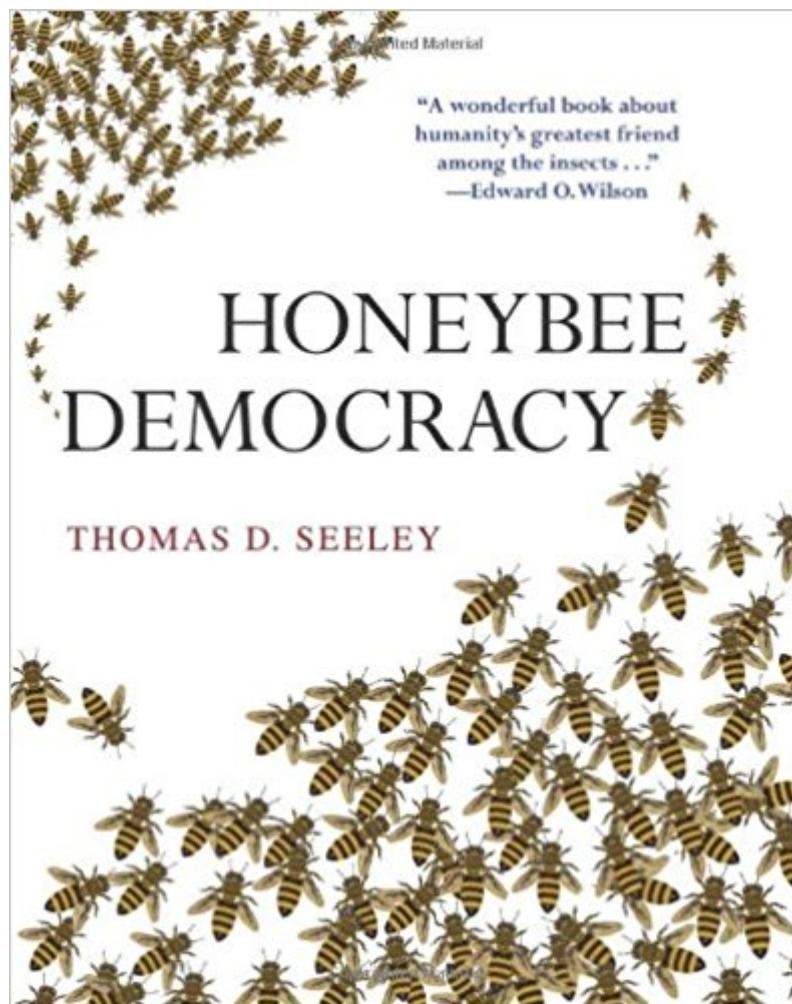


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# Honeybee Democracy



## **Synopsis**

Honeybees make decisions collectively--and democratically. Every year, faced with the life-or-death problem of choosing and traveling to a new home, honeybees stake everything on a process that includes collective fact-finding, vigorous debate, and consensus building. In fact, as world-renowned animal behaviorist Thomas Seeley reveals, these incredible insects have much to teach us when it comes to collective wisdom and effective decision making. A remarkable and richly illustrated account of scientific discovery, *Honeybee Democracy* brings together, for the first time, decades of Seeley's pioneering research to tell the amazing story of house hunting and democratic debate among the honeybees. In the late spring and early summer, as a bee colony becomes overcrowded, a third of the hive stays behind and rears a new queen, while a swarm of thousands departs with the old queen to produce a daughter colony. Seeley describes how these bees evaluate potential nest sites, advertise their discoveries to one another, engage in open deliberation, choose a final site, and navigate together--as a swirling cloud of bees--to their new home. Seeley investigates how evolution has honed the decision-making methods of honeybees over millions of years, and he considers similarities between the ways that bee swarms and primate brains process information. He concludes that what works well for bees can also work well for people: any decision-making group should consist of individuals with shared interests and mutual respect, a leader's influence should be minimized, debate should be relied upon, diverse solutions should be sought, and the majority should be counted on for a dependable resolution. An impressive exploration of animal behavior, *Honeybee Democracy* shows that decision-making groups, whether honeybee or human, can be smarter than even the smartest individuals in them.

## **Book Information**

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## Customer Reviews

Entomologist E. O. Wilson calls honeybees "the greatest friend among the insects." Cornell professor and ardent beekeeper Seeley (The Wisdom of the Hive, 1995) examines how bees make decisions on where to found a new hive. Beekeepers have known for years that overcrowded hives will swarm—the majority of the hive's workers will take off with the old queen and move into a new home, while the remaining bees will rear a new queen in order to perpetuate the parental colony. How the homeless swarm of bees decides where to live, and the settling of the debates among the scout bees who have found potential homesites, forms the basis of this intriguing look at how social insects arrive at a consensus. Seeley takes the reader through the research process, discussing the findings of earlier scientists, the process of field research on bee swarms, and the understanding of what the resulting data means in the lives of the bees. Forager bees become scout bees who, after returning to the swarm, perform a "waggle" dance to show where and how far away the potential site is. Other scouts check out these locations and join in the dance for whichever site is preferred. This "arguing" over the best site eventually results in all the scouts agreeing and the whole swarm then moving to its new abode. Now if we humans could only make decisions so democratically. --Nancy Bent

One of Financial Times (FT.com)'s Books of the Year in Nonfiction Round-Up in the Science & Environment list for 2010"Dr. Seeley is an engaging guide. His enthusiasm and admiration for honeybees is infectious. His accumulated research seems truly masterly, doing for bees what E.O. Wilson did for ants."--Katherine Bouton, New York Times"Although the details are complicated, Seeley's explanations are remarkably clear. The text is abundantly illustrated with figures that are cleverly simplified in comparison to how they might appear in scientific journals. For readers who may be less passionate about the particulars of honeybee life, Seeley also reveals parallels between the way swarms make decisions and how the human brain sorts through conflicting neuron signals to reach decisions. He also provides a few pointers on how rules of honeybee democracy may be applied to decision-making in human groups, with minimal dependence on a leader, vigorous competition among a diversity of viewpoints, and a method for determining a majority-based resolution."--May Berenbaum, Times Literary Supplement"Seeley's work--extended

over years and summarized clearly and engagingly here--is a model of biological research that builds bridges to the social sciences, and to the practical arts of institutional design for humans."--Adrian Vermeule, *New Republic*'s The Book"[S]plendid."--John Whitfield, *Nature*"[E]ngaging and fascinating. . . . Seeley writes with infectious enthusiasm. . . . Honeybee Democracy offers wonderful testament to his career of careful investigation of a remarkable natural phenomenon. The breadth and depth of the studies reported in it should inspire all students of animal behavior."--*Science*"To illustrate bee decision making, Seeley details how swarms choose a new home. Seeley presents his material with charm, and the bees' system of house-hunting becomes surprising and awe-inspiring."--*Science News*"In Honeybee Democracy, Seeley carefully narrates his many seasons of experiments using plywood nest boxes that could be moved and modified at will. He discovered what bees like in a home, how scouts measure the dark interiors of these boxes and most of all, how the swarm 'votes' to decide which nest to occupy. . . . Honeybee Democracy is a brilliant display of science at work, with each experiment explained and illustrated."--*New Scientist*"[I]t is a book well worth studying. Within its pages we find out about an important aspect of the life of the honeybee (with some practical implications for beekeepers), how researchers work both in the field and in the laboratory, the objective way in which the experiments are carried out but, most of all, how in the seeking of a new home bees provide us with a model of true democratic behaviour which any group could use to its advantage. Indeed, the last chapter alone, 'Swarm Starts' would make an excellent minibook for anyone who is involved in decision making no matter what position they hold."--*Beekeepers Quarterly*"Rather than presenting a dry review of his findings, Seeley intertwines them with his thought processes, anecdotes and generous appraisals of students and fellow scientists. His skill in writing a book with so much science in such simple language is admirable. Even a non-beekeeper can understand what he is trying to convey. The photographs are beautiful and the illustrations elegant."--Zachary Huang, *Times Higher Education*"The year's most enchanting science book."--*Financial Times* (FT Critics Pick 2010)"Honeybee Democracy, by Thomas D. Seeley, will teach you everything you ever wanted to know about one of the world's most beneficial insects. . . . Seeley, a biologist and beekeeper, presents his excellent understanding of what makes the bees' society work for the survival of the species."--*Washington Post*"His argument is seductive. . . . [R]ead Honeybee Democracy is a delightful way to spend an evening."--*National Post*"[O]ne cannot help but be inspired by the beauty of Seeley's hypothesis-driven experimental work. The book is beautifully presented with illustrations, photographs, charts and anecdotes, and succeeds in making the whole field of investigation accessible to the non-specialist. . . . [O]ne is swept away by Thomas Seeley's enthusiasm for a

subject that is clearly his passion."--Philippe Rudolf, *British Politics and Policy*"Seeley shares his 35-plus years of experience working with bees. He presents a very interesting treatise about his research (as well as that of other scientists) on these eusocial insects and their fast and accurate group decision making when choosing the colony's new dwelling place. This very well-written book is also beautifully illustrated, highly informative, and educational."--Choice"[T]his work makes an important contribution to a growing body of literature in disciplines removed from political science or sociology (such as biology in this case). It is felt that this may help us to understand what this enigmatic term or concept 'democracy' might actually be. To finish, this book comes highly recommended to any interested in learning about a new non-human democratic typology."--Jean-Paul Gagnon, *Journal of Democratic Theory*"Princeton University Press is to be congratulated in producing a book that is great value for the money and beautifully produced. The author is to be congratulated in writing a book that in its content and voice will reach and satisfy both scientists and nonscientists, both bee people and those not yet bitten (or stung). *Honeybee Democracy* is both easy and enjoyable to read."--Francis L. W. Ratnieks, *Animal Behaviour*"Seeley writes in an engaging and entertaining style. He also manages to explain complicated facts in easily understandable prose without compromising on the scientific information, and his comparisons with human behaviour and democratic practices are telling. . . . The author aimed to bolster, 'an appreciation of these little creatures'. Mission accomplished. It's hard to not be fascinated by the, 'little six-legged beauties.'"--Uli Ernst, *Lab Times*"[*Honeybee Democracy* is] an exceptional combination of memoir, entomology, and political philosophy."--Carl Zimmer, *DiscoverMagazine.com's The Loom blog*"Reading Tom Seeley's book will give you an understanding of bees which will help your beekeeping. . . . Like all the author's books and papers, this one is worth a place in your bee library."--Adrian Waring, *Bee Craft*

Not only is the research completely sound and refreshing, the graphic representation of compelling information is truly revelatory. If you are going to be shipwrecked on an island, even if that island has no honeybees, you should take this one book. It just seems that Thomas Seeley has compiled a most fascinating explanation of one of the bees' most curious and intelligent behaviors - and the graphic illustration and charts lend insight in clean, straight-forward, "ahh-hah" kind of ways, less understandable until now given the new, brilliant and powerfully simple conveyance. The Epilogue should be read first because it provides the most fitting setup: Martin Lindauer observed a clustered swarm of bees on a bush and noticed that the waggle-dancing bees were covered in black soot, red brick dust and grey soil. Calling them dirty dancers, a multiple of them were obviously attempting to

convince others regarding the merits of a nearby chimney. That started his research into bee group decision making, and thus, Thomas Seeley's remarkable treatise on the subject. This would be a fascinating coffee table book, with insightful information for any curious book-flipper. For seasoned beekeepers, the photos, illustrations and information presented solidifies and exemplifies many of the things that we already know. Best example: on page 38, Figure 2.12 is a photo illustrating the underside of some house bees and shows how the wax chips are produced from the abdomens of the worker bees. I know this but had never seen it before. To see the photos is to gain much deeper understanding, and that quality of knowledge shared is represented throughout the entire book. As an informational tome, this book is beautiful, fascinating, timely, informative, curious, insightfully supportive, educational and moves what we know forward in terms of an improved general understanding of the bees' intricate and remarkable intelligence. Thank you Thomas Seeley, your illustrator, your graduate and undergraduate research students. I feel like a more comprehensive beekeeper by the richer understanding that your work has provided. It's a terrific book for the lay person and experienced beekeeper alike. Beautiful and fascinating!

Astounding research from decades of painstaking observation and research. Excellently written commentary on bees and their behavior. The extrapolation of honeybee democracy to the human condition in the last part is interesting, well written and thought provoking. Seeley has followed (literally) and observed bees intently for decades and this book shares the rich and subtle wisdom only informed observation can yield. The best of this book is the first part dealing with the world-class natural science that Seeley et al have done on honey bee behavior and their informed speculation on the implied meanings of these behaviors. This book's bee behavior portion deserves a second read because it is PACKED with information and insight into the subtle interrelationships between genetics, instinct, behaviors and their implications. The insight into the honey bee caste system and its management is like reading the best science fiction - it is genetically driven but involves the personal effort of each bee to fulfill its destiny. This is one of the best books on natural history I have read in years, written so the non-scientist can devour and understand the content, but fully complete in its scope. As to popular science for the layman, Seeley is right up there with the very best of Jane Goodall, Richard Feynman, Michio Kaku, and Neil Degrasse-Tyson, in my opinion. A must read for bee keepers.

Very interesting book. I'm far from a voracious reader, yet I finished this book in 3 days. (Very fast for me). This book is about bees, not beekeeping. I found the science fascinating. For me, the

methods used were as interesting as the information discovered. If you are a beekeeper, then I highly recommend this book. As I said, its not about beekeeping but it provides a lot of valuable insight into how bees make decisions. I wish they would make a documentary on just the topics in this book.

I am a scientist by nature and trade, though I am a geologist with no level of expertise or knowledge in regards to insects. After hearing another story about colony collapse disorder on NPR, I researched the available books on honeybees at (was surprise at how few there are) and settled on Dr. Seeley's book. Great read! I found the structure of the book well thought out, each chapter leading into subsequent chapters. Each chapter also dealt with a discrete topic and flushed out the details thoroughly. Also - I enjoyed the fact that his writing style was easily accessible for the laymen. Some books of this ilk get caught in up what level of jargon or detail to use, but Dr. Seeley found a very reasonable position on this. Being an analytical type person, I really enjoyed how each theory was tested and described. The reader will see for example the criteria bees use for siting new hives, how they test some of those criteria, and of course the main topic - how the scouts tell the colony about their searches for new homes and then how the colony reaches a consensus amongst the various choices the scouts bring back. The reader should understand that this is not an all-encompassing book on bees, there is not much in here on hive construction or life cycles or how foragers do their thing. But there was enough on those topics for a novice like me to understand the context of what Dr. Seeley was writing about. At the end, I was not entirely convinced of using the bees "democratic" style in real life human situations. But it was good that Dr. Seeley gave real anecdotal examples from his university meetings and from New England town hall meetings to discuss it - other authors may have simply made the theoretical premise and left it at that. I look forward to reading his other book - *Wisdom of the Hive* - to read up on the foragers. Just wish the price would come down some! We get spoiled on the \$5-\$10 cheap paperbacks and are lamentably surprised at the price of niche scientific books. But Dr. Seeley does a great job here.

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