Book Review

DUPLICITY THEORY OF VISION: FROM NEWTON TO THE PRESENT

edited by Bjørn Stabell and Ulf Stabell, 238 pp., New York, Cambridge University Press, 2009, $115.00

In *Duplicity Theory of Vision: From Newton to the Present*, Drs. Bjørn and Ulf Stabell of the Institute of Psychology at the University of Oslo, experts in vision research for more than 45 years, describe the origin and development of the duplicity theory of vision, a theory that describes the interaction between the cone and rod systems in the visual pathways. This book is a comprehensive exploration of the research that has led to current vision theory, with a level of detail and familiarity that can only be written by authors who have long and devoted careers in the field.

The book contains 29 short chapters divided into 5 sections. The opening section reviews the foundation of the duplicity theory through the year 1930, and includes Newton's color theories, Maxwell's triplicity of color vision, the theories of Schultze and Young-Helmholtz (and the effort by von Kries to unify the theories), and the color theories of Goethe, Hering, Tschermak, and Müller. The second section focuses on the period between 1930 and 1966, and reviews the research of Polyak, Hartline, Kuffler, and Granit. The third section includes a technical overview of chromatic rod vision and flows nicely into the fourth section, which examines the regulation of the rod and cone systems, with discussion of the contributions of Hecht, Wald, Rushton, and Barlow. The fifth and final section of the book reviews factors leading to paradigm shifts in the modern duplicity theory, with a focus on Popper's and Kuhn's models. All of the sections are discussed in the context of the scientists who advanced and changed the theory, and the sections include detailed explanations of the concepts themselves.

The targeted readership includes researchers and students with a focus in vision and optics, and also neurologists with a strong interest in vision and the basic science behind vision. The book is not directed toward clinicians looking for an overview of neuro-ophthalmology, and such readers might find themselves overwhelmed by the level of detail, which far exceeds knowledge required for clinical applications. This book is not a casual overview of neuro-ophthalmology, and it includes many sections with relevant equations, tables, and figures to explain concepts in great detail. Though not specifically targeted, scientific history buffs who enjoy a detailed look at the interplay between great scientists since the time of Newton and the resulting evolution of modern vision theory might also enjoy this work.

Duplicity Theory of Vision: From Newton to the Present is a comprehensive, in-depth narrative covering both the relevant historical and technical details of the duplicity theory, and will make a great addition to the specialty collection of both researchers and clinicians in the field of vision.

Reviewed by Stacey L. Clardy, MD, PhD

Disclosure: Dr. Clardy serves on the editorial team for the Neurology® *Resident and Fellow Section.*