

field tests plants containing this compound experienced heavier grazing than a member of the same genus depauperate in sesquiterpene lactones, suggesting the presence of another defensive system in the lactone depauperate plant.

Taxonomically dissimilar animals deal with dietary toxins by remarkably similar metabolic pathways (P. Millburn). Disappointingly, differential mechanisms or detoxification potencies among co-evolutionarily relevant groupings, such as herbivores versus nonherbivores or host-restricted herbivores versus generalized herbivores, are not discussed, and resistance mechanisms other than those involving chemical modification of the toxin are not covered.

M. Rothschild has so far obtained little evidence for her hypothesis that dietary carotenoids may potentiate olfactory and auditory perception and hormonal changes in animals. *Ophrys* orchid fragrances attract male insects, which transfer pollen while endeavoring to copulate with the flower, but attempts to associate the fragrances with insect sex pheromones have proved unsuccessful (G. Bergström). Bergström believes that the interaction probably evolved from a stage in which the orchids produced nectar to one in which the insects benefit by collecting volatile secretions from the flowers for use in swarming behavior. Seed toxins and insect carotenoids are discussed by E. A. Bell and J. Feltwell, respectively, to conclude the section on plant-animal interactions.

E. I. Newman concludes that allelopathy occurs, but he thinks this effect may be merely fortuitous, not due to natural selection acting on competing plants, and that allelopathy is not the primary function of the substances involved. Doubtless, these conclusions will be challenged. According to J. B. Harborne and J. L. Ingham, postinfectious production of phytoalexins is the most important mechanism by which plants resist fungal infection. Harborne and Ingham compare phytoalexins produced by various plant taxa, but unfortunately no comparisons are made among ecologically relevant groups such as trees, shrubs, and herbs.

Evidence has been accumulating to suggest that many plants, perhaps most, can actively increase their levels of defensive substances over time periods ranging from hours to years in direct response to attack by herbivores, analogously to their responses against pathogens. This effect may be of great importance as an analytical tool in herbivore population dynamics and, potentially,

for pest control. The absence of any reference to this phenomenon is a failing in a book claiming to cover the most significant developments in ecological biochemistry of the last five years. The book should be read by all those in the field, but more complete and condensed introductory summaries are available for the general reader.

DAVID F. RHOADES

Department of Zoology,
University of Washington,
Seattle 98195

Techniques in Field Theory

Relativistic Quantum Fields. C. NASH. Academic Press, New York, 1978. x, 224 pp. \$31.

Relativistic quantum field theory has become a tool used daily by the high energy physicist. It is now widely believed that non-Abelian gauge field theories give the fundamental dynamics of the strong interactions as well as furnishing the framework for the unification of the weak and electromagnetic interactions. In particle physics the fundamental issue of our time has centered on attempts to understand the interaction of non-Abelian color gauge fields with quark fields. The application of quantum field theory has not been limited to particle physics, however. The great advances that have recently been made in our understanding of the scaling laws in second-order phase transitions have come about through a study of the long-distance behavior of zero-mass quantum field theories.

There is a notable lack of books for students dealing with modern quantum field theory. This short volume by Nash discusses a number of recently developed techniques in field theory in a manner intended to be comprehensible to postgraduate students. In particular the book deals with functional integration, dimensional regularization, infrared behavior in quantum electrodynamics (QED), the Wilson expansion, and the Callan-Symanzik equation. Each topic is illustrated by many well-chosen examples, though there are hardly any physical applications given. By and large ϕ^4 theory and QED are the field theories discussed, with some results quoted for non-Abelian theories.

About a quarter of the book is devoted to a discussion of dimensional regularization. The examples in this section are especially well chosen. A reader familiar with the basic properties of Feynman diagrams should be able to obtain a good

working knowledge of dimensional regularization. I think this is the most successful part of the book.

Renormalization of ϕ^4 theory and QED is done mostly by means of examples. A general subtraction procedure, such as that of Bogoliubov, Parasiuk, Hepp, and Zimmermann, is not given. This makes the discussion of the Wilson expansion little more than the statement of a set of rules. In deriving the Callan-Symanzik equation the very elegant method of Symanzik is used. However, without a thorough knowledge of a subtraction procedure this method is virtually impossible to comprehend.

Relativistic Quantum Fields is written in a crisp, lucid style. Many of the topics discussed in the book are not covered in any other book intended to be used by students. If the reader is willing to refer to some of the original papers while reading this book, he or she should be able to obtain a good foundation in modern quantum field theory without an undue amount of pain.

ALFRED MUELLER

Department of Physics,
Columbia University,
New York, New York 10027

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Biochemical Actions of Hormones. Vol. 5. Gerald Litwack, Ed. Academic Press, New York, 1978. xvi, 466 pp., illus. \$39.50.

Biochemical and Clinical Aspects of Hemoglobin Abnormalities. Proceedings of a symposium, Fort Collins, Colo., Oct. 1977. Winslow S. Caughey, Ed. Academic Press, New York, 1978. xx, 726 pp., illus. \$33.50.

Biochemistry and Mode of Action of Hormones II. H. V. Rickenberg, Ed. University Park Press, Baltimore, 1978. xii, 266 pp., illus. \$29.50. International Review of Biochemistry, vol. 20.

Biology and Chemistry of Basement Membranes. Proceedings of a symposium, Philadelphia, Nov. 1976. Nicholas A. Kefalides, Ed. Academic Press, New York, 1978. xviii, 616 pp., illus. \$29.50.

Boundary Layer Climates. T. R. Oke. Methuen, London, and Halsted (Wiley), New York, 1978. xxii, 372 pp., illus. \$27.50.

Brownian Motion and Classical Potential Theory. Sidney C. Port and Charles J. Stone. Academic Press, New York, 1978. xii, 238 pp. \$22.50. Probability and Mathematical Statistics.

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Cancer—The Outlaw Cell. Richard E. LaFond, Ed. American Chemical Society, Washington, D.C., 1978. xvi, 192 pp., illus. Cloth, \$15; paper, \$8.50. To order circle 557 on Reader Service Card.

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Catalysis in Coal Conversion. James A. Cusumano, Ralph A. Dalla Betta, and Riccardo B. Levy. Academic Press, New York, 1978. xiv, 272 pp. \$21.

Chemical Mutagens. Principles and Methods for Their Detection. Vol. 5. Alexander Hollaender and Frederick J. de Serres, Eds. Plenum, New York, 1978. xvi, 348 pp., illus. \$29.50.

Children's Thinking. What Develops? Papers from a symposium, May 1977. Robert S. Siegler, Ed. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xii, 372 pp., illus. \$19.95.

The Child's Reality. Three Developmental Themes. David Elkind. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xviii, 156 pp., illus. \$12.95. John M. MacEachran Memorial Lecture Series.

Continuation Methods. Proceedings of a symposium, Linz, Austria, Oct. 1977. Hansjörg Wacker, Ed. Academic Press, New York, 1978. x, 336 pp., illus. \$19.50.

Control and Dynamic Systems. Advances in Theory and Applications. Vol. 14. C. T. Leondes, Ed. Academic Press, New York, 1978. xxii, 384 pp., illus. \$18.50.

Cosmos, Earth, and Man. A Short History of the Universe. Preston Cloud. Yale University Press, New Haven, Conn., 1978. xvi, 372 pp., illus. \$14.95.

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Dictionary of Organic Compounds. Fourteenth Supplement to the Fourth Edition. Oxford University Press, New York, 1978. vi, 270 pp., illus. \$62.50.

Differentiation and Development. Proceedings of a symposium, Miami, Jan. 1978. F. Ahmad, J. Schultz, T. R. Russell, and R. Werner, Eds. Academic Press, New York, 1978. xxii, 534 pp., illus. \$29.50. Miami Winter Symposia, vol. 15.

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Energy Conservation Standards. For Building Design, Construction, and Operation. Fred S. Dubin and Chalmers G. Long, Jr. McGraw-Hill, New York, 1978. xiv, 414 pp., illus. \$22.50. McGraw-Hill Series in Modern Structures. To order circle 562 on Reader Service Card.

Experimental Hematology Today 1978. Papers from a meeting, Basel, 1977. Siegmund J. Baum and G. David Ledney, Eds. Springer-Verlag, New York, 1978. xvi, 256 pp., illus. \$34.80. To order circle 558 on Reader Service Card.

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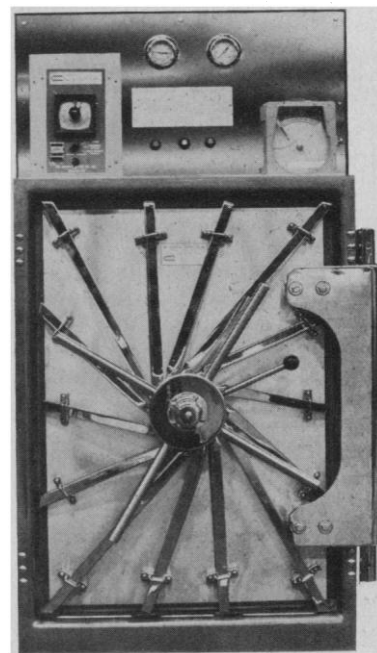
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Human Lymphocyte Differentiation. Its Application to Cancer. Proceedings of a symposium, Montpellier, France, Mar. 1978. B. Serrou and C. Rosenfeld, Eds. North-Holland, Amsterdam, 1978 (U.S. distributor, Elsevier, New York). xviii, 424 pp., illus. \$56.75. INSERM Symposium No. 8.

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Introduction to Insect Biology and Diversity. Howell V. Daly, John T. Doyen, and Paul R.

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Major Mental Handicap. Methods and Costs of Prevention. Papers from a symposium, London, Nov. 1977. Elsevier/Excerpta Medica/North-Holland, New York, 1978. viii, 226 pp., illus. \$23. Ciba Foundation Symposium 59 (new series).

The Management of Nutritional Emergencies in Large Populations. C. de Ville de Goyet, J. Seaman, and U. Geijer. World Health Organization, Geneva, 1978 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 98 pp., illus. Paper, \$8.

Man's Impact on the Troposphere. Lectures in Tropospheric Chemistry. Joel S. Levine and David R. Schryer, Eds. National Aeronautics and Space Administration, Washington, D.C., 1978 (available from the National Technical Information Service, Springfield, Va.). vi, 372 pp., illus. Paper, \$13. NASA Reference Publication 1022.

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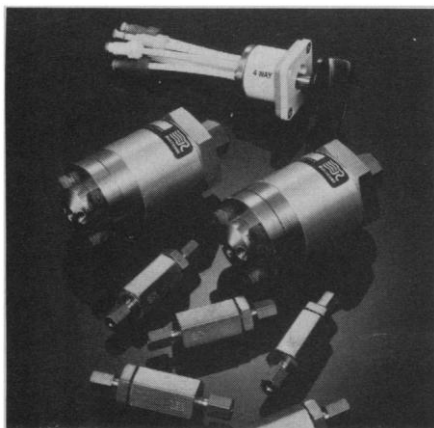
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Nonlinear Programming 3. Proceedings of a symposium, Madison, Wis., July 1977. Olvi L. Mangasarian, Robert R. Meyer, and Stephen M. Robinson, Eds. Academic Press, New York, 1978. x, 476 pp., illus. \$29.50.

Novel Sources of Coherent Radiation. Papers from a summer school, Telluride, Colo., Aug. 1977. Stephen F. Jacobs, Murray Sargent III, and Marlan O. Scully, Eds. Addison-Wesley Advanced Book Program, Reading, Mass., 1978. x, 402 pp., illus. \$27.50. Physics of Quantum Electronics, vol. 5. *To order circle 560 on Reader Service Card.*

Nuclear Power and Radioactive Waste. A Sub-Seabed Disposal Option? David A. Deese. Lexington (Heath), Lexington, Mass., 1978. xviii, 206 pp., illus. \$18.

Nuclear Safeguards Analysis. Nondestructive and Analytical Chemical Techniques. Papers from a symposium, Anaheim, Calif., Mar. 1978. American Chemical Society, Washington, D.C., 1978. x, 214 pp., illus. \$22. ACS Symposium Series 79. *To order circle 570 on Reader Service Card.*

Nuclear War Films. Jack G. Shaheen, Ed. Southern Illinois University Press, Carbondale, and Feffer and Simons, London, 1978. xx, 194 pp., illus. Paper, \$4.95.

Nucleic Acid Chemistry. Improved and New Synthetic Procedures, Methods and Techniques. Leroy B. Townsend and R. Stuart Tipson, Eds. Wiley-Interscience, New York, 1978. Two volumes. xxxii, 1068 pp. + index. \$70.

Of Wolves and Men. Barry Holstun Lopez. Scribner, New York, 1978. x, 310 pp., illus. \$14.95.

Perception. Julian E. Hochberg. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1978. vi, 280 pp., illus. Cloth, \$10.95; paper, \$6.95.

Perinatal Physiology. Uwe Stave, Ed. Plenum, New York, 1978. xxiv, 852 pp., illus. \$59.50. Second edition of *Physiology of the Perinatal Period*.

Permanents. Henryk Minc. Addison-Wesley Advanced Book Program, Reading, Mass., 1978. xviii, 206 pp. \$21.50. Encyclopedia of Mathematics and Its Applications, vol. 6. *To order circle 571 on Reader Service Card.*

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Pillis y Macehuals. Las Formaciones Sociales y los Modos de Producción de Tecali del Siglo XII al XVI. Mercedes Olivera. Centro de Investigaciones Superiores, Tlalpan, Mexico, 1978. 246 pp., illus. Paper, \$5.65. Ediciones de la Casa Chata, 6.

Polyamines as Biochemical Markers of Normal and Malignant Growth. Diane Haddock Russell and Brian G. M. Durie. Raven, New York, 1978. xiv, 178 pp., illus. \$22.50. Progress in Cancer Research and Therapy, vol. 8.

Polymer Blends. D. R. Paul and Seymour Newman, Eds. Academic Press, New York, 1978. Two volumes, illus. Vol. 1, xviii, 502 pp. \$47.50. Vol. 2, xviii, 436 pp. \$42.

Polymer Solutions Properties. J. J. Hermans, Ed. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1978 (distributor, Academic Press, New York). Two parts. Part 1, Statistics and Thermodynamics. xiv, 236 pp., illus. \$16.25. Part 2, Hydrodynamics and Light Scattering. xvi, 296 pp., illus. \$20.80. Benchmark Papers in Polymer Chemistry, vol. 1.

Positive Social Behavior and Mortality. Social and Personal Influences. Vol. 1. Ervin Staub. Academic Press, New York, 1978. xviii, 490 pp. \$19.50.

The Practicing Scientist's Handbook. A Guide for Physical and Terrestrial Scientists and Engineers. Alfred J. Moses. Van Nostrand Reinhold, New York, 1978. xii, 1292 pp., illus. \$52.50. *To order circle 573 on Reader Service Card.*

Principles of Ecology. Richard Brewer. Saunders, Philadelphia, 1979. vi, 300 pp., illus. Paper, \$8.95.

Proceedings of the Fourth Annual Conference on Restoration of Coastal Vegetation in Florida. Tampa, Fla., May 1977. Roy R. Lewis, III, and Dorothea P. Cole, Eds. Hillsborough Community College, Tampa, Fla., 1977. iv, 166 pp., illus. + appendix. Paper.

The Process of Question Answering. A Computer Simulation of Cognition. Wendy G. Lehnert. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). x, 278 pp. \$15.

A Programmed Review of Engineering Fundamentals. Allen J. Baldwin and Karen M. Hess. Van Nostrand Reinhold, New York, 1978. xvi, 288 pp., illus. \$19.95. *To order circle 574 on Reader Service Card.*

Programmers and Managers. The Routinization of Computer Programming in the United States. Philip Kraft. Springer-Verlag, New York, 1977. x, 118 pp. Paper, \$6.90. Heidelberg Science Library.

Programming for Minicomputers. J. C. Cluley. Crane, Russak, New York, and Arnold, London, 1978. viii, 276 pp. \$17.50. Computer Systems Engineering Series.

Progress in Allergy Vol. 25. Paul Kallós, Byron H. Waksman, and Alain L. de Weck, Eds. Karger, Basel, 1978. xiv, 242 pp., illus. \$64.75.

Progress in Cybernetics and Systems Research. Vol. 3, General Systems Methodology, Fuzzy Mathematics and Fuzzy Systems, Biocybernetics and Theoretical Neurobiology. Papers from a symposium. Robert Trappl, George J. Klir, and Luigi Ricciardi, Eds. Hemisphere, Washington, D.C., and Halsted (Wiley), New York, 1978. xiv, 674 pp., illus. \$40.

Progress in Inorganic Chemistry. Vol. 24. Stephen J. Lippard, Ed. Interscience (Wiley), New York, 1978. viii, 494 pp., illus. \$35.95.

Progress in Medical Virology. Vol. 24. Joseph L. Melnick, Ed. Karger, Basel, 1978. viii, 224 pp. \$70.50.

Progress in Molecular and Subcellular Biology. Vol. 6. F. E. Hahn, H. Kersten, W. Kersten, and W. Szybalski, Eds. Springer-Verlag, New York, 1978. xii, 354 pp., illus. \$43. *To order circle 575 on Reader Service Card.*

Progress in Solid State Chemistry. Vol. 11. J. O. McCaldin and G. Somorjai, Eds. Pergamon, New York, 1978. viii, 472 pp., illus. \$40. *To order circle 576 on Reader Service Card.*

Prostaglandins. Physiology, Pharmacology and Clinical Significance. David F. Horrobin. Eden Press, St. Albans, Vt., 1978. viii, 392 pp. \$18.

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The Radiobiology of Human Cancer Radiotherapy. J. Robert Andrews. University Park Press, Baltimore, ed. 2, 1978. xvi, 592 pp., illus. \$39.50.

The Rare Earths in Modern Science and Technology. Proceedings of a conference, Wheeling, W.Va., Oct. 1977. Gregory J. McCarthy and J. J. Rhyne, Eds. Plenum, New York, 1978. xvi, 630 pp., illus. \$49.50.

Receptor Binding Studies in Adrenergic Pharmacology. Lewis T. Williams and Robert J. Lefkowitz. Raven, New York, 1978. x, 158 pp., illus. \$16.50.

Receptors and Hormone Action. Vol. 3. Lutz Birnbaumer and Bert W. O'Malley, Eds. Academic Press, New York, 1978. xxiv, 624 pp., illus. \$49.

Réflexions sur la Science. Reflections on Science. Lew Kowarski. Original texts 1947-1977 edited by Gabriel Minder. Institut Universitaire de Hautes Etudes Internationales, Geneva, 1978. 272 pp. Paper, Sw.F. 30.

Rehabilitation Counseling. Theory and Practice. Brian Bolton and Marceline E. Jaques, Eds. University Park Press, Baltimore, 1978. xiv, 290 pp. Paper, \$13.50. Reprinted from *Rehabilitation Counseling Bulletin*.

Reliving Past Lives. The Evidence under Hypnosis. Helen Wambach. Harper and Row, New York, 1978. viii, 200 pp. \$8.95.

Research and Development and School Change. Papers from a symposium, Pittsburgh, Mar. 1976. Robert Glaser, Ed. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xvi, 110 pp. \$10.

A Review of Amino Acid Transport Processes in Animal Cells and Tissues. Joseph Lerner. University of Maine at Orono Press, Orono, 1978. xvi, 234 pp. \$20.

The Rivers Amazon. Alex Shoumatoff. Sierra Club Books, San Francisco, 1978. viii, 258 pp. + plates. \$10.

The Road to the Stars. Iain Nicolson. Morrow, New York, 1978. 224 pp., illus. \$14.95.

The Rocket. The History and Development of Rocket and Missile Technology. David Baker. Crown, New York, 1978. 276 pp., illus. \$17.95.

A Summary of Research in Science Education—1976. John W. Renner, Michael R. Abraham, and Don G. Stafford. Interscience (Wiley), New York, 1978. viii, 144 pp. Paper, \$8.95. A Supplement to *Science Education*.

Swimming Medicine IV. Proceedings of a congress, Stockholm, June 1977. Bengt Eriksson and Bengt Furberg, Eds. University Park Press, Baltimore, 1978. xx, 422 pp., illus. \$29.50. International Series on Sport Sciences, vol. 6.

Syntactic Pattern Recognition. An Introduction. Rafael C. Gonzalez and Michael G. Thomason. Addison-Wesley Advanced Book Program, Reading, Mass., 1978. xx, 284 pp., illus. Cloth, \$29.50; paper, \$17.50. Applied Mathematics and Computation, No. 14. To order circle 577 on Reader Service Card.

Tectonics and Geophysics of Continental Rifts. Volume 2 of the proceedings of the NATO Advanced Study Institute, Oslo, Norway, July 1977. I. B. Ramberg and E.-R. Neumann, Eds. Reidel, Boston, 1978. xvi, 444 pp., illus. \$36. NATO Advanced Study Institute Series C, vol. 37.

Teonanácatl. Hallucinogenic Mushrooms of North America. Papers from a conference, Port Townsend, Wash., Oct. 1977. Jonathan

Ott and Jeremy Bigwood, Eds. Madrona, Seattle, 1978. x, 178 pp., illus. + plates. Cloth, \$14.50; paper, \$8.95.

Textbook of Nuclear Medicine. Basic Science. Antonio Fernando Gonçalves Rocha and John Charles Harbert. Lea and Febiger, Philadelphia, 1978. xx, 412 pp., illus. \$27.50.

Theory of Planetary Atmospheres. An Introduction to Their Physics and Chemistry. Joseph W. Chamberlin. Academic Press, New York, 1978. xiv, 330 pp., illus. \$29.50. International Geophysics Series, vol. 22.

Thermodynamic Formalism. The Mathematical Structures of Classical Equilibrium Statistical Mechanics. David Ruelle. Addison-Wesley Advanced Book Program, Reading, Mass., 1978. xx, 184 pp. \$21.50. Encyclopedia of Mathematics and Its Applications, vol. 5. To order circle 578 on Reader Service Card.

Topographic Positions of the Measurement Points in Electro-Acupuncture. Vol. 3. Reinhold Voll. Translated from the German edition (Uelzen, 1978) by Hartwig Schuldt. Medizinisch, Literarische Verlagsgesellschaft, Uelzen, Germany, 1978 (U.S. distributor, ISBS, Forest Grove, Ore.). 152 pp., illus. \$67.50. To order circle 579 on Reader Service Card.

Toward Paperless Information Systems. F. W. Lancaster. Academic Press, New York, 1978. xii, 180 pp., illus. \$13.50. Library and Information Science.

The Tree Key. A Guide to Identification in Garden, Field and Forest. Herbert Edlin. Illustrated by Ian Garrard. Scribner, New York, 1978. 280 pp. Cloth, \$14.95; paper, \$8.95.

Two Centuries of Federal Information. Burton W. Adkinson. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1978 (distributor, Academic Press, New York). xiv, 236 pp., illus. \$26. Publications in the Information Sciences.

United Nations Water Conference. Summary and Main Documents. Mar del Plata, Argentina, Mar. 1977. Asit K. Biswas, Ed. Published for the United Nations by Pergamon, New York, 1978. xviii, 218 pp. \$28. Water Development, Supply and Management, vol. 2. To order circle 580 on Reader Service Card.

Wetting, Spreading and Adhesion. Papers from a symposium, Loughborough, Leicestershire, England, Sept. 1976. J. F. Padday, Ed. Academic Press, New York, 1978. xiv, 498 pp., illus. \$48.90.

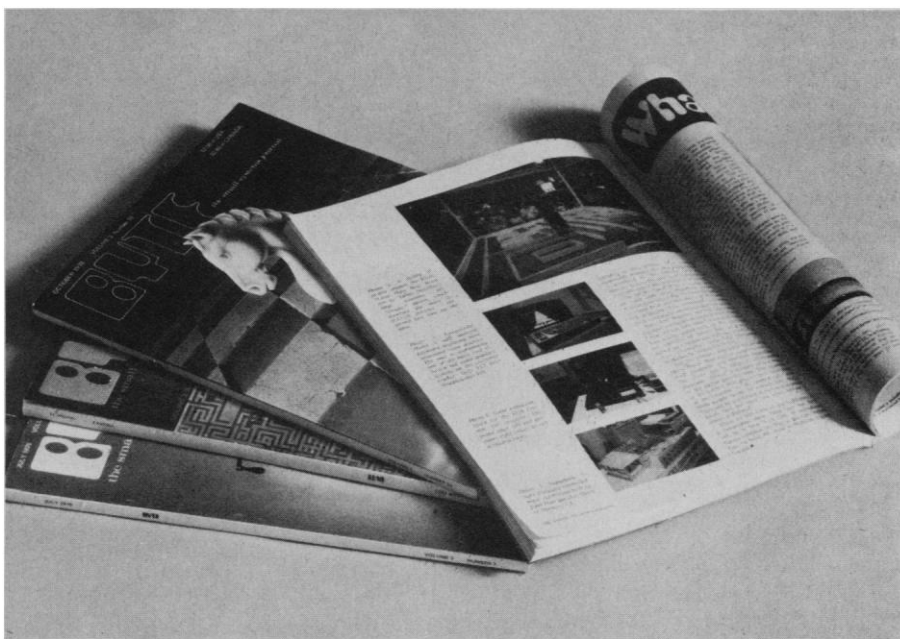
What Is Sociology? Norbert Elias. Translated from the German edition (Munich, 1970) by Stephen Mennell and Grace Morrissey. Columbia University Press, New York, 1978. 188 pp. \$13.50. European Perspectives Series.

Wind Forces in Engineering. Peter Sachs. Pergamon, New York, ed. 2, 1978. x, 400 pp., illus. \$40. To order circle 581 on Reader Service Card.

Women's Proper Place. A History of Changing Ideals and Practices. 1870 to the Present. Sheila M. Rothman. Basic, New York, 1978. xiv, 322 pp. + plates. \$12.50.

World Energy Demand. World Energy Resources 1985-2020. Published for the WEC by IPC Science and Technology Press, Guildford, Surrey, England, 1978. x, 110 pp., illus. \$31.20. Full Reports to the Conservation Commission of the World Energy Conference.

Zelldifferenzierung. Molekulare Grundlagen und Probleme. Lutz Nover, Martin Luckner, and Benno Parthier, Eds. Gustav Fischer Verlag, Jena, East Germany, 1978. 582 pp., illus. Paper, 79 M.



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