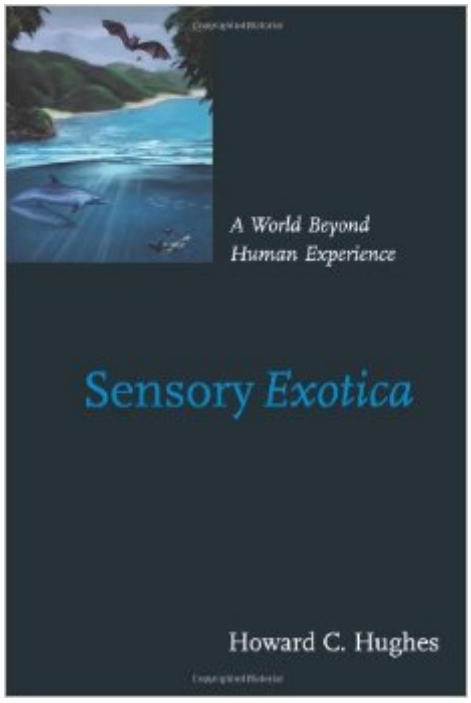
Sensory Exotica: A World Beyond Human Experience



Synopsis

Winner, category of Biological Sciences, 1999 Professional/Scholarly Publishing Annual Awards Competition presented by the Association of American Publishers, Inc. Certain insects and animals such as bees, birds, bats, fish, and dolphins possess senses that lie far beyond the realm of human experience. Examples include echolocation, internal navigation systems, and systems based on bioelectricity. In this book Howard C. Hughes tells the story of these "exotic" senses. He tells not only what has been discovered but how it was discoveredâ ”including historical misinterpretations of animal perception that we now view with amusement. The book is divided into four parts: biosonar, biological compasses, electroperception, and chemical communication. Although it is filled with fascinating descriptions of animal sensitivitiesâ ”the sonar system of a bat, for example, rivals that of the most sophisticated human-made devicesâ ”the author’s goal is to explain the anatomical and physiological principles that underlie them. Knowledge of these mechanisms has practical applications in areas as diverse as marine navigation, the biomedical sciences, and nontoxic pest control. It can also help us to obtain a deeper understanding of more familiar sensory systems and the brain in general. Written in an entertaining, accessible style, the book recounts a tale of wonder that continues todayâ ”for who knows what sensory marvels still await discovery or what kind of creatures will provide the insights? Winner of the 1999 AAP/PSP award in the category of Biological Sciences, granted by the Professional/Scholary Reference Division of the Association of American Publishers.

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Customer Reviews

This is a fantastic book. I'm still reading it... can't put it down. If you've ever wondered how animals perceive the world, what it looks like to them, how birds migrate, and more... this is the book for you.

This is one of my favorite books on the senses. The author gives a great overview of senses that are beyond our usual understanding. If you want to know what it is like to be a bat (or a dolphin, or a shark), this can give you a real idea about the way their senses work; in the process, enriching our ideas about how our own, familiar senses work. There's also some great "history of science" here; it's not just facts about senses, but a history of thinking about them -- you may take for granted now that bats navigate by echolocation, but that was far from obvious a few hundred years ago.

This book was assigned reading for a university-level animal behavior/neurobiology class. I tore through it in 3 weeks (which sounds like a lot, but in grad. school it is the blink of an eye!) The beginning of the first chapter is a little hard to take (it describes some rather horrific ways men used to test echolocation in bats back in the days when science ethics was still in its infancy) but the rest is a delightfully written look into how various animals use their unique senses (echolocation, electroreception, magnetic field detection ect). I was worried that it might be a bunch of technical jargon, and some parts are, but the author does a fantastic job of taking that jargon and explaining it in a way that most people should be able to understand. It is funny and informative... one of the few assigned readings that I have really loved and appreciated. I'd read it at the pizza parlor near campus and people would regularly stare at me as I guffawed, laughed my butt off, or blurted out "really" with a stunned, pleasantly surprised and a bit too loud voice. Anyone who has even a passing interest in animal behavior and the physics, physiology, and anatomy behind their "exotic" (read: mostly non-human) senses. It spans more than just biology and is written so well, that non-scientists would love it.

how do bats find their way in the dark? how do fish and birds experience or sense the world around them? echolocation, bioelectricity and internal navigation systems are some of the sensory cabilities discussed in this interesting book

I was enjoying the book until page 34 (1999 hardcover) where I read that vibration of the epiglottis

produces sound in the larynx. At first I thought, ok this is a typo, but, the author continues and further expands upon the notion of the epiglottis as a muscle - it is not - that is stretched across the top of the larynx and vibrates when air is forced past it. This is not the mechanism of sound production rather vibration of dual vocal folds in the larynx produce sound.This is such a profound error that I cannot read the remainder of the book with confidence that errors of similar magnitude will not be made yet which I might not be aware of.Hopefully, the scientists who wrote positive reviews of he book on the back cover simply hadn't actually read the book!

This is a semi-technical book on a number of senses in other animals. It is a report on research done on biosonar in bats and dolphins, followed by a section on navigation, birds using magnetic navigation first, then on bees and how they navigate using the position of the sun. There is a long section on electroreceptors (e.g. sharks can sense electricity in other creatures) and creatures that defend and hunt with electricity (e.g., electric eels). Finally there is a section on pheromones in insects, mammals and even in humans.The book came out in 1999 and undoubtedly new things have been discovered since, but this is a good way to begin, readable and giving a good deal of information that is well-explained.It is semi-technical and will not necessarily appeal to a wide audience. Another book that I can recommend (though hard to find anymore) is aimed at a more general audience. It is "Senses & Sensibilities" by Jillyn Smith. That too is a very good way to learn more about the senses. It is for the more general reader.I heartily recommend both of them for those interested in the senses.

I was hoping for an overview of dozens of sensory systems in use in the world today. In that I was disappointed, because the book only covers something like 5 of them. By contrast my Encyclopedia Britannica has a better overview of sensoria under 'senses'.On the other hand, those senses that are covered are covered in considerably more depth than I was expecting, and were an enjoyable read. Descriptions of the neurobiology of how the various senses process input were particularly welcome.

I am a neuroscience major and I read this book for a seminar. It is very accessible and engaging. I find the history of science fascinating and I love that Hughes decided to describe the experiments done to investigate these systems. A great read and a good gateway to more difficult perception texts.

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