

cides. What sets this book apart is its frank assessment of the contributions likely to be made by various lines of research and its concern with the international aspects of pest control.

The authors recognize that special efforts will have to be made to bring into use chemicals that would not be developed by traditional commercial means. Clearly, a highly selective insecticide has a smaller market than a broad-spectrum chemical. Also, Roelofs discusses the difficulty of patenting natural products such as pheromones.

The Future for Insecticides reminds us that we cannot as yet do without insecticides; that new biodegradable, selective chemicals are needed; that industry should be assisted in the development of a new generation of insecticides; and, finally, that international coordination of university, governmental, and industrial efforts to improve chemical control is highly desirable—even essential.

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Proteins and Nucleotides

Structure and Conformation of Nucleic Acids and Protein-Nucleic Acid Interactions. Proceedings of a symposium, Madison, Wis., June 1974. M. SUNDARALINGAM and S. T. RAO, Eds. University Park Press, Baltimore, 1975. xxiv, 752 pp., illus. \$44.50.

During the past decade enormous strides have been made in research on nucleic acid conformation and protein-nucleic acid interactions, owing in large part to the development of excellent systems and methodology for high-resolution x-ray diffraction and nuclear magnetic resonance studies and also to the improvement of theoretical procedures for analyzing preferred conformations of nucleic acids. These developments and the excitement of this field are well captured in the book under review, which comprises 44 articles contributed by investigators from around the world who met at the fourth annual Harry Steenbock symposium.

Some of the most exciting advances in the study of nucleic acid structure have centered around transfer RNA. High-resolution structures of yeast-phenylalanine-specific transfer RNA have been obtained by Kim and Rich and collaborators at the Massachusetts Institute of Technology and by Klug and co-workers at the Medical Research Council Labora-

tories in England. Simultaneously, intensive physical studies of transfer RNA in solution have been conducted by many groups. Particularly prominent among these studies have been high-resolution nuclear magnetic resonance investigations, although relaxation kinetics and laser Raman spectroscopy have also played an important role. The volume provides a good overview of many of these important approaches and of some of the major conclusions obtained from such studies.

Another section of the volume contains an unusually attractive integration of crystallographic studies on a number of different protein-nucleotide or protein-nucleotide-coenzyme complexes. One of the major developments in biological crystallography during the past few years has been the discovery of homologous structural elements in a diversity of nucleotide-binding enzymes. This subject is nicely reviewed by Rossmann, a leader in this field. In addition to Rossmann's contribution, there are a variety of other articles dealing with various complexes in which important structural information has emerged. This section, summarizing the exciting work on complexes, is an outstanding feature of the book.

Another major portion deals with conformational features of nucleic acids. This is a broad treatment of principles and general features and is not restricted to a particular system such as transfer RNA. In this case the articles span a wide range of related topics. Much of the material has to do with stereochemical and other factors that are determinants of nucleic acid conformation. Also included are experimental results on simple systems that can be subjected to detailed theoretical analysis. Thus, this section may be viewed as a summary of the foundation that currently exists for a rational understanding of nucleic acid conformation. Some of this material should be of long-lasting value.

The book clearly provides good coverage of some of the most exciting work on nucleic acid conformation and interactions. The quality of the contributions of course varies. However, throughout the book the emphasis is on key results, with experimental details generally omitted, and the reader can quickly extract the crucial ideas. Unfortunately, much of the work on transfer RNA's that is summarized is out of date. This is due in part to the fact that high-resolution structures for transfer RNA were not announced until after the meeting. Also, the volume omits consideration of many of the most important protein-nucleic

acid systems. For example, detailed discussions of the interactions of aminoacyl transfer RNA synthetases with transfer RNA's, of *lac* repressor with *lac* operator, and of ribosomal proteins with ribosomal RNA are lacking. However, the excellent and broad coverage given to many other areas offsets some of these omissions, and the value of some of the material makes up for that which has been outdated.

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Books Received

Astronomy Made Simple. Meir H. Degani. Doubleday, Garden City, N.Y., ed. 3, 1976. xii, 228 pp., illus. Paper, \$2.50. Made Simple Books.

Caring. Willar Gaylin. Knopf, New York, 1976. xii, 200 pp. + index. \$7.95.

Cereal Seed Technology. A Manual of Cereal Seed Production, Quality Control, and Distribution. Papers from a course, Lund, Sweden, June–Sept. 1972. Walther P. Feistritzer, Ed. Food and Agriculture Organization of the United Nations, Rome, 1975 (U.S. distributor, Unipub, New York). xxiv, 238 pp., illus. Paper, \$11. FAO Agricultural Development Paper, No. 98.

The Conservation Response. Strategies for the Design and Operation of Energy-Using Systems. Lloyd J. Dumas. Lexington (Heath), Lexington, Mass., 1976. xviii, 290 pp. \$14.

Expanding Health Care Horizons. From a General Systems Concept of Health to a National Health Policy. Henrik L. Blum. Third Party Associates, Oakland, Calif., 1976. xviii, 218 pp. Paper, \$9.95.

Eyewitness to Disaster. Dan Perkes. Hammond, Maplewood, N.J., 1976. xviii, 240 pp., illus. \$12.95.

Human Diversity. Its Causes and Social Significance. Proceedings of a series of seminars, 1973–1974. Bernard D. Davis and Patricia Flaherty, Eds. Ballinger (Lippincott), Cambridge, Mass., 1976. xvi, 248 pp. \$13.50.

The Human Revolution. From Ape to Artist. Desmond Collins. Phaidon, Oxford, England, and Dutton, New York, 1976. 208 pp., illus. Paper, \$8.95.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. International Agency for Research on Cancer, Lyon, 1976 (U.S. distributor, Q Corporation, Albany, N.Y.). Vol. 10, Some Naturally Occurring Substances. 354 pp., illus. Paper, \$15.20. Vol. 11, Cadmium, Nickel, Some Epoxides, Miscellaneous Industrial Chemicals and General Considerations on Volatile Anaesthetics. 306 pp. Paper, \$13.60.

The Indian Legacy of Charles Bird King. Herman J. Viola. Smithsonian Institution Press, Washington, D.C., and Doubleday, New York, 1976. 152 pp., illus. \$14.95.

An Introduction to Tensegrity. Anthony Pugh. University of California Press, Berkeley, 1976. x, 122 pp., illus. Paper, \$4.95.

Jobs for Americans. Published for the American Assembly by Prentice-Hall, Englewood

(Continued on page 214)



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Applications Invited for AAAS Congressional Science Fellowships

The American Association for the Advancement of Science invites applications for the fifth year of its Congressional Science and Engineering Fellow Program. (See *Science*, 7 January 1977, page 55)

The Program selects postdoctoral level to midcareer scientists and engineers to spend one year working in some area of Congress. In the past four years, 19 AAAS Fellows have been in positions in the House and Senate and the Office of Technology Assessment. Each Program year includes AAAS Fellows as well as several other Fellows selected by six or more cooperating affiliated professional societies.

The award is \$16,000 for the period of one year, beginning 1 September 1977, and includes an additional \$1000 for moving and travel expenses. Interested applicants requiring a higher stipend are encouraged to discuss their situation with the program director. The AAAS provides a two-week orientation. Each Fellow chooses his or her own assignment with guidance from the AAAS.

Candidates may apply from any physical, biological or behavioral science or field of engineering, as well as from the system sciences, public health, and other technical professional areas. Candidates must be members of the AAAS or concurrently applying for membership.

Information on the selection criteria, application procedure, and program details are available from Dr. Richard A. Scribner, Director, AAAS Congressional Science Fellow Program, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036. The deadline for application is 31 March 1977. Announcement of the awards will be made before 15 May 1977.

BOOKS RECEIVED

(Continued from page 170)

Cliffs, N.J., 1976. vii, 215 pp. Paper, \$4.50. A Spectrum Book.

The Patronage of Science in the Nineteenth Century. R. Fox, J. B. Morrell, D. S. L. Cardwell, R. M. MacLeod, and W. H. Brock. G. L'E. Turner, Ed. Noordhoff, Leyden, The Netherlands, 1976. vi, 218 pp. Dfl. 55.

Photoionization and Other Probes of Many-Electron Interactions. Proceedings of a NATO Advanced Study Institute, Carry-le-Rouet, France, Aug. 1975. F. J. Willeumier, Ed. Plenum, New York, 1976. xvi, 472 pp., illus. \$45.

Piaget and His School. A Reader in Developmental Psychology. Bärbel Inhelder, Harold H. Chipman, and Charles Zwingmann, Eds. Springer-Verlag, New York, 1976. xiv, 302 pp. Paper, \$14.80. Springer Study Edition.

Polyhedra. A Visual Approach. Anthony Pugh. University of California Press, Berkeley, 1976. x, 118 pp., illus. Paper, \$4.95.

Postbuckling Behavior of Structures. M. Eslinger and B. Geier. Springer-Verlag, New York, 1975. 280 pp., illus. Paper, \$7.40. International Centre for Mechanical Sciences Courses and Lectures, No. 236.

Programming Electronic Switching Systems. Real-Time Aspects and Their Language Implications. M. T. Hills and S. Kano. Published for the Institution of Electrical Engineers by Peregrinus, Stevenage, England, 1976 (U.S. distributor, International Scholarly Book Services, Forest Grove, Ore.). viii, 208 pp., illus. \$22.50. IEE Telecommunications Series 3.

Progress in Allergy. Vol. 20. Paul Kallós, Byron H. Waksman, and Alain de Weck, Eds. Karger, Basel, 1976. xii, 340 pp. \$51.75.

Quantum Biochemistry and Specific Interactions. Zeno Simon. Translated from the Romanian edition (Bucharest, 1973). Abacus Press, Tunbridge Wells, Kent, England, 1976 (U.S. distributor, International Scholarly Book Services, Forest Grove, Ore.). 252 pp., illus. \$30.

The Radio Amateur's Handbook. A Frederick Collins. Revised by Robert Hertzberg. Crowell, New York, ed. 13, 1976. vi, 378 pp., illus. \$8.95.

RNA Polymerase. R. Losick and M. Chamberlin, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1976. x, 900 pp., illus. \$38. Cold Spring Harbor Monograph Series.

Safety. Concepts and Instruction. Alton L. Thygeson. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1976. xii, 130 pp., illus. Paper, \$4.95.

Scientist as Subject. The Psychological Imperative. Michael J. Mahoney. Ballinger (Lippincott), Cambridge, Mass., 1976. xiv, 250 pp. \$13.50

Secrets of the Deep. Stephen Spotte. Drawings by Gordy Allen. Scribner, New York, 1976. x, 146 pp. \$7.95.

Sex Education in Medicine. Proceedings of a conference, Airlie House, Va., Apr. 1974. Harold I. Lief and Arno Karlen, Eds. Spectrum, New York, 1976 (distributor, Halsted [Wiley], New York). xviii, 156 pp. \$12.95.

Social Behavior in Vertebrates. Anthony Payne. Heinemann, London, 1976 (U.S. distributor, Humanities Press, Atlantic Highlands, N.J.). vi, 146 pp., illus. \$6.75. The Scholarship Series in Biology.

Social Limits to Growth. Fred Hirsch. Harvard University Press, Cambridge, Mass.,

1976. xii, 208 pp. \$10. A Twentieth Century Fund Study.

Specifications for the Identity and Purity of Some Food Colours, Flavour Enhancers, Thickening Agents and Certain Other Food Additives. Food and Agriculture Organization of the United Nations, Rome, 1975 (U.S. distributor, Unipub, New York). 216 pp., illus. Paper, \$7.

Sperm Action. Proceedings of a seminar, Brussels, May 1975. P. O. Hubinont, M. L'Hermite, and J. Schwes, Eds. Karger, Basel, 1976. xii, 314 pp., illus. \$40.75. Progress in Reproductive Biology, vol. 1.

Xth International Symposium on Fruit Tree Virus Diseases. Heidelberg, Sept. 1976. Biologische Bundesanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, 1976. 122 pp. Paper, DM 15.80. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft, Heft 170.

Theoretical Inorganic Chemistry II. Springer-Verlag, New York, 1976. iv, 154 pp., illus. \$22.20. Topics in Current Chemistry 65.

A Theory of Elasticity with Microstructure for Directionally Reinforced Composites. J. D. Achenbach. Springer-Verlag, New York, 1975. 140 pp., illus. Paper, \$12.30. International Centre for Mechanical Sciences Courses and Lectures, No. 167.

Toughness and Brittleness of Plastics. Papers from a symposium, Atlantic City, N.J., Sept. 1974. Rudolph D. Deanin and Aldo M. Crugnola, Eds. American Chemical Society, Washington, D.C., 1976. xii, 412 pp., illus. \$38. Advances in Chemistry Series, 154.

Tropical Pasture Seed Production. L. R. Humphreys. Food and Agriculture Organization of the United Nations, Rome, 1976 (U.S. distributor, Unipub, New York). x, 116 pp., illus. Paper, \$4.

Turbulence. P. Bradshaw, Ed. Springer-Verlag, New York, 1976. xii, 336 pp., illus. \$39.80. Topics in Applied Physics, vol. 12.

UFOlogy. James M. McCampbell. Celestial Arts, Millbrae, Calif., 1976. xvi, 188 pp. Paper, \$4.95.

Untersuchungen über die morphologische und biologische Differenzierung in der Fusarium-Sektion Liseola. Helgard Nirenberg. Biologische Bundesanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, 1976. vi, 118 pp., illus. Paper, DM 16.90. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft, Heft 169.

U.S. Observatories. A Directory and Travel Guide. H. T. Kirby-Smith. Van Nostrand Reinhold, New York, 1976. 174 pp., illus. Cloth, \$11.95; paper, \$6.95.

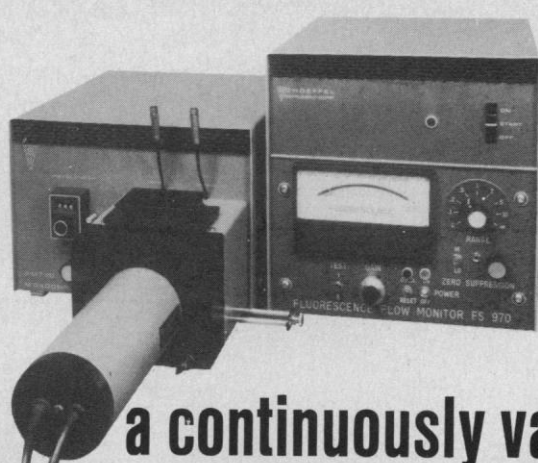
Violence in Animal and Human Societies. Arthur G. Neal, Ed. Nelson Hall, Chicago, 1976. viii, 232 pp. \$11.

Water Publications of State Agencies. First Supplement, 1971-1974. A Bibliography of Publications on Water Resources and Their Management Published by the States of the United States. Gerald J. Giefer and David K. Todd, Eds. Water Information Center, Huntington, N.Y., 1976. xx, 190 pp. \$23.

What We Really Know about Child Rearing. Science in Support of Effective Parenting. Seymour Fisher and Rhoda L. Fisher. Basic, New York, 1976. x, 262 pp. \$12.50.

The World's Cats. Vol. 3. No. 2, Contributions to Biology, Ecology, Behavior and Evolution. Proceedings of a symposium, Apr. 1974. Randall L. Eaton, Ed. Carnivore Research Institute, Burke Museum, University of Washington, Seattle, 1976. vi, 178 pp. Paper, \$8.

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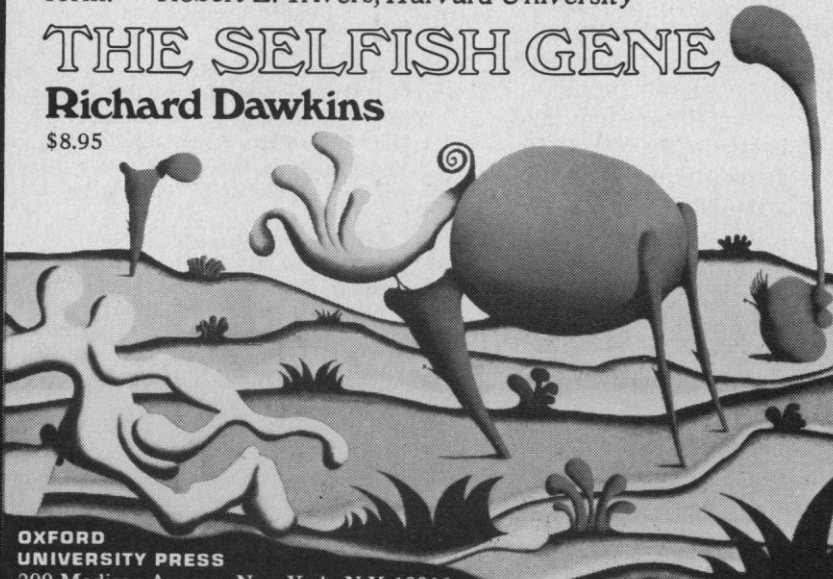
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