

## The mind's eye

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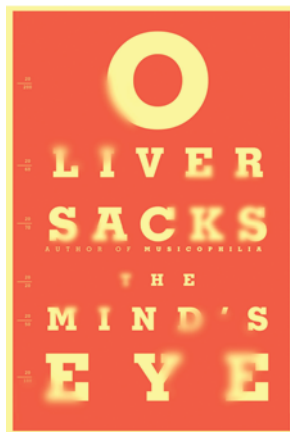
### Book Review

Oliver Sacks has done it again. In his new book, Sacks delivers a set of essays about the world that our mind and brain construct, emphasizing what happens when our visual world goes awry as a result of brain damage or blindness. The essays, based on individual case histories, are scientifically fascinating and personally moving. Above all, however, the collection is a set of stories — Sacks characterizes himself as “both a physician and a storyteller” — written in the author’s inimitable style. They tell us how the patients respond to their changed mental life, and how their families adjust to a new reality. The book showcases the importance of scientifically understanding the human mind and brain. It also reminds us of the enduring strength of the human spirit as patients and their families cope with their experience. The essays cover broad territory, including the case of well-known Canadian writer Howard Engel, who suffered abrupt onset of the inability to read text but not to write (alexia without agraphia); scientist Stereo Sue, who had a lifelong absence of stereoscopic depth perception until she underwent vision therapy late in life; several cases of congenital or late-emerging failure to recognize faces (prosopagnosia); and cases of people who experience emerging and complete blindness. In the opening essay, Lillian is a pianist who loses [...]

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Oliver Sacks

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288 pp. \$26.95. ISBN: 978-0-307-27208-9 (hardcover).

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Oliver Sacks has done it again. In his new book, Sacks delivers a set of essays about the world that our mind and brain construct, emphasizing what happens when our visual world goes awry as a result of brain damage or blindness. The essays, based on individual case histories, are scientifically fascinating and personally moving. Above all, however, the collection is a set of stories — Sacks characterizes himself as “both a physician and a storyteller” — written in the author’s inimitable style. They tell us how the patients respond to their changed mental life, and how their families adjust to a new reality. The book showcases the importance of scientifically understanding the human mind and brain. It also reminds us of the enduring strength of the human spirit as patients and their families cope with their experience.

The essays cover broad territory, including the case of well-known Canadian writer Howard Engel, who suffered abrupt onset of the inability to read text but not to write (alexia without agraphia); scientist Stereo Sue, who had a lifelong absence of stereoscopic depth perception until she underwent vision therapy late in life; several cases of congenital or late-emerging failure to recognize faces (prosopagnosia); and cases of people who experience emerging and complete blindness. In the opening essay, Lilian is a pianist who loses the ability to read first music, then print, and then develops more widespread difficulties recognizing objects. As her deficit progresses, Lilian develops compensatory mechanisms, for example, using color and typical locations of things to identify objects — wreaking havoc for her when someone rearranges things. Lilian’s husband is puzzled by the apparent unevenness of the disorder: sometimes his wife

functions quite well, at other times, she asks about objects he is sure she can recognize. The case is fascinating for its selectivity and increasing breadth over time, heartbreaking for the struggles of patient and family, and uplifting for the patient’s courage.

Perhaps the most moving essay is the autobiographical documentation of Sacks’ own terrifying experience as he progressively loses vision in his right eye: an abrupt onset of symptoms diagnosed as a retinal tumor, surgery and radiation therapy, and later almost complete blindness in the eye. He reports phenomena such as perceiving “stretched” figures, absence of stereoscopic depth perception, visual hallucinations, abnormally persistent experiences similar to after-images, and a kind of neglect (a sense of things being “nowhere” when they fall within the region normally seen with his right eye). In the final chapter, Sacks asks about the experience of people who become blind: do they still live in a mental world that is “visual”? Sacks suggests that there is an “inner eye,” the mind’s eye, which serves as an imagery system even among the blind. This idea makes intuitive sense, but there is considerable dispute among scientists about the nature of visual imagery even in the sighted (1), raising serious questions about the mechanisms underlying imagery in the blind or sighted. Sacks also suggests that language may serve as the ultimate medium through which the blind can experience what the sighted perceive. Are the meanings for “visual” words (color terms; the words *look* and *see*) the same for the blind and sighted? More generally, is seeing necessary to know the world of the sighted? This deep question has been around for centuries (2) and has recently recaptured

the interest of cognitive scientists examining representations of visual phenomena in the blind (3, 4).

The range of cases covered — and Sacks’ talent at storytelling — makes the book compelling reading for anyone who is fascinated by how the mind and brain represent the visual world. It should be assigned reading to physicians who treat patients with brain disorders. The book should also be attractive to budding cognitive scientists and neuroscientists. Its only limitation is the emphasis on phenomenology, sometimes at the expense of scientific explanation. Patients such as those Sacks describes have been studied scientifically in many published papers, and we know a fair amount about the mechanisms underlying the disorders. There are solid references to the science throughout the book, but readers who want more will benefit from reading some of the original scientific papers. This would help them to understand the slow, painstaking process of scientific inquiry required in order to answer the profound questions that Sacks’ cases raise. I plan to add *The Mind’s Eye* to my freshman seminar reading list, coupling the chapters in the book with some of the outstanding scientific papers that probe in detail the phenomena that Sacks describes. Meanwhile, his essays serve as an important first hook for all of us.

1. Pylyshyn ZW. *Seeing and visualizing: it’s not what you think*. Cambridge, Massachusetts, USA: MIT Press; 2003.
2. Locke J. *An essay concerning human understanding, 1690*. Woosley AD, ed. Cleveland, Ohio, USA: Meridian Books; 1964.
3. Landau B, Gleitman LR. *Language and experience: evidence from the blind child*. Cambridge, Massachusetts, USA: Harvard University Press; 1985.
4. Bedny M, Pascual-Leone A, Saxe RR. Growing up blind does not change the neural bases of Theory of Mind. *Proc Natl Acad Sci U S A*. 2009;106(27):11312–11317.