ing able to read properly; hence, it is of pressing policy importance, namely the definition of dyslexia itself. Definitions may be either purely descriptive of symptoms or, if known, they may include an element of the aetiology of the condition. The classical definition of dyslexia was descriptive of a discrepancy between reading and a person's other abilities; this was deemed to be essential for the diagnosis: "reading significantly behind what would be expected from a child's general intelligence." However, the most recent definitions that have been adopted in the U.S. and U.K. have been altered to reflect the current majority, although disputed, view that dyslexia is due to weak linguistic/phonological skills, irrespective of whether these are due to low intelligence, poor teaching, or to specific impairment of reading. They therefore reject the discrepancy definition advocated earlier. Both Nicolson and Fawcett (and myself) feel that this is a dangerous change. There is enough evidence, despite some doubters, to be sure that developmental dyslexia is a specific neurological syndrome with a strong genetic and neurodevelopmental basis that distinguishes it from the majority of poor reading. If we conflate this specific reading disability with low intelligence, poor teaching, and lack of parental support, we will have no chance of discovering what really is its cause at the brain level, and we will greatly impede our chances of helping that horrifying one-third of children who are so poorly equipped by our educational systems.

Dyslexia, Learning, and the Brain should be read by anyone interested in the neuroscience of dyslexia, even if they are not convinced by the cerebellar theory, because it discusses the problems so clearly and logically. To quote Sir Francis Bacon, "truth will sooner come out of error clearly expressed, than from confusion."

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ANATOMY AND PHYSIOLOGY

THE VISION REVOLUTION: HOW THE LATEST RESEARCH OVERTURNS EVERYTHING WE THOUGHT WE KNEW ABOUT HUMAN VISION.

By Mark Changizi. Dallas (Texas): BenBella Books. $24.95. vii + 215 p. + 16 pl.; ill.; index. ISBN: 978-1-933771-66-3. 2009.

The author (a neurobiologist and evolutionary scientist) nicely outlines the evidence for new theories on why humans have evolved impressive visual capabilities for operating in complex environments. The opening chapter looks at trichromatic color vision, and argues that the close spectral separation of our medium- and long-wavelength (green and red, respectively) cone photoreceptors facilitates reliable perception of the state of well-being in conspecifics. This is an interesting idea as these photoreceptors do allow our visual system to optimally dissect the part of the visual spectrum where variations in blood oxygenation provide important cues about individual fitness.

The second chapter takes a fresh look at the possible reasons behind why primates have two forward facing eyes. Classic explanations would argue this serves to allow binocular vision, but Changizi presents an interesting theory that the capacity to see distant objects in complex leafy environments better explains our visual ecology. The third chapter examines visual illusions and why these may occur when testing a visual system that actually evolved to optimally process movement. The final chapter considers how humans may have modified our visual environment (for example, in the design of characters we use for writing) to best suit the way that our visual system processes spatial information.

This book presents interesting and challenging new theories. Some of these theories will take a considerable amount of evidence to dislodge established theories (such as primate color vision evolved to discriminate fruits and leaves in green forests), and the volume may have balanced these different theories better by providing a full set of references. Nevertheless, the book contributes an interesting set of new ideas that are explained in a way that should engage a wide range of readers.

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AIRWAY CHEMORECEPTORS IN THE VERTEBRATES: STRUCTURE, EVOLUTION AND FUNCTION.

Edited by Giacomo Zaccone, Ernest Cutz, Dirk Adriaensen, Colin A. Nurse, and Angela Mauceri. Enfield (New Hampshire): Science Publishers. $135.00. xix + 436 p.; ill.; index. ISBN: 978-1-57808-614-6. 2009.

This book provides a review of the chemoreceptive cells associated with vertebrate respiration. These neuroendocrine/neurosecretory cells are found in all vertebrate classes. Some of these cells are solitary, while others cluster into groups. Most of the cells described in this volume detect respiratory gases and function to help regulate ventilation. Other roles include immune system activation, defense against bacteria, and environmental chemical detection. The majority of the book looks at the anatomy of respiratory-related structures: lungs (gills), carotid labyrinths (carotid body), and respiratory passages.