

mind me of the innocent heroines of a Henry James novel before they have been had by the subtle and wicked Europeans" (p. 236). In contrast, and with a Nietzschean emphasis on power, Homans remarks that "a just society is apt to be a static society" (p. 235). Value biases affect scientific analyses in fascinating ways.

Some of the articles demonstrate keen insight into the operation of regulatory norms. Contributions by Leventhal and by Lerner, Miller, and Holmes explore an often overlooked fact about equity—an equity norm is only one of several possible allocation rules that can be employed in groups. Instead of being based upon the relative magnitudes of members' inputs to the group (equity rule), rewards can be dispensed on the basis of an equality or parity norm, where participants receive equal rewards irrespective of their inputs; on the basis of a reciprocity norm, where participants receive from an allocator amounts commensurate with what they have given him as an individual; or on the basis of participants' needs, wherein resources are meted out in accord with a norm of Marxian justice (to each according to his needs) or a norm of social responsibility (he who requires help should receive it from those who are able to provide it). Leventhal discusses variables that affect which of these regulatory rules an allocator will employ, and Lerner, Miller, and Holmes discuss situational variables that affect the applicability of the various norms. These articles are valuable in redressing the overemphasis on equity per se; they encourage the reader to think in terms of balancing norms against one another.

The numerous applications of equity theory to social issues and problems should appeal to a broad readership. For example, Lerner, Miller, and Holmes proffer the concept of "exchange fiction," a fascinating illusion that charitable organizations should create if they wish to increase the donations they receive. People were found to contribute more to a charity when they felt they were entering into an exchange relationship, for example "buying" an unwanted candle or candy bar with the proceeds going to charity, than when they did not. Maintaining the conditional-exchange fiction makes the donor less vulnerable to future demands of charity organizations that have nothing to offer in exchange for the contributions they ask. For another example, Austin, Walster, and Utne offer theory and data that pertain to the effects of equity on the sentencing of criminals. Was the "fall from power" suffered by the Watergate conspirators a suffi-

cient sanction to make light prison terms equitable? The article is bound to be of interest to those in the newly emerging area of the social psychology of law.

In sum, *Equity Theory* should spark thought, research, and theory-building; and it is certain to interest both "basic" and "applied" social scientists. It is required reading for social psychologists and will undoubtedly be adopted as a text in many advanced undergraduate and graduate classes. The optimism and sense of direction manifested throughout the volume are welcome and overdue.

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Regulatory Enzymes

Proteases and Biological Control. Papers from a conference, Cold Spring Harbor, N.Y. E. REICH, D. B. RIFKIN, and E. SHAW, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1975. x, 1022 pp., illus. \$40. Cold Spring Harbor Conferences on Cell Proliferation, vol. 2.

This book addresses the problems of regulation of and by proteases. It covers a wide range of topics: structure-function relationships, blood coagulation, complement, kinins, fibrinolysis, protease inhibitors, cellular aspects of protease actions, and the relationship of proteases to reproduction, cell growth, and tumors. Both reviews and reports of new research are included. The reviews are generally excellent and well documented, making the book useful to students and specialists alike.

There are a number of exciting papers. Those by Stenflo *et al.*, Magnusson *et al.*, and Suttie *et al.* tell the story of γ -carboxyglutamic acid. The discovery of this unusual amino acid in the amino terminal portion of prothrombin is described, as is the role of vitamin K in its biosynthesis and in its ability to bind calcium and phospholipid.

There is also a clear explanation by Davie *et al.* of the achievements of many investigators in elucidating the chemistry of the complex pathway of blood coagulation. This chapter is a review of the cascade and its control mechanisms.

In the chapter on proteases of the reproductive system by Zaneveld *et al.* the relationship of proteases and protease inhibitors to reproductive function is reviewed. The use of natural and synthetic protease inhibitors in the control of fertility is considered.

Fritz *et al.* treat acrosin inhibitors. Acrosin, a proteolytic enzyme of the

spermatozoon, has trypsin-like properties and specificity. Small proteins that are acrosin inhibitors resemble the pancreatic secretory trypsin inhibitor in structure and action. Their localization by immunofluorescence in the male genital tract is presented in beautiful color plates.

The chapter on microbial protease inhibitors is a review of the remarkable work of Umezawa and his colleagues on the small peptides with unusual structural features that have been isolated from the culture fluid of actinomycetes—leupeptins, antipain, chymostatin, elastatinal, pepstatins, and phosphoramidon. Each of these is a powerful inhibitor of a specific enzyme or group of enzymes.

The book presents evidence that there has been progress toward elucidation of the molecular basis of the abnormality in α_1 -antitrypsin deficiency, a cause of pulmonary emphysema. In comparison to the normal MM α_1 -antitrypsin, the abnormal ZZ protein contains less carbohydrate and sialic acid (Jeppsson and Laurell). There is a decreased serum sialyltransferase activity in children with an α_1 -antitrypsin deficiency that is associated with accumulation of aggregated α_1 -antitrypsin in the liver and with hepatic cirrhosis; it is not yet clear whether the reduced enzyme activity is the cause or the result of the cirrhosis (Kuhlenschmidt *et al.*).

The chapter on affinity labeling of serine proteases by Shaw shows that new peptide chloromethyl ketones are able to discriminate among trypsin-like enzymes.

Regulation of animal virus replication by protein cleavage is also discussed. By comparison with a strain of poliovirus selected for a stable replicase, it is shown that the normal replicase is unstable to proteolysis; its degradation stops RNA synthesis. It is therefore proposed that picornaviruses regulate their function by coding for proteins that are intrinsically labile to proteases.

The probable association of plasminogen activator and fibrinolysis with malignant transformed cells is discussed by Reich, Christman *et al.*, Rifkin *et al.*, and many others. Most malignantly transformed cells increase the level of release of plasminogen activator by comparison with their normal counterparts. The papers presented take up different approaches to this relationship in various types of cells. They are progress reports, but the activity in this important field promises interesting developments.

Chapters by Hynes *et al.* and by Blumberg and Robbins treat proteases and the cell surface. There is evidence for the

existence of a large, external, transformation-sensitive glycoprotein, which is absent from the surfaces of virally transformed cells even though it is synthesized by these cells. This glycoprotein is sensitive to proteases; its role in growth control is still uncertain.

This is a fascinating and informative book, a pleasure to read.

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Physical Adsorption

Films on Solid Surfaces. The Physics and Chemistry of Physical Adsorption. J. G. DASH. Academic Press, New York, 1975. xii, 274 pp., illus. \$26.

This book is an important contribution to the surface science literature. It is concerned primarily with physical adsorption and presents an up-to-date account of theoretical and experimental research on this subject. It will be valuable as a reference text for researchers and as an accompaniment to a graduate-level lecture course in surface science.

The emphasis is on the statistical thermodynamics of adsorbed systems. Theories for noninteracting and interacting adsorbates are treated in considerable detail, and the author presents a lucid account of the theoretical situation without unnecessarily subjecting the reader to extensive mathematical treatments. The assumptions and limitations of the various models are clearly presented. A brief summary is given of the principal experimental techniques currently being used to study solid-vapor interfaces. This account of experimental methods is sufficient to allow the author to discuss the results that have been obtained in work on various systems. However, it does not allow the reader to develop a critical view of the experimental situation; the difficulty can of course be easily overcome by reference to the numerous publications cited in the bibliography.

The subject of phase transitions in thin films is covered in considerable detail. It is this topic that will probably attract the majority of readers. The book contains the most complete and up-to-date summary available of theoretical models of surface phases in language that is familiar to the surface scientist. Although the book is not intended to cover chemically reactive systems, it will be of value to those working in that area; phase condensations and structural transformations are also of prime concern in the

study of systems exhibiting chemisorption. In a comprehensive discussion of chemisorption one would, however, like to have more extensive treatments of surface bonding, epitaxial monolayers, and surface heterogeneities.

The final chapter contains a useful review of the current status of theoretical and experimental work on thin film superfluidity. Some aspects of this phenomenon are as yet poorly understood. As the author suggests, this may be due to lack of information on structural aspects of the films, since most other surface properties have been found to be strongly structure-sensitive.

Dash has presented an authoritative account of the properties of physisorbed films. It is written in a pleasant, easy-to-read style, and the material is arranged in such a way that it will require minimal revision as the subject develops.

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Track Etching

Nuclear Tracks in Solids. Principles and Applications. ROBERT L. FLEISCHER, P. BUFORD PRICE, and ROBERT M. WALKER. University of California Press, Berkeley, 1975. xxii, 606 pp., illus. \$31.50.

In the late 1950's it was found that damage trails produced by the passage of energetic, heavily ionizing, charged particles through dielectric solids can be visualized by direct viewing with the electron microscope. Subsequently it was also found that these chemically reactive damage trails could be enlarged to microscopic dimensions through a suitable chemical etching procedure. An important new field of study opened with the realization that this phenomenon was of a general nature, applicable to many nonconducting materials, and that the etched tracks contained sufficient information to permit the identification of the charged particles producing them. This book, written by the inventors of the track-etching technique, describes the basic science of chemical etching of particle tracks and outlines recent technical progress. It is the first book to present a thorough exposition of the techniques and applications of nuclear track recording in solids. The basic nature of track formation and structure is covered in less detail.

The first quarter of the book is devoted to three chapters dealing with mechanisms of particle track formation, prin-

ciples of track etching, and methods used in nuclear particle identification. The remaining portion of the book concentrates on applications. Chapters 4, 5, and 6 (nearly half the book) deal with the applications of track-etching techniques in the earth and space sciences, covering the fission-track dating of rocks and the study of heavy cosmic rays in space. Chapter 5, "Modern energetic particles in space," contains an informative, up-to-date discussion of galactic and solar cosmic rays. The sections on transition cosmic rays and on the search for superheavy elements in cosmic rays are particularly interesting. The data given for transition nuclei are thorough and current. The chapter points out two situations in which the use of nuclear track recording solids is the best way to make measurements, namely, for low-energy cosmic rays (≈ 10 million electron volts per atomic mass unit) and for relativistic ultraheavy cosmic rays. The remaining four chapters are concerned with the application of track-etching techniques in nuclear physics, element mapping in rocks, radiation dosimetry, and numerous other kinds of work.

The book provides broad coverage of the field, with emphasis on details of various experimental techniques utilizing the track-etch principle. Little attention is given to rigorous derivation of equations or to exposition of mathematical detail. The precision of the final numerical results is often left to the intuition of the reader.

The book is well written and illustrated, and the comprehensive lists of references found at the end of each chapter are particularly useful. It should be of considerable interest and use to many research workers and students.

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Books Received

Acoustical Holography. Vol. 6. Proceedings of a symposium, San Diego, Calif., Feb. 1975. Newell Booth, Ed. Plenum, New York, 1975. xii, 760 pp., illus. \$37.50.

Actualités de Biophysique et de Médecine Nucléaire. C. Bénézech and G. Meyniel, Eds. Masson, Paris, 1976. x, 158 pp., illus. Paper, 110 F.

Adolescent Psychiatry. Vol. 4, Developmental and Clinical Studies. Sherman C. Feinstein and Peter L. Giovacchini, Eds. Aronson, New York, 1976. xiv, 418 pp. \$20. Annals of the American Society for Adolescent Psychiatry.

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