

mind are currently under investigation; Helliwell describes these important studies in effective detail.

By describing the various ways in which synchrotron radiation can be used in diffraction studies of crystals, Helliwell has shown the enormous impact it can have on the elucidation of both the structure and the function of macromolecules. Anyone with an interest in macromolecular structure determination and enzyme mechanisms should consult this informative, well-produced, and profusely illustrated book. Those working directly in the field of macromolecular structure determination will find the volume indispensable.

Jenny P. Glusker

Institute for Cancer Research,
Fox Chase Cancer Center,
Philadelphia, PA 19111

Anatomical Beginnings

Morphogenesis. An Analysis of the Development of Biological Form. EDWARD F. ROSSOMANDO and STEPHEN ALEXANDER, Eds. Dekker, New York, 1992. viii, 449 pp., illus. \$165.

In embryonic development only a few days are required to transform a single cell, the fertilized egg, into a free-living multicellular larva possessing a variety of cell types that, in turn, are organized into the functionally adaptive patterns of the tissues and organs. Embryonic morphogenesis is the ensemble of processes that cooperate to organize the differentiating cells and tissues of the embryo into the patterned arrays that characterize the mature tissues, organs, and overall body form of the larva and the adult. Categories of morphogenetic process include morphogenetic movement, differential growth, morphogenetic cell death, and pattern formation. The embryo can move cells or tissues from one location to another (morphogenetic movement), can restrict increases in tissue volume to selected sites or along selected axes (differential growth), and can eliminate cells at selected locations (morphogenetic cell death). Undifferentiated tissues at various locations in the embryo can be stimulated to differentiate into the particular tissues destined to occupy those individual sites (pattern formation). Pattern formation itself encompasses a number of processes, including embryonic induction, the action of diffusible morphogens, and ooplasmic localization.

Our understanding of the mechanisms of embryonic morphogenesis has greatly im-

proved in recent years, thanks largely to technical and intellectual advances in cell and molecular biology. The techniques of gene cloning, in situ hybridization, and gene transfection, coupled with a better understanding of the regulation of gene transcription, have made possible a molecular-genetic approach to understanding the spatially regulated cell differentiation that is the basis of pattern formation. Progress in the biochemistry of cellular adhesion has inaugurated investigation of directed cell motility in terms of specific molecules. The identification of peptide growth factors has advanced our understanding both of tissue growth and of embryonic induction.

In compiling this multiauthor volume Rossomando and Alexander have focused on the embryonic morphogenesis of specific organisms. The individual chapters of *Morphogenesis* are devoted to descriptions of the morphogenetic processes utilized by a wide array of organisms studied by experimental embryologists, including prokaryotes (the mycobacteria), lower eukaryotes (*Dictyostelium* and *Aspergillus*), and a variety of animals. The higher eukaryotes discussed include such stalwarts as hydras and the embryos of the fruit fly, sea urchin, amphibian, bird, and mouse. Important omissions include higher plants (*Arabidopsis*) and teleosts (*Brachydanio*). The quality of the individual reviews is high, even though the constraints of brevity conflict with the depth and breadth of current knowledge of morphogenetic mechanisms for many of the selected species. Noteworthy are the chapters on development of the embryos of tunicates, amphibians, sea urchins, and *Drosophila*. Tunicate development exemplifies the importance of ooplasmic determinants in subsequent tissue patterning; the sea urchin and amphibian embryos are especially well characterized with regard to the details of the morphogenetic movements of early development; and *Drosophila* is the best-characterized model for understanding the genetic basis for early pattern formation and embryonic segmentation.

Morphogenesis would have been improved by the inclusion of a synthetic chapter that reviewed the subject on the basis of morphogenetic mechanism and drew on examples from throughout the animal, plant, and microbial kingdoms, rather than centering around a particular organism. Despite this weakness, the volume will be useful for advanced undergraduate and graduate students and for university instructors seeking up-to-date reviews of embryogenesis of selected model organisms.

Peter B. Armstrong

Department of Zoology,
University of California,
Davis, CA 95616-8755

Books Received

Aerosol Effects on Climate. S. Gerard Jennings, Ed. University of Arizona Press, Tucson, 1993. xii, 305 pp., illus. \$40.

AIDS in the World. Global AIDS Policy Coalition. Jonathan M. Mann, Daniel J. M. Tarantola, and Thomas W. Netter, Eds. Harvard University Press, Cambridge, MA, 1992. xvi, 1037 pp., illus. \$45; paper, \$19.95.

Air Pollution Modeling and Its Application IX. Han van Dop and George Kallos, Eds. Plenum, New York, 1992. xii, 803 pp., illus. \$165. NATO Challenges of Modern Society, vol. 17. From a meeting, Crete, Sept. 1991.

Biological Oxidants. Generation and Injurious Consequences. Charles G. Cochrane and Michael A. Gimbrone, Jr., Eds. Academic Press, San Diego, CA, 1992. x, 253 pp., illus. \$69.95. Cellular and Molecular Mechanisms of Inflammation, vol. 4.

Biology as Ideology. The Doctrine of DNA. R. C. Lewontin. HarperPerennial, New York, 1993. x, 128 pp. Paper, \$10. Reprint, 1991 ed.

Cancer Treatment and the Heart. Franco M. Muggia, Michael D. Green, and James L. Speyer, Eds. Johns Hopkins University Press, Baltimore, MD, 1992. x, 390 pp., illus. \$125. Johns Hopkins Series in Hematology/Oncology.

Carp and Pond Fish Culture. Including Chinese Herbivorous Species, Pike, Tench, Zander, Wels Catfish and Goldfish. László Horváth, Gizella Tamás (Horváth), and Chris Seagrave. Blackwell Scientific, Oxford, and Wiley, New York, 1992. x, 158 pp., illus. \$69.95.

The Chemistry of Life. Martin Olomucki. McGraw-Hill, New York, 1993. 132 pp. Paper, \$9.95. Horizons of Science Series. Translated from the French edition (Paris, 1991).

Coherent Radiation Generation and Particle Acceleration. A. M. Prokhorov et al., Eds. American Institute of Physics, New York, 1992. xviii, 511 pp., illus. \$120. Research Trends in Physics. From a conference, La Jolla, CA, Feb. 1991.

Developmental Psychobiology. Gerald Turkewitz, Ed. New York Academy of Sciences, New York, 1992. x, 189 pp., illus. \$50. Annals of the New York Academy of Sciences, vol. 662. From symposia, spring 1990.

Dictionary of Global Climate Change. W. John Maunder, compiler. UCL Press, London, and Chapman and Hall, New York, 1992. xxii, 240 pp. \$45. Contribution of the Stockholm Environment Institute to the Second World Climate Conference.

Eastern North American Mesozoic Magmatism. John H. Puffer and Paul C. Ragland. Geological Society of America, Boulder, CO, 1992. x, 406 pp., illus. Paper, \$78. Special Paper 268.

The Ecological Vision. Reflections on the American Condition. Peter F. Drucker. Transaction Publishers, New Brunswick, NJ, 1993. viii, 466 pp. \$34.95.

Eight Little Piggies. Reflections in Natural History. Stephen Jay Gould. Norton, New York, 1993. 479 pp., illus. \$22.95.

Fleeting Footsteps. Tracing the Conception of Arithmetic and Algebra in Ancient China. Lam Lay Yong and Ang Tian Se. World Scientific, River Edge, NJ, 1992. xvi, 199 pp., illus. \$24.

Foundations of Philosophy of Science. Recent Developments. James H. Fetzer, Ed. Paragon House, New York, 1993. xviii, 512 pp., illus. Paper, \$28.95. Paragon Issues in Philosophy.

Frontiers in Cognitive Neuroscience. Stephen M. Kosslyn and Richard A. Andersen, Eds. MIT Press, Cambridge, MA, 1992. xxx, 699 pp., illus. \$70. Reprints, with general introductions, of 55 articles, 1962-1992.

Fungi in Vegetation Science. W. Winterhoff, Ed. Kluwer, Norwell, MA, 1992. x, 258 pp., illus. \$109. Handbook of Vegetation Science, vol. 19/1.

Genetic Interactions Among Microorganisms in the Natural Environment. Elizabeth M. H. Wellington and Jan D. van Elsas, Eds. Pergamon, Tarrytown, NY, 1992. x, 303 pp., illus. \$130.

Fleeting Footsteps. Tracing the Conception of Arithmetic and Algebra in Ancient China. Lam Lay Yong and Ang Tian Se. World Scientific, River Edge, NJ, 1992. xvi, 199 pp., illus. \$24.

Foundations of Philosophy of Science. Recent Developments. James H. Fetzer, Ed. Paragon House,

Fluorescence Spectroscopy: Chances are, it belongs in your lab

Fluorescence spectroscopy plays a critical role in life science, chemistry, and physics laboratories. Researchers use fluorescence for a wide variety of unique applications:

- Protein dynamics and membrane fluidity studies using native fluorophores or fluorescent probes
- Binding studies
- Lipid characterization
- Antibody-antigen interactions
- DNA quantitation and melting
- Polymer characterization
- Photochemistry/photophysics



Fluorescence techniques are incredibly sensitive, have a wide dynamic range, can measure molecular distances, and can distinguish dynamic events occurring on a nanosecond time scale.

SLM-AMINCO® has the experience and the instrumentation to put this powerful tool to work for you. Call us.

SLM-AMINCO®
A Milton Roy Company

810 W. Anthony Drive, Urbana, IL 61801

217-384-7730 1-800-637-7689

Circle No. 54 on Readers' Service Card

New York, 1993. xviii, 512 pp., illus. Paper, \$28.95. Paragon Issues in Philosophy.

The History of Early Nuclear Physics (1896-1931). Milorad Mladjenović. World Scientific, River Edge, NJ, 1992. x, 217 pp., illus. \$48.

Human Chromosomes. Structure, Behavior, and Effects. Eeva Therman and Millard Susman. 3rd ed. Springer-Verlag, New York, 1993. xviii, 376 pp., illus. Paper, \$39.50. Springer Study Edition.

In Vitro Cultivation of Micro-organisms. Published for Open Universiteit and Thames Polytechnic by Butterworth-Heinemann, Stoneham, MA, 1992. x, 326 pp., illus. Paper, \$29.95. BIOTOL: Biotechnology by Open Learning.

Industrial Environmental Chemistry. Waste Minimization in Industrial Processes and Remediation of Hazardous Waste. Donald T. Sawyer and Arthur E. Martell, Eds. Plenum, New York, 1992. xii, 312 pp., illus. \$89.50. Industry-University Cooperative Chemistry Program Symposia. From a symposium, College Station, TX, March 1992.

Insight and Industry. On the Dynamics of Technological Change in Medicine. Stuart S. Blume. MIT Press, Cambridge, MA, 1992. xiv, 306 pp., illus. \$30. Inside Technology.

Integration of Ecosystem Theories. A Pattern. Sven Erik Jørgensen. Kluwer, Norwell, MA, 1992. 383 pp., illus. \$165. Ecology and Environment, vol. 1.

Intense Dynamic Loading of Condensed Matter. A. V. Bushman *et al.* Taylor and Francis, Philadelphia, 1993. x, 287 pp., illus. \$124.50. Translated from the Russian edition (1988) by S. Chomet.

The Last Interglacial-Glacial Transition in North America. Peter U. Clark and Peter D. Lea, Eds. Geological Society of America, Boulder, CO, 1992. vi, 317 pp., illus. Paper, \$62.50. GSA Special Paper 270. From a symposium, Denver, 1988.

Linking Trade and Technology Policies. An International Comparison of the Policies of Industrialized Nations. Martha Caldwell Harris and Gordon E. Moore, Eds. National Academy Press, Washington, DC, 1992. x, 166 pp., illus. Paper, \$21. Series on Prospering in a Global Economy. From a symposium, Washington, DC, June 1991.

Mathematical Modeling in the Life Sciences. Paul Doucet and Peter B. Sloop. Horwood (Prentice Hall), Englewood Cliffs, NJ, 1992. xiv, 490 pp., illus. \$76.95; paper, \$33.95. Mathematics and Its Applications.

Mortality Patterns and Trends in the United States. Paul E. Zopf, Jr. Greenwood, New York, 1992. xx, 283 pp., illus. \$59.95. Studies in Population and Urban Demography, no. 7.

Multiple Comparisons, Selection, and Applications in Biometry. A Festschrift in Honor of Charles W. Dunnett. Fred M. Hoppe, Ed. Dekker, New York, 1993. xii, 558 pp., illus. \$135. Statistics: Textbooks and Monographs, 134. From a symposium, Hamilton, Canada.

Neuro-Immuno-Physiology of the Gastrointestinal Mucosa. Implications for Inflammatory Diseases. Ron H. Stead *et al.*, Eds. New York Academy of Sciences, New York, 1992. x, 464 pp., illus. \$120. Annals of the New York Academy of Sciences, vol. 664. From a conference, Tucson, Jan. 1992.

The Neurobiology of Neurotensin. Patrick Kitabgi and Charles B. Nemeroff, Eds. New York Academy of Sciences, New York, 1992. xiv, 374 pp., illus. \$100. Annals of the New York Academy of Sciences, vol. 668. From a conference, Palm Beach, July 1991.

Physically-Based Modeling for Computer Graphics. A Structure Approach. Ronen Barzel. Academic Press, San Diego, CA, 1992. xxiv, 334 pp. illus. \$39.95.

Physics of Polymer Surfaces and Interfaces. Isaac C. Sanchez and Lee E. Fitzpatrick, Eds. Manning, Greenwich, CT, and Butterworth-Heinemann, Stoneham, MA, 1992. xii, 336 pp., illus. \$69.95.

Physiopathological Processes of Aging. Towards a Multicausal Interpretation. Nicola Fabris *et al.*, Eds. New York Academy of Sciences, New York, 1992. x, 368 pp., illus. Paper, \$90. Annals of the New York Academy of Sciences, vol. 673. From a congress, Ancona, Italy, June 1991.

Prostate Cancer and Bone Metastasis. James P. Karr and Hidetoshi Yamanaka, Eds. Plenum, New York, 1992. x, 323 pp., illus. \$79.50. Advances in

Experimental Medicine and Biology, vol. 324. From a conference, Gonenba, Japan, Dec. 1990.

Protein Pharmacokinetics and Metabolism. Bobbe L. Ferraiolo, Marjorie A. Mohler, and Carol A. Gloff, Eds. Plenum, New York, 1992. xvi, 275 pp., illus. \$59.50. Pharmaceutical Biotechnology, vol. 1.

Reasoning and the Logic of Things. The Cambridge Conferences Lectures of 1898. Charles Sanders Peirce. Kenneth Laine Ketner, Ed. Harvard University Press, Cambridge, MA, 1992. xiv, 297 pp., illus. \$45; paper, \$22.50. Based on a congress, Cambridge, MA, Sept. 1989.

La Region d'In Gall-Tegidda-N-Tesemt (Niger). Programme Archéologique d'Urgence, 1977-1981. Vol. 5, Les Populations Actuelles. Edmond Bernus et Nicole Echard. Institut de Recherches en Sciences Humaines, Niamey, Niger, 1992 (distributor, Institut Français de Recherche Scientifique pour le Développement en Coopération, Paris). 108 pp., illus. Paper, 80 F. Études Nigériennes, no. 52.

Regional Geology of Eastern Idaho and Western Wyoming. Paul Karl Link, Mel A. Kuntz, and Lucian B. Platt, Eds. Geological Society of America, Boulder, CO, 1992. x, 312 pp., illus., + map. \$88.75. GSA Memoir 179.

Restoring the Nation's Marine Environment. Gordon W. Thayer, Ed. Maryland Sea Grant, College Park, MD, 1992. x, 716 pp., illus. \$45. Based on a symposium, Washington, DC, Sept. 1990.

The Rivers Handbook. Hydrological and Ecological Principles. Vol. 1. Peter Calow and Geoffrey E. Petts, Eds. Blackwell Scientific, Cambridge, MA, 1992. xii, 526 pp., illus. \$179.95.

Secondary-Metabolite Biosynthesis and Metabolism. Richard J. Petroski and Susan P. McCormick, Eds. Plenum, New York, 1992. xii, 383 pp., illus. \$89.50. Environmental Science Research, vol. 44. From a symposium, Atlanta, April 1991.

Sediment/Water Interactions. B. T. Hart and P. G. Sly, Eds. Kluwer, Norwell, MA, 1992. xviii, 743 pp., illus. \$306. Developments in Hydrobiology, 75. From a symposium, Uppsala, Sweden, Aug. 1990. Reprinted from *Hydrobiologia*, vols. 235/236 (1992).

Standard Model at the Energy of Present and Future Accelerators. F. Csikor, G. Pócsik, and E. Tóth, Eds. Nova, Commack, NY, 1992. viii, 166 pp., illus. \$83. From a workshop, Budapest, June 1989.

The Third Chimpanzee. The Evolution and Future of the Human Animal. Jared Diamond. HarperPerennial, New York, 1993. viii, 407 pp., illus. Paper, \$12. Reprint, 1992 ed.

This Year in School Science 1991. Technology for Teaching and Learning. Karen Sheingold, Linda G. Roberts, and Shirley M. Malcom, Eds. American Association for the Advancement of Science, Washington, DC, 1992. x, 243 pp., illus. Paper, \$15.95; to AAAS members, \$12.75. From a forum, 1991.

Time-Dependent Quantum Molecular Dynamics. J. Broeckhove and L. Lathouwers, Eds. Plenum, New York, 1992. viii, 428 pp., illus. \$115. NATO Advanced Science Institutes Series B, vol. 299. From a workshop, Snowbird, Utah, March 1992.

The Universe Story. From the Primordial Flaring Forth to the Ecozoic Era. A Celebration of the Unfolding of the Cosmos. Brian Swimme and Thomas Berry. HarperSanFrancisco, San Francisco, CA, 1992. x, 305 pp., illus. \$22.

Weather Radar Networking. COST 73 Project Final Report. D. H. Newsome, Ed. Published for the Commission of the European Communities by Kluwer, Norwell, MA, 1992. xvi, 254 pp., illus. \$89.

Wholesome Nutrition for Mind, Body and Microflora. The Goal of Lacto-Vegetarianism (Recipes of Udupi Cuisine Included). Yamuna Lingappa and B. T. Lingappa. Ecobiology Foundation International, Worcester, MA, 1992. xiv, 402 pp., illus. Paper, \$16.

Why the United States Does Not Have a National Health Program. Vicente Navarro, Ed. Baywood, Amityville, NY, 1992. xiv, 252 pp., illus. Paper, \$27.95. Policy, Politics, Health and Medicine Series.

Wildland Fires and the Law. Legal Aspects of Forest Fires Worldwide. Jacques Bourrinet, Ed. Nijhoff, Dordrecht, The Netherlands, 1992 (U.S. distributor, Kluwer, Norwell, MA). iv, 171 pp., illus. \$86. Based on a conference, Aix-en-Provence, Dec. 1991. Translated from the French edition (Paris, 1992).