–Rolla and did some work in the field of eutectic crystallization.

Physics of vision

HUMAN COLOR PERCEPTION: A CRITICAL STUDY OF THE EXPERIMENTAL FOUNDATION. By Joseph J. Sheppard Jr. 195 pp. American Elsevier, New York, 1968. $10.00

by ISADORE NIMEROFF

In recent years information theory, developed to process and understand experimental data, has been extended to speculation about how the brain processes the stimulus information it receives. The subtitle of this short book by Joseph Sheppard indicates that the author critically reviews the experimental data of color perception but does not convey the idea that the critique will take on the information-theory approach.

This book, written by a comparative tyro in the field of color vision, is intended for scientists and engineers to whom knowledge about human visual processes is important for their research and work. The author is to be commended for having covered so many topics of the physics, physiology and psychology of color vision in a book of less than 200 pages. This brevity was accomplished by the author's generally clear and concise writing style that fails, however, to treat with sufficient depth the subject matters about which he complains. For instance, on pages 23, 39 and 47, he is critical of the use of average spectral tristimulus values and luminous-efficiency values to represent all observers or any one observer. Sheppard, however, has not reviewed the literature sufficiently deeply to have found the readily available work of David L. MacAdam, W. R. J. Brown, Gunter W. Wyszecki, and myself on the variability within and among observers.

Sheppard has criticized a wide variety of related topics, the collection of which is not to be found within the covers of any other book. Such a collection, if treated in depth, would have been extremely useful had it been written as late as 15 years ago. The terms, definitions and symbols Sheppard uses would have been consistent with those used then and could have had a strong influence on the direction of research. As it is, he leads the reader to wonder whether some of his criticisms in a field one step removed from the reader's main interest are no longer justified.

I found the chapters on the psychology and physiology of color perception reasonably informative. These chapters should serve physicists as a ready source of reference to these topics. In Chapter III, Sheppard also shows that he has a penetrating understanding of the concept of metamers. The treatment of the other physical aspects of color vision in this book is not quite adequate however. It may be that psychologists and physiologists will have the same opinion about the manner in which their respective specialities were presented.

Despite the shortcomings of this book, I recommend the acquisition of it by all who have an interest in color-vision investigation. No scientific field should be above a critical appraisal.

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Isadore Nimeroff is chief of the Colorimetry and Spectrophotometry Section of the National Bureau of Standards. He joined the NBS in 1941 and has been there ever since.

Quanta for nonphysicists

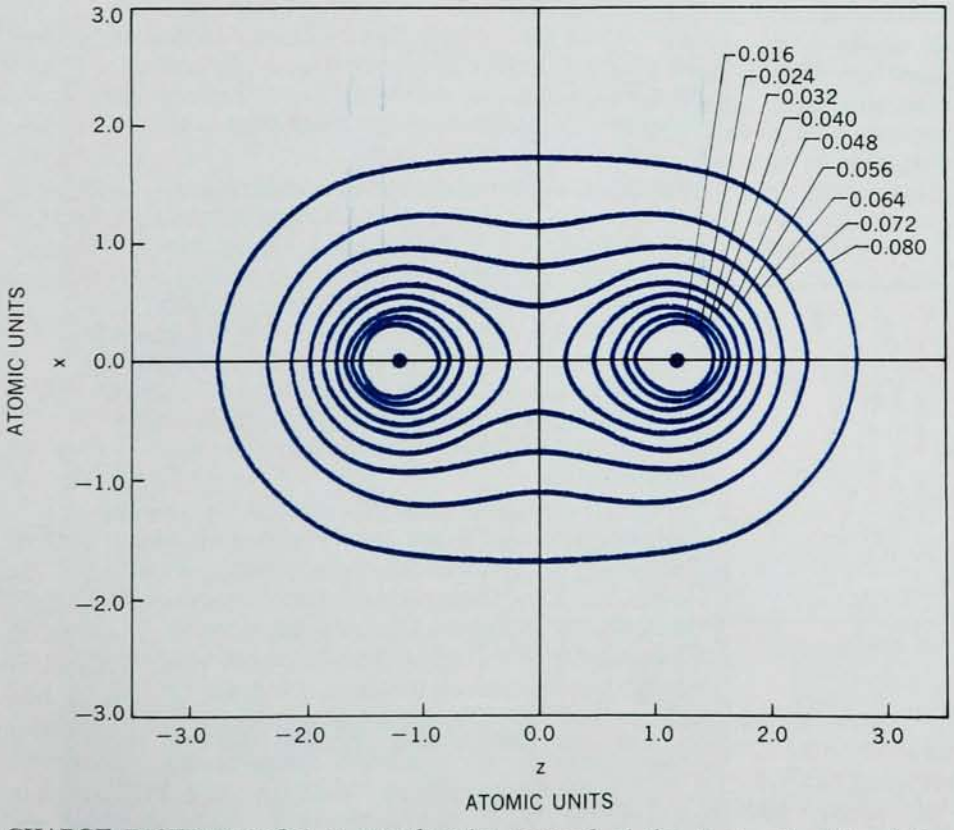
QUANTUM MECHANICS: AN INTRODUCTION. By Herbert L. Strauss. 192 pp. Prentice-Hall, Englewood Cliffs, N. J., 1968. Paper $4.95, Cloth $7.95

by PETER J. SILVERMAN

The usual introductory quantum-mechanics textbook, written with physics students in mind, presents quantum mechanics as the basis for understanding modern theoretical physics. This book is intended for students majoring in chemistry, molecular biology and related fields where quantum mechanics receives less emphasis than it does in physics.

Designed for seniors or first-year graduate students, the book requires a good working knowledge of vector calculus and a familiarity with thermodynamics and classical mechanics. However, the book is replete with mathematical tables and a fine appendix illustrating the basic facts of vector calculus, which should be both handy and helpful to anyone with an insufficient mathematics background.

The contents of the book are suffi-



CHARGE DISTRIBUTION or wavefunction squared of the 1s gerade state of the hydrogen molecule ion. (After D. R. Bates, K. Ledsham, A. L. Stewart, *Phil. Trans. Roy. Soc. London* **246**, 215 (1953), from *Quantum Mechanics: An Introduction.*)