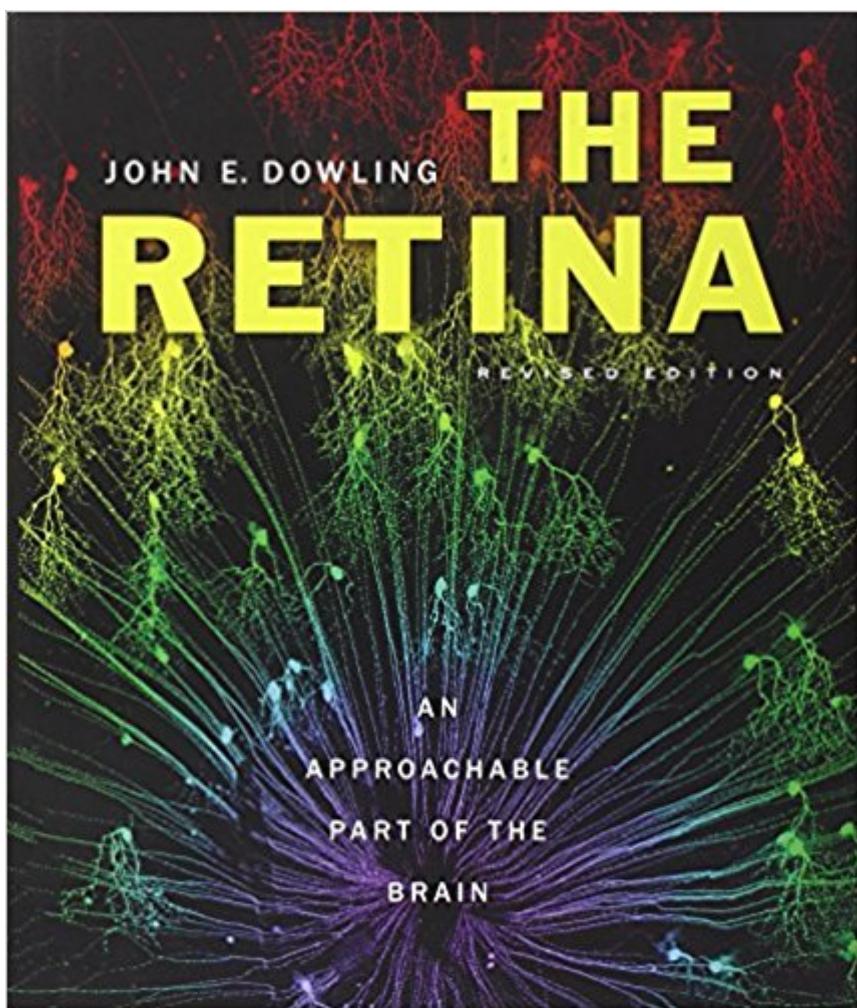


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# The Retina: An Approachable Part Of The Brain, Revised Edition



## Synopsis

John Dowling's *The Retina*, published in 1987, quickly became the most widely recognized introduction to the structure and function of retinal cells. In this Revised Edition, Dowling draws on twenty-five years of new research to produce an interdisciplinary synthesis focused on how retinal function contributes to our understanding of brain mechanisms. The retina is a part of the brain pushed out into the eye during development. It retains many characteristics of other brain regions and hence has yielded significant insights on brain mechanisms. Visual processing begins there as a result of neuronal interactions in two synaptic layers that initiate an analysis of space, color, and movement. In humans, visual signals from 126 million photoreceptors funnel down to one million ganglion cells that convey at least a dozen representations of a visual scene to higher brain regions. The Revised Edition calls attention to general principles applicable to all vertebrate retinas, while showing how the visual needs of different animals are reflected in their retinal variations. It includes completely new chapters on color vision and retinal degenerations and genetics, as well as sections on retinal development and visual pigment biochemistry, and presents the latest knowledge and theories on how the retina is organized anatomically, physiologically, and pharmacologically. The clarity of writing and illustration that made *The Retina* a book of choice for a quarter century among graduate students, postdoctoral fellows, vision researchers, and teachers of upper-level courses on vision is retained in Dowling's new easy-to-read Revised Edition.

## Book Information

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## Customer Reviews

Most attempts at generalizations about the retina require seemingly endless qualifications, not because of the retina's complexity, but because of the extensive number of experimental preparations used to study it, from hagfish to human, from tissue culture to in vivo preparations. Yet the advantage of studying the retina is that its output can be related directly to its natural input and this input can be controlled exquisitely. This is the take-home message of John Dowling's highly worthwhile and successful revision of his classic work. Like the first edition in its emphasis on an interdisciplinary approach, the new edition of *The Retina* offers the best overview available of what we know about the functional organization of the retina. (Stephen Yazulla, Ph.D., Professor of Neurobiology and Behavior, Professor of Ophthalmology, Stony Brook University) John Dowling's *The Retina* has been the most well-known and widely read introduction to the structure and function of retinal cells and circuits. This revised edition provides exciting new insights about the retina. This is a 'must read' for all retinal researchers. (Botond Roska, M.D., Ph.D., Senior Group Leader, Friedrich Miescher Institute for Biomedical Research.)

John E. Dowling is Gordon and Llura Gund Professor of Neurosciences at Harvard University, and Professor of Ophthalmology (Neuroscience) at Harvard Medical School. A member of the National Academy of Sciences, The American Philosophical Society, and The American Academy of Arts and Sciences, he also has won The Helen Keller Prize for Vision Research, the Paul Kayser International Eye Research Award of the International Society for Eye Research, and the Glenn A. Fry Medal in Physiological Optics.

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