ers to locate these varied points of view within the broader historical tableau.

How does the history of psychology look within such an expanded framework? For one thing the common view of American psychology as more or less an extension of the German experimental tradition is rejected. The volume vividly demonstrates the influence of evolutionary theory, British associationism, French philosophy and psychiatry, and Russian physiology, along with a pragmatism and functionalism indigenous to North America. Other misconceptions associated with a monolithic story of origins are also corrected. For instance, Arthur Blumenthal's chapters on Wundt and on experimentalism illustrate the competing visions about what was to constitute proper research methodology. Similarly, several chapters debunk the myth of psychology's purported struggles to disentangle itself from biology on the one hand and philosophy on the other. The relations between psychology and these two neighboring disciplines were far more complicated. Among the cogent accounts the volume presents of other issues that are either omitted from or misrepresented in most texts are Steele's deconstruction of the history of psychoanalysis and his illuminating discussion of new advances, which includes a roster of theorists with whose work psychologists should be but generally are not acquainted; Mitchell Ash's erudite depiction of Gestalt psychology and its turbulent move from the Continent to the United States; Buxton's sensitive interpretation of the varieties of functionalism; and Frank Kessel and William Bevan's précis on the recent emergence of cognitive psychology.

Laudable as this endeavor to revise the historical portrait of psychology is, it still falls short of providing a genuine pluralistic and contextual perspective. Most (though certainly not all) of the chapters tacitly subscribe to a view of psychology as a natural science relying on experimental evidence as the primary criterion of truth and embracing a clear-cut subject. The special problems inherent in a science that uses experiencing humans as both the observers and the objects of observation are skirted, as are the persistent problems of experimental bias and the quantification of experience. The presentation of psychology as a natural science leaves no place for contemplating how it might (also) be a social or interpretative science (with the notable exception of Steele's chapters on psychoanalysis). Perhaps because of these static precepts, the fields of personality, developmental, and social psychology are not represented. Another consequence may be a restricting of what counts as "external" or "contextual" analysis, such that the volume attends to the influences of biology and philosophy but does not rethink psychology's relations to sociology, anthropology, linguistics, and engineering sciences. More important is the failure to discuss how psychology was shaped by forces in addition to intellectual ones, despite the fact that historical research is beginning to decipher how economics, politics, and culture shape the sciences. This contextualist scholarship unfortunately has been left unmined by most of the contributors to the volume.

These problems may turn out to be nothing more than temporary wrinkles if future textbooks in the history of psychology heed the innovations attempted here. The refinement of contextual analysis will depend on advances in historical research, but its acceptance will depend on the extent to which psychologists are truly willing to give their students a pluralist perspective.

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Wave Propagation

The Propagation of Radio Waves. The Theory of Radio Waves of Low Power in the Ionosphere and Magnetosphere. K. G. BUDDEN. Cambridge University Press, New York, 1985. xvi, 669 pp., illus. $89.50. Revised edition of *Radio Waves in the Ionosphere* (1961).

The propagation of radio waves through the ionized layers of the earth's atmosphere is of importance in radio communication, navigation, and surveillance, and a thorough knowledge of the characteristics of propagation is important to the efficient use of the spectrum. The presence of plasma and the earth's magnetic field and the occurrence of collisions between electrons and molecules render the ionospheric plasma birefringent, absorbing, and dispersive, so that radio waves are distorted as they travel.

These phenomena are considered in Budden's *The Propagation of Radio Waves*, which is more than an updating of his classical treatise *Radio Waves in the Ionosphere*. The book covers the topics covered in the earlier book as well as some additional ones. In particular, the new book includes discussions of magnetospheric phenomena, including topside soundings, and such aspects of plasma physics as Debye shielding, ion-cyclotron waves, and plasma resonances. Such new techniques for probing the ionosphere as partial reflections, Faraday rotation, and wave interaction are discussed. On the other hand, the author wisely avoids discussion of the scattering of radio energy by irregularities, which enables him to concentrate on the magnetoionic aspects of wave propagation.

Among the topics that are new or that receive considerably expanded discussion are reciprocity, which is tackled from the points of view of both ray theory and full-wave theory; the kinetic treatment of collisions and the Sen-Wyller formulas for refractive indexes; the coupling of characteristic waves, including the important cases of limiting polarization at the base of the ionosphere, and radio windows; and general ray tracing of complex rays and pseudo rays in absorbing media. Another important feature of the book is the long list of references to textbooks and published papers, both current and historical.

There is a great emphasis in the book on the WKB solutions. These solutions are of considerable value to those interested in understanding wave characteristics, but not to the practical radio engineer, who can use full-wave (computer) solutions. Three chapters are devoted to full-wave theories and their applications to such topics as resonance and barriers, resonance tunneling, and inversion of reflection measurements. Full-wave treatments are given for linear, linear piecewise, exponential, parabolic, and Epstein electron density models. The book emphasizes an understanding of the basic physical principles on the premise that a user who understands the physics is well equipped to tackle specific problems. The reader is assumed to be familiar with calculus, the theory of complex variables, vectors (including differential vector operators), matrixes, and basic electromagnetic theory.

The use of the term "Appleton-Lassen" rather than "Appleton-Hartree" for the refractive index formula will be welcomed by the German ionospheric community.

Budden's new book is recommended as an essential part of the libraries of all workers involved in any aspect of ionospheric radio communication or radio soundings of the ionosphere.

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Books Received

The Apocalyptics. How Environmental Politics Controls What We Know about Cancer. Edith Efron. Simon and Schuster, New York, 1985. 590 pp. Paper, $10.95. A Touchstone Book. Reprint, 1984 edition.

Applied Superconductivity, Metallurgy, and Physics of Titanium Alloys. Vol. 1, Fundamentals: Alloy Superconductors: Their Metallurgical, Physical,

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