

Rosenbluth cross section for protons and neutrons; deuteron form-factors and wave functions for three models; inelastic scattering cross sections for deuterons composed of point nucleons and extended nucleons; scattered electron energies for elastic scattering from light nuclei; the Møller cross section and kinematical factors for electron-electron scattering. In addition to extensive tables and instructions for their use, the book contains a brief review of the subject of electron scattering, an exhaustive list of references, a summary of experimental nuclear size parameters, and many useful graphs.

The authors are careful to state that comparison of experiments with the given form-factors requires the validity of the Born approximation and, for this reason, the tables are most applicable for light nuclei, high electron energies, and small scattering angles. However, under typical experimental conditions, errors due to using the Born approximation are usually comparable to, and sometimes much larger than, the differences between cross sections predicted by the various nuclear models. Thus, the inclusion in the tables of form-factors for many very similar nuclear models is of doubtful merit.

On the other hand, the deuteron inelastic scattering tables for the extended nucleon case are presented for just one value of the charge and magnetic moment radii of the proton, and three values of the neutron magnetic moment radius. Clearly, tabulations for many more sets of radii would be necessary in order to obtain accurate, best-fit values for these important nucleon parameters.

In conclusion, although the tables in this book do not eliminate the need for difficult and tedious hand (or digital computer) calculations in analyzing electron scattering experiments, they serve a very useful purpose as an aid in designing experiments and as a guide to more precise analysis of results.

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Elements of Ion Exchange. Robert Kunin. Reinhold, New York, 1960. viii + 164 pp. Illus. \$5.75.

This small volume provides a basic understanding of ion exchange techniques for those with a limited theoretical background.

Up to now most works on this subject have been of the advanced theoretical type, of little use to executives or operating personnel. The use of ion exchange methods has now become so widespread in the laboratory and in industry that few are the individuals not affected by this technique. The biochemist and the nuclear researcher will find this book useful and interesting reading, while the industrial chemist and agronomist will find that the book gives them a broad view of ion exchange.

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The Open and Closed Mind. Investigations into the nature of belief systems and personality systems. Milton Rokeach. Basic Books, New York, 1960. xv + 447 pp. \$7.50.

Ten years ago, *The Authoritarian Personality* traced anti-Semitism and ethnocentrism to a proto-Fascist personal world view that the California authors interpreted as a defensive maneuver to shore up a precarious facade of strength against inner weakness and unrecognized, but threatening, impulses. The combination of fertile hypothesis and technical laxity which characterized this work stimulated a decade of research checking its results and criticizing or refining its methods. Now Milton Rokeach, a student of the late Else Frenkel-Brunswik (of all the authors who contributed to *The Authoritarian Personality*, she extended its principles farthest in the study of cognitive functioning), has come forth with a volume that takes a fresh start, employs new methods, and arrives at a different but partially congruent appraisal of much the same ground—the intersection of personality, ideology, cognition, and attitude. It is an impressive performance.

Although 22 collaborators are listed, mostly former students of the author, the book is essentially a solo performance, a monograph reporting an imaginative program of integrated, small-scale studies initiated in 1951. In an era of large projects, Rokeach shows what an ingenious and single-minded social psychologist can still accomplish with modest support.

Taking seriously the criticism that the F (Fascism) scale developed in *The Authoritarian Personality* tapped right-wing rather than general authoritarian-

ism, Rokeach develops a conception of *dogmatism* as a characterization of people's belief systems, and he constructs a scale for measuring dogmatism which is intended to be free of content bias toward the ideological left or right. Items on his scale are phrased to identify the dogmatic or closed-minded person as one who tends to accentuate the differences between his beliefs and the belief systems that he rejects; to regard man as isolated and helpless and the future uncertain; to be concerned with power and status; to be, as a "true believer," intolerant of renegades and disbelievers; and to discount the present for a utopian view of the past or future. Validation studies of the dogmatism scale and of a companion scale of *opinionation* (the tendency to accept or reject others depending on whether they agree or disagree with one's views) lend support to Rokeach's contention that he has arrived at more general variables that are free of the ideological bias limiting the utility of the scales developed in *The Authoritarian Personality*.

With considerable experimental ingenuity, Rokeach shows how dogmatism hampers problem-solving within the framework of novel belief-systems. Other sections deal with *disbelief*-systems, and with the role of threat and anxiety in the genesis of dogmatism. A wide variety of methods and of types of data are called upon.

The author anticipates certain formal criticisms that must be made of the book. Like the measures employed in *The Authoritarian Personality*, Rokeach's similarly constructed scales are surely not unidimensional. They are also not free of probable response-set effects, since agreement with an item always yields a score in the direction of dogmatism (or opinionation). While differences in acquiescence will not account for his impressive differential effects, a good many of the positive interscale correlations must be discounted to some degree, and some of the features that Rokeach ascribes to dogmatism, as such, may rather go with the "yea-saying" personality. Further, many of the data are based on comparisons of extreme groups, yielding sizable differences that would correspond to much less impressive correlation coefficients.

The treatment of dogmatism in relation to cognitive processes would benefit from intellectual contact with G. S. Klein's research on cognitive style, which would seem to offer alternative possibilities for conceptualization. Miss-

ing, also is Klein and Frenkel-Brunswik's complementary psychoanalytic emphasis on motivational processes, although Rokeach accepts Frenkel-Brunswik's developmental-dynamic account as being probably valid for dogmatism.

Most controversial is Rokeach's re-interpretation of racial prejudice; according to him, racial prejudice is a special case of a more general principle of discrimination according to similarity of belief. His responsible challenge to prevalent views can only be fruitful, but his data will suffice to convince only the most open-minded. Clearly more evidence is called for here.

All told, this is an original, provocative, and meaty book that joins *The Authoritarian Personality* as an achievement and as a stimulus to further work.

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The 3-j and 6-j Symbols. Manuel Rotenberg, R. Bivins, N. Metropolis, and John K. Wooten, Jr. Technology Press, Cambridge, Mass., 1960. viii + 498 pp. \$16.

Studies of the coupling of angular momenta in quantum physics and of the angular distribution of reaction products have given rise to a geometrical theory that constitutes an extension of vector and tensor algebra. The elements of this theory are sets of variables, and the number of variables in each set is often indicated by $2j + 1$, j being the symbol that usually represents an angular momentum quantum number ($j = 1$ corresponds to a vector). Certain functions of the parameters j , which have a central part in the theory, are called 3- j , 6- j , 9- j , 12- j coefficients. They are also known by various symbols suggested by different authors or by the names of the authors themselves (Clebsch-Gordan-Wigner coefficients, Racah coefficients). Tables of these functions have been prepared in the past, but this work appears to represent a more systematic and permanent contribution than previous ones. It is also the first major tabulation available on the ordinary book market. The preparation of the book appears to have been carefully thought out. Introductory notes (37 pages) provide the necessary definitions, numerous properties of the functions, connections with other work, and details on the preparation and use of the tables. The tables

themselves are very voluminous (over 450 pages printed by photo-offset from a computer output) and consist of powers of prime factors, that is, in essence, of the logarithm, of the desired functions. This notation was chosen after considerable discussion, and I concur with it.

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Reprints

Abbott, Ira H., and Albert E. Von Doenhoff. *Theory of Wing Sections*. Including a summary of airfoil data. Dover, New York, 1960. 703 pp. \$2.95. A corrected but not extensively revised version of ed. 1, 1949.

Chandrasekhar, S. *Radiative Transfer*. Dover, New York, 1960. 407 pp. \$2.25. An unabridged, slightly revised reprint of ed. 1, 1950.

Crow, Edwin L., Frances A. Davis, and Margaret W. Maxfield. *Statistics Manual*. Dover, New York, 1960. 305 pp. \$1.55. Republication of NAVORD Report 3369—NOTS 948.

Dickson, Leonard Eugene. *Algebras and Their Arithmetics*. Dover, New York, 1960. 253 pp. \$1.35. Republication of ed. 1, 1923.

Eisenhart, Luther Pfahler. *Coordinate Geometry*. Dover, New York, 1960. 309 pp. \$1.65. Republication of ed. 1, 1939.

Franklin, Philip. *Differential Equations for Engineers*. Dover, New York, 1960. 306 pp. \$1.65. Republication of *Differential Equations for Electrical Engineers*, 1933.

Gray, Andrew. *A Treatise on Gyrostatics and Rotational Motion*. Theory and applications. Dover, New York, 1959. 550 pp. \$2.75. Unabridged republication of ed. 1, 1918.

Greenhill, Alfred George. *The Applications of Elliptic Functions*. Dover, New York, 1960. 368 pp. \$1.75. Republication of ed. 1, 1892.

Kramer, Samuel Noah. *History Begins at Sumer*. Doubleday, Garden City, N.Y., 1960. 272 pp. \$1.45. Reprint of ed. 1, 1956. Kramer, an outstanding Sumerologist, describes 27 "firsts" in recorded human history—the story of schools, social reforms, political and religious ideas, as well as of the world's first tax reduction—and in so doing presents a fascinating account of life 5000 years ago.

Rosen, Edward, Translator. *Three Copernican Treatises*. "The Commentariolus of Copernicus," "The Letter against Werner," and "The Narratio prima of Rheticus." Dover, New York, 1959. 294 pp. \$1.75. An unabridged revised republication of ed. 1, to which has been added an annotated Copernicus bibliography, 1939–1958 (69 pp.).

Von Mises, Richard. *Theory of Flight*. Dover, New York, 1960. 645 pp. \$2.85. Unabridged republication of the English translation published by McGraw-Hill in 1945. Introduction written for this edition by Kurt H. Hohenemser.

New Books

Mathematics, Physical Sciences, and Engineering

Horn, Milton B. *Acrylic Resins*. Reinhold, New York; Chapman and Hall, London, 1960. 191 pp. \$4.50.

Institut International de Chimie Solvay. *Nucleoproteins*. Interscience, New York; Stoops, Brussels, Belgium, 1960. 364 pp. \$10.50. Proceedings of the 11th Solvay Conference, held 1–6 June 1959 in Brussels.

Ipsen, D. C. *Units, Dimensions, and Dimensionless Numbers*. McGraw-Hill, New York, 1960. 248 pp. \$6.50.

Jastrow, Robert, Ed. *The Exploration of Space*. Macmillan, New York, 1960. 160 pp. \$5.50. This volume contains the papers presented at a symposium held in 1959. As a survey of the recent developments in space sciences, it includes descriptions of American space rockets, with data on their payloads and on estimated completion dates for rockets under development and their suitability for specific lunar and planetary exploration missions. Contributors, include James Van Allen, Homer E. Newell, G. P. Kuiper, and Harold Urey.

Katritzky, Alan R., and Jeanne M. Lagowski. *Heterocyclic Chemistry*. Methuen, London; Wiley, New York, 1960. 274 pp. \$8.50.

Kaye, Joseph, and John A. Welsh. Eds. *Direct Conversion of Heat to Electricity*. Wiley, New York, 1960. 23 chapters. \$8.75. Papers presented at a special program offered by Massachusetts Institute of Technology (1959) and discussing thermoelectric and thermionic energy conversion, magnetohydrodynamic conversion, and fuel cells.

Klingsbert, Edwin, Ed. *Pyridine and Its Derivatives*. Interscience, New York, 1960. 623 pp. \$49. Contributors to this volume (part 1 of four proposed parts) include R. A. Barnes, Frederick Brody, and Philip R. Ruby. The papers included are on properties and reactions of pyridine and its hydrogenated derivatives and on synthetic and natural sources of the pyridine ring.

Lawrence, John R. *Polyester Resins*. Reinhold, New York; Chapman and Hall, London, 1960. 260 pp. \$5.75.

Lederer, Michael, Ed. *Chromatographic Reviews*. Progress in chromatography, electrophoresis and related methods. vol. 2. Elsevier, New York, 1960 (order from Van Nostrand, Princeton, N.J.). 203 pp. Reprints of review articles published in the *Journal of Chromatography*; articles not originally in English have been translated.

Mayall, R. Newton, and Margaret W. Mayall. *A Beginner's Guide to the Skies*. Putnam's, New York, 1960. 184 pp. \$2.50. Intended for the novice, this book contains no technical material; in general the text is based on Olcott's *Field Book of the Skies*.

Mollenstedt, G., H. Niehrs, E. Ruska, Eds. *Proceedings of the Fourth International Conference on Electron Microscopy*. vol. 1, *Physikalisch-Technischer Teil*. Springer, Berlin, 1960. 867 pp. DM. 228.