Sensory Exotica: A World beyond Human Experience

Howard C. Hughes
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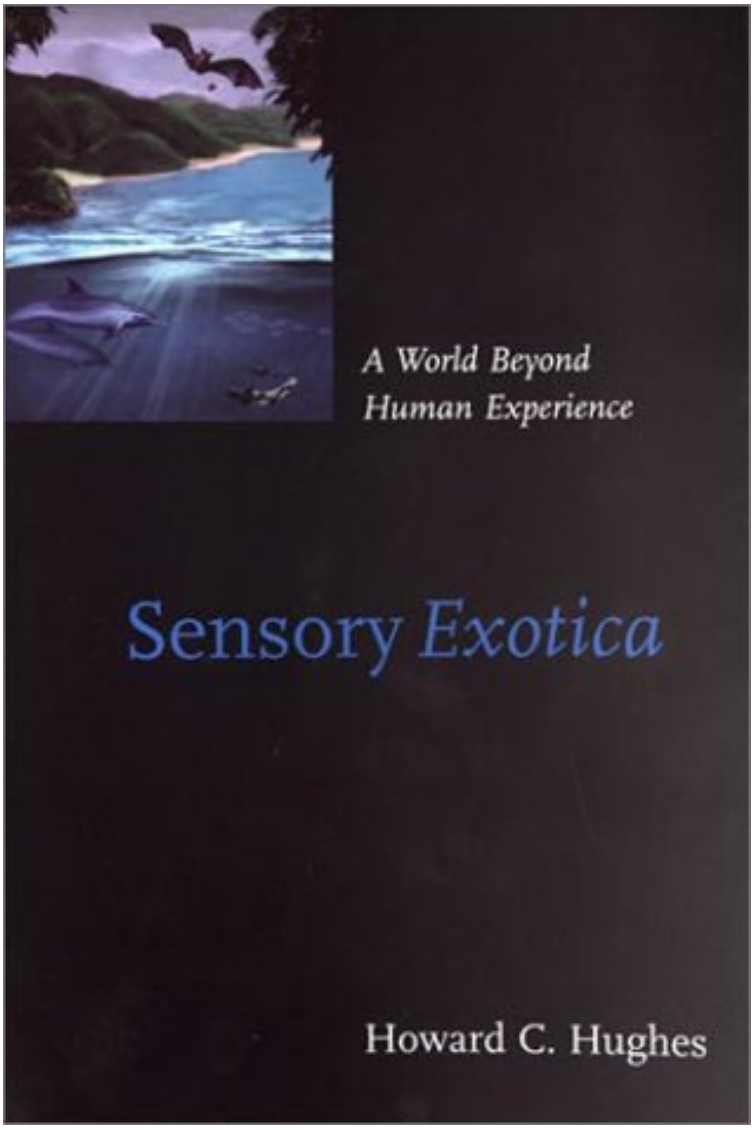

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Howard C. Hughes : Sensory Exotica: A World beyond Human Experience before purchasing it in order to gage whether or not it would be worth my time, and all praised Sensory Exotica: A World beyond Human Experience:

3 of 3 people found the following review helpful. Fascinating read for everyone!By BalimynaThis 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.1 of 1 people found the following review helpful. Really excellent and in depthBy Mortimer DukeThis 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.0 of 0 people found the following review helpful. Five StarsBy EdithHave not begun this book, but scanning it, it looks very interesting.

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 discovered -- 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 sensitivities -- the sonar system of a bat, for example, rivals that of the most sophisticated human-made devices -- 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 today -- for who knows what sensory marvels still await discovery or what kind of creatures will provide the insights?

From Publishers WeeklyWhat's it like to be a bat or a bee? In one sense, we can never know; in another, we can find out by studying the extraordinary perceptual systems by which these and other animals process the world. Bats' sonar lets them discover their prey, their cave-mates and their caves in the pitch-dark. Dolphins use similar sonar systems to discover obstacles, food and one another in the nearly lightless ocean: they even alter their frequencies (like cell phone users) to avoid interference. And chemical communication systems regulate sex in moths, rats, pigs and, probably, people: pigs hunt truffles so well because the valuable fungus contains a pig sex hormone. Hughes, a professor of psychology at Dartmouth, describes not only how these sixth and seventh senses work, but how scientists found out about them. An Italian in the 1790s struck out the eyes of bats (who navigated just fine afterwards); a Swiss surgeon plugged their ears (they got lost). Despite these tests, zoologists until the 1930s believed that bats used not hearing, but some special sense of touch. Most dolphin sonar research, by contrast, requires some measure of dolphin cooperation. Hughes's forays into animal sensoria require that he explain concepts from acoustics, anatomy, neurology, physiology and animal behavior; he does so cleanly and well, though his style can get condescending or gee-whizzish. ("What did [a researcher] see? Well, as already indicated, he saw... ") Nevertheless, readers with any interest in animal biology will want to track this book down--even if they have to use sonar. 124 bw photos and illustrations. (Jan.) Copyright 1999 Reed Business Information, Inc.From Library JournalBats use their own sonar systems to navigate and to catch prey while in flight; so do dolphins and other marine mammals. Hughes (psychology, Dartmouth Coll.) has written a clear and well-illustratedAbut sometimes overly chattyAbook, aimed at a general audience, about these and other sensory systems. He thoroughly and clearly covers biosonar (a.k.a. echolocation) and electroreception in various species of fish, and he touches on the magnetic and solar biological compasses found in some birds and insects. And although the last four short chapters (on pheromones and chemoreception) seem to have been added later, this is, overall, a well-written and informative introduction to these systems; recommended for public libraries.APatrick J. Wall, University City P.L., MO Copyright 1999 Reed Business Information, Inc.From Scientific AmericanCan a dog sense in advance that its owner is about to have an epileptic seizure? A dog described in a recent news report does that, evidently by detecting certain chemicals associated with the onset of a seizure. It is an example of a sensory capability beyond the human range. Many animals can sense things that people are unaware of or sense weakly. Such animals are the subject of the story recounted by Hughes, who is a professor of psychology at Dartmouth College. He describes sonar in bats and dolphins, biological compasses (based on the sun or stars or geomagnetism) in birds and insects, electricity sensing in fish, and pheromones (chemical signals) in insects and apparently in people. And he takes pains to pin down the mechanism of the sensory capability in each case. "We don't yet have all the answers," he says, "but at

least we are learning how to ask the right questions." EDITORS OF SCIENTIFIC AMERICAN