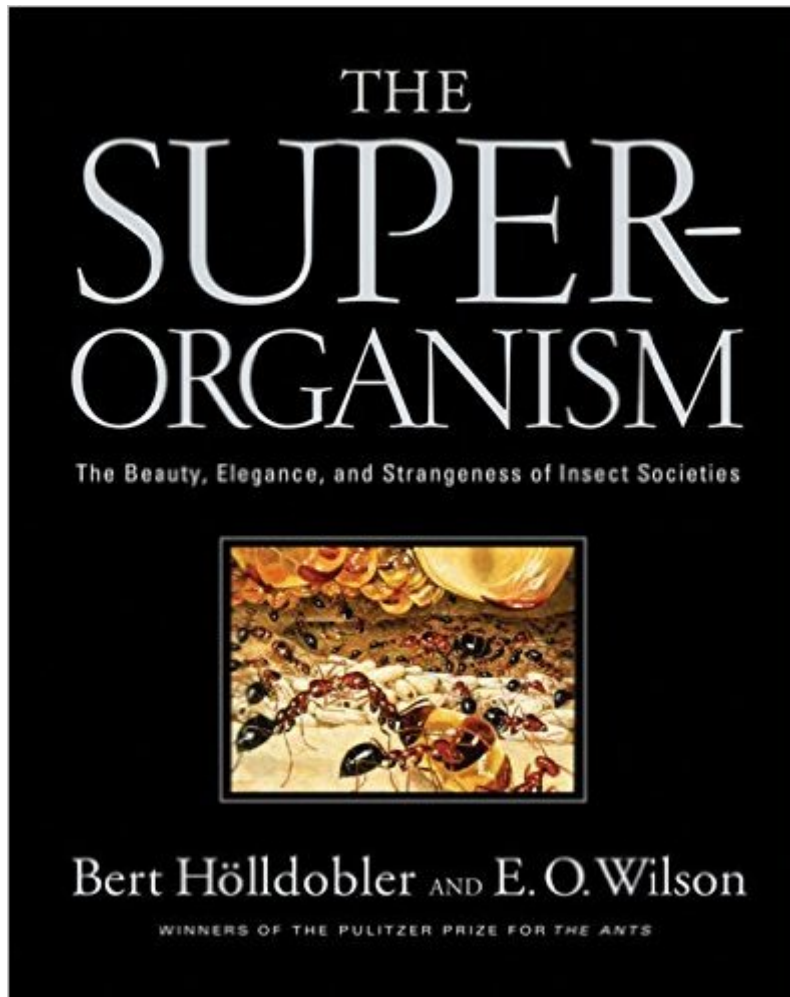


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# The Superorganism: The Beauty, Elegance, And Strangeness Of Insect Societies



## Synopsis

The Pulitzer Prize-winning authors of *The Ants* render the extraordinary lives of the social insects in this visually spectacular volume. *The Superorganism* promises to be one of the most important scientific works published in this decade. Coming eighteen years after the publication of *The Ants*, this new volume expands our knowledge of the social insects (among them, ants, bees, wasps, and termites) and is based on remarkable research conducted mostly within the last two decades. These superorganisms—a tightly knit colony of individuals, formed by altruistic cooperation, complex communication, and division of labor—represent one of the basic stages of biological organization, midway between the organism and the entire species. The study of the superorganism, as the authors demonstrate, has led to important advances in our understanding of how the transitions between such levels have occurred in evolution and how life as a whole has progressed from simple to complex forms. Ultimately, this book provides a deep look into a part of the living world hitherto glimpsed by only a very few. 110 color, 100 black-and-white

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## Customer Reviews

We look at animals in natural domains and marvel at how well they get by, how they integrate themselves into the world, exploit their niches, and leave progeny. Anyone who examines social insects, like ants and bees, has to be particularly impressed. In fact, insect societies have been a particular inspiration to those who would like to see human societies operate just as smoothly, with every member dutifully fulfilling a role to the benefit of the larger group. Liberal and conservative

politicians have turned to ants and bees for inspiration and for metaphors, but that's just because they don't know how basically weird such societies are. Let them read *The Superorganism: The Beauty, Elegance, and Strangeness of Insect Societies* (Norton) by Bert Hölldobler and E. O. Wilson. The authors are among the world's experts on ants, and in 1991 their book *The Ants* won a Pulitzer Prize, so it is not surprising that ants get most of the pages here. Bees and termites are also covered, but naked mole rats, the closest mammalian example of this sort of colony life, are barely mentioned. This is a big book, beautifully produced with color pictures of insects in their home environments and drawings to show how they move, signal, and reply. It is also dense with serious scientific descriptions. It is not dumbed down for the lay reader, and could do for a textbook in an entomology course. Nonetheless, the descriptions are clear and the scholarship is deep, and any reader with an interest in science or nature will come away with an admiration for these strange societies and for the intensive research that is solving many of their mysteries.

This beautiful volume shows the amazing amount that naturalists have learned about eusocial insect species since the publication of the authors' Pulitzer Prize winning volume, *The Ants*, in 1990. The book is accessible to the lay reader, except for some introductory chapters that require some knowledge of genetics and population biology. These chapters can simply be skipped without compromising the understanding of other chapters. Both because of its breadth and the huge number of references to the professional literature, this book will likely become a reference for many researchers in sociobiology, including those whose specialty is eusocial insects. From a theoretical standpoint, this book champions two ideas that E. O. Wilson has vigorously supported despite considerable criticism by biologists and social theorists. The first is that all social species share many traits in common, so that there is room for a special field, which Wilson calls "sociobiology," that charts the commonalities and differences among social species. This notion, laid out in Wilson's brilliant 1975 volume by that name, was greeted with scorn and contumely by social theorists who vehemently objected to including human sociality as a mere variant of biological sociality. The ensuing debate is brilliantly documented in Ullica Segerstrale, *Defenders of the Truth: The Sociobiology Debate* (Oxford University Press, 2001). Of course, sociobiology has withstood the criticism of the ignorant and the intolerant, and is now a fully flourishing field. More recently, E. O. Wilson has become an ardent supporter of group selection, which holds that Darwinian selection occurs on multiple levels, including the gene, the individual, and in species with a high level of sociality, on the level of the group itself.

This is a fascinating book, but one that could be improved. However, the positive (FOR, below) much outweighs the negative (AGAINST, below).FOR: This book is full of interesting material, most of which is well explained. It follows how eusocial insects construct complex insect societies that display apparent group intelligence by using only a small number of chemical signals and stereotyped responses. It seeks to understand how such complex societies came to exist, based on the competing interactions of selection between individuals within the colony, and selection between colonies or group selection. It reviews a wealth of material on how such societies operate from relatively simple colonies to the vast and elaborate super-colonies of the leaf cutter ants. Although the shortest chapter, I was fascinated by the evolution of the ants, particularly the Sphecomyrminae, an extinct early ant with properties both of an ant and a wasp. The graphics are stunning, both the line drawings and the photography. Visually it is one of the most beautiful books I have read for some time. The images of concrete casts of ant nests are a revelation.AGAINST: The authors often over-complicate. For instance, in one section ("anonymity and specificity of chemical signals" p270) the simple idea that some signals are widely used and recognized by many ants in a colony while others are more specific, even down to the recognition of individuals, is introduced by comparison with artificial intelligence and "class variables" and "instance variables". This is a pretentious sledgehammer used to crack a nut (and the supporting reference dated 1984 is very old). The chapter on communication is far too long, and could have been broken down into more manageable chapters.

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