and Personalities of Bees*, invites readers on a lively journey into the mind of a bee, reminding us that the world is far more complex than our senses can convey. Framed by a thoughtful preface and epilogue, the book unfolds across eleven chapters, delving into the bee's life, brain, social behavior, sensory perception, learning and memory, relationships with flowers, mating and nest-building habits, sleep, emotions, self-awareness, consciousness, and cognition. *What a Bee Knows* is more than just an enjoyable compilation of facts about bees—it offers much more. The scientific data is seamlessly woven together with anecdotes and personal experiences, ensuring that readers are not overwhelmed by jargon or technical definitions. Instead, they are guided through the complexities of bee biology with historical context and comparisons to other insects, vertebrates, and humans. These connections help readers understand various aspects of sensing, learning, memory, dreams, sleep, and self-awareness in

[1] Institute of Sensory Ecology, Heinrich-Heine University Düsseldorf, Germany
(Klaus.Lunau@hhu.de)

bees. The references are thoughtfully paired with concise, insightful explanations that bridge the gap between scientific terminology and everyday language. Reading *What a Bee Knows* feels like having a conversation with an experienced and passionate entomologist. Stephen Buchman's engaging style blends essential bee facts with the introduction of scientific concepts, while also offering virtual tours to the labs of leading bee researchers. Personal observations from his fieldwork, lab experiences, and backyard endeavors, along with anecdotes and a few playful references to rock-and-roll songs ('Give Bees a Chance,' 'Good Vibrations'), make the book feel like an enjoyable campfire chat with the much-traveled 'bee man of Arizona'. The book is never dull; it has the power to reshape how we think about bees, and many passages are likely to become part of your everyday vocabulary. For me, the latter is one of the greatest possible compliments for a book.

*What a Bee Knows* is accessible to a broad audience, from bee scientists to nature enthusiasts, especially those with a particular fondness for bees. It's a must have for beekeepers who want to see behind the curtain. It also offers valuable insights for those who may feel uncertain about insects, particularly bees. Each chapter can be read independently, making the book easy to digest in parts. Ultimately, *What a Bee Knows* will help you become a friend of bees. The epilogue emphasizes why bees need allies—individuals who understand the urgent need for mankind to reduce the impacts of climate change, agricultural intensification, and pesticide use. The book has the potential to inspire new advocates for bees as endearing organisms, beneficial pollinators in natural sites, gardens, and fields, and guardians of food safety worldwide. Additionally, a short and concise appendix specifies ten practical suggestions for what we can all do to help pollinators and their plants. I wish Stephen Buchman's *What a Bee Knows* the greatest possible success, as it has the potential to demonstrate that a scientifically accurate, popular-science treatise on the senses, knowledge, and emotions of bees can spark enthusiasm, garner widespread support for bee conservation, and awaken interest in this topic among people who were previously indifferent or uninformed. In the end, *What a Bee Knows* will not only deepen your understanding of bees but also offer a good starting point to inspire you to join the growing movement of bee supporters.

## REFERENCES

Chittka, L. 2022. *The Mind of a Bee*. Princeton University Press, Princeton, USA. 344 pp.

Chittka, L., & J.D. Thomson. 2001. *Cognitive Ecology of Pollination: Animal Behaviour and Floral Evolution*. Cambridge University Press, Cambridge. 360 pp.

Menzel, R. 2012. The honeybee as a model for understanding the basis of cognition. *Nature Review Neuroscience* 13: 758–768. https://doi.org/10.1038/nrn3357

Ollerton, J. 2021. *Pollinators & Pollination*. *Nature and Society*. Pelagic Publishing, Exeter, UK. 286 pp.

# Journal of Melittology

## A Journal of Bee Biology, Ecology, Evolution, & Systematics