Schmidt, Carleman, and Hammerstein. Standard real-variable tools, the Lebesque integral, the L_2 theory, orthonormal systems, and the transforms of Laplace, Fourier, and Mellin are used systematically but without ostentation, so as not to repel the physicist, engineer, or technician. Topological methods are not used. The style is attractive and is enlivened by some interesting personal comments (concerning Volterra, Fubini, and others).

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Light, Colour and Vision. Yves Le Grand. Translated by R. W. G. Hunt, J. W. T. Walsh, F. R. W. Hunt. Wiley, New York, 1957. xiii + 512 pp. $11.

The French original of this book, published in 1948, was the second of three volumes which serve as a textbook in the Institute of Optics in Paris. The first volume (of which there have been two editions) dealt with the geometrical optics of the naked and corrected eye—material which we have abundantly available already in English. The third volume, concerned with spatial vision from the point of view of a physicist, is not one for which an English version would be wanted.

This translation of volume 2 of *Optique Physiologique* is superlative. The translators, with help from the author and three other consultants, have updated the contents to create what amounts to a second edition. The extent of this amendation is indicated by the fact that there are about four times as many references as in the French original, although the text is no longer. The translators introduced only one important error ("wave-length" for "purity" in the caption of Fig. 74.)

The briefest statement of the coverage of the book would be that it deals with photometry and colorimetry: "The eye is a selective receptor, and the way it behaves under radiation is the subject of this volume." Physiological optics is commonly taught, in our schools of optometry and teaching departments of ophthalmology, with ophthalmic optics excluded and taken care of in a separate course. This book, even with its volume 3 appended, could not serve as a textbook in such places. This is sad, for a good, well-rounded textbook is badly needed. The present work is both too narrow and too deep, and too preoccupied with "mathematical" modes of expression, for broad use by American students. It is, however, very welcome indeed as an aid to the researcher in visual science in understanding those aspects of vision which Le Grand, a physicist with a deep interest in vision, is eminently equipped to elucidate.

The first three chapters deal with light and the measurement of visible radiation qua radiation, artificial sources (including the full radiator) and the sun, and the receptoral properties of the eye that make necessary a photometric system. The next three are concerned with photometry. Chapters 7, 8, and 9 cover (and deeply) colorimetry for "standard" and individual observers. This discussion is strung on the thread of the observed "trivariance" of vision, which is independent of all theory. Le Grand's only large blind spot shows up here (doing no practical harm): his curious inability to see that there is no connection whatever between two kinds of trivariance which he lumps together—the kind that requires a monochromatic colorimeter to have three controls and the kind that makes a tricolorimeter possible. The fact that a color sensation has a hue, a saturation, and a brightness is quite unrelated to the fact that mixtures of three primary color stimuli can afford all hues, and all saturations below their own. Le Grand also, perhaps without realizing it, puts complementation on a sensory basis, whereas it pertains strictly to stimuli. Colored *lights* can be mixed; but since their *colors* cannot be mixed, they cannot be said to neutralize each other. Otherwise, the "errors" in this first half of the book consist mostly of tiny sins of omission, together with unacceptable definitions of "simultaneous contrast" and "purple."

Chapters 10, 11, and 12, dealing with absolute and differential intensitive and chromatic thresholds, are particularly strong. Only slightly less satisfying are chapters 13 ("Time effects") and 14 ("Spatial interactions"). From there on the book tends to come apart.

Chapter 15, on the color blindnesses, is spoiled by the naïveté of the physicist and by ignorance of the implications of genetics for the interrelations of the defects. Chapter 16 commences section B, entitled "Theories of Vision"—although its first three chapters, on the anatomy, photochemistry, and electrophysiology of the retina, respectively, deal essentially with basic facts and belong earlier in the book. The reader will absorb so many little errors about the retina that he had best get his information elsewhere. The whole of chapter 17 is already antiquated. In chapter 18, the paucity of sensory correlates reveals the poverty of the whole field of retinal electrophysiology. There is not even any mention of the controversy over whether the electroretinogram is not entirely generated by stray light.

Chapter 19, on theories of color vision, very thoroughly expounds the situation of the Young-Helmholtz theory as of about a decade ago. All other theories are allotted only two pages, which is about what one expects from a physicist. In the final chapter (chapter 20, on threshold theory) the quantal and probabilistic elements are well developed, and Crozier's law is tactfully divorced from its original entanglement with "neural effect" and applied to things it may really describe.

There is a good index, a triple bibliography which "just grew," and a section of exercises (with solutions) which leads a teacher in one of our schools of optometry to envy the quality of student which the Institute of Optics is able to attract.

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Lectures on Nuclear Theory. C. Landau and Ya Smorodinsky. In English translation. Consultants Bureau, New York, 1958 (original text published by State Technical–Theoretical Literature Press, Moscow, 1955). 83 pp. $15.

This brief survey of nuclear physics is based on ten lectures given to experimentalists by Landau in Moscow in 1954. There appears to be little, if any, elaboration of the lectures' incisive, though necessarily fragmentary content. Numerous computations, none of them lengthy, are carried out, simplified frequently by approximate and intuitively reasonable arguments. The discussion, unhurried, is almost entirely self-contained. It assumes familiarity only with ordinary nonrelativistic quantum mechanics and, in lectures 7 and 10, with some thermodynamics and statistics. The presentation is rather consistently a statement of experimental results followed by theoretical analysis.

Lectures 1 to 3 are on nuclear forces. As an illustration, the first lecture starts by presenting the evidence for charge symmetry of nuclear forces, then discusses the deuteron bound state. Scattering of spinless particles is reviewed, phase shifts are introduced, and sign determination by Coulomb interference is mentioned. The general velocity-independent nucleon-nucleon interaction is developed, and tensor interaction is defined and its presence is inferred from the deuteron's quadrupole moment. Typical is the careful note, at the end of the first lecture, of the fact that for a loosely bound structure, such as the deuteron, even its small quadrupole moment requires a larger tensor interaction.

Nucleon-nucleon scattering at up to 20 Mev is discussed in lecture 2, and at