research. And in this Decade of the Brain it seems an opportune time to take stock of what we know about the role of adenosine in the regulation of brain function.

Gary L. Stiles
Division of Cardiology,
Duke University Medical Center,
Durham, NC 27710

■

Books Received

Animal Experimentation and the Future of Medical Research. Jack H. Botting, Ed. Portland, Brookfield, VT, 1992. x, 98 pp., illus. Paper, $16.95. From a conference, London, April 1991.

Applied Optimal Control Theory of Distributed Systems. K. A. Lurie. Plenum, New York, 1993. xii, 499 pp., illus. $95. Mathematical Concepts and Methods in Science and Engineering, vol. 43. New edition of *Optimal Control in Problems of Mathematical Physics*.

Aquatic Microbiology. G. Rheinheimer. 4th ed. Wiley, New York, 1992. x, 363 pp., illus. $79.50. Translated from the German edition (Jena, 1991).

Art, Ideology, and the City of Teotihuacan. Janet Catherine Berlo, Ed. Dumbarton Oaks Research Library and Collection, Washington, DC, 1992. xii, 442 pp., illus. $38. From a symposium, Washington, DC, Oct. 1988.

At Sea with the Scientifics. The *Challenger* Letters of Joseph Matkin. Philip F. Rehbock, Ed. University of Hawaii Press, Honolulu, 1992. xiv, 415 pp., illus. $38.

Atmospheric Change. An Earth System Perspective. T. E. Graedel and Paul J. Crutzen. Freeman, New York, 1993. xiv, 446 pp., illus., + plates. $42.95; paper, $29.95.

Atmospheric Remote Sensing by Microwave Radiometry. Michael A. Janssen, Ed. Wiley, New York, 1993. xx, 572 pp., illus. $95. Wiley Series in Remote Sensing.

Biodegradable Polymers and Plastics. M. Vert *et al.*, Eds. Royal Society of Chemistry, Letchworth, Herts, U.K., 1992 (U.S. distributor, CRC, Boca Raton, FL). xiv, 302 pp., P45. Special Publication no. 109. From a workshop, Montpellier, France, Nov. 1991.

Biofluid Mechanics. Jagan N. Mazumdar. World Scientific, River Edge, NJ, 1992. xiv, 191 pp., illus. $34.

Biological Diversity of Mexico. Origins and Distribution. T. P. Ramamoorthy *et al.*, Eds. Oxford University Press, New York, 1993. xl, 812 pp., illus. $79.95. From a symposium, 1988.

The Biology of Neuropeptide Y and Related Peptides. William F. Colmers and Claes Wahlestedt, Eds. Humana, Totowa, NJ, 1993. xvi, 564 pp., illus. $99.50. Contemporary Neuroscience.

The Buzzworm Magazine Guide to Ecotravel. Joseph E. Daniel *et al.*, Eds. Buzzworm Books, Boulder, CO, 1993. 239 pp., illus. Paper, $9.95.

The Cartoon Guide to (Non)communication. The Use and Misuse of Information in the Modern World. Larry Gonick. HarperPerennial, New York, 1993. vi, 186 pp., illus. Paper, $13. New edition of *Neo-Babelonia*.

Chaotic Oscillators. Theory and Applications. Tomasz Kapitaniak, Ed. World Scientific, River Edge, NJ, 1992. xvi, 650 pp., illus. $84; paper, $42.

Chemical Change in Deforming Materials. Brian Bayly. Oxford University Press, New York, 1992. xx, 224 pp., illus. $75. Oxford Monographs on Geology and Geophysics, 21.

Chemically Induced Birth Defects. James L. Schardein. 2nd ed. Dekker, New York, 1993. xiv, 902 pp., illus. $250.

Chemistry. The Experience. Ann Ratcliffe. Wiley, New York, 1993. xvi, 219 pp., illus. Paper, $31.95.

Deciding Who Lives. Fateful Choices in the Intensive-Care Nursery. Reneé R. Anspach. University of California Press, Berkeley, 1993. xii, 303 pp., illus. $25.

Detonation of Condensed Explosives. Roger Chéret. Springer-Verlag, New York, 1993. xxii, 427 pp., illus. $198. High-Pressure Shock Compression of Condensed Matter. Translated from the French.

Developmental Time and Timing. Gerald Turkewitz and Darlynne A. Devenny, Eds. Erlbaum, Hillsdale, NJ, 1993. xvi, 266 pp., illus. $69.95.

Doctors and the Law. Medical Jurisprudence in Nineteenth-Century America. James C. Mohr. Oxford University Press, New York, 1993. xvi, 319 pp., illus. $30.

Dreams of a Final Theory. Steven Weinberg. Pantheon, New York, 1992. xii, 334 pp. $25.

The Earth as Transformed by Human Action. Global and Regional Changes in the Biosphere Over the Past 300 Years. B. L. Turner II *et al.*, Eds. Cambridge University Press, New York, 1993. xvi, 713 pp., illus. Paper, $39.95. From a symposium, Worcester, MA, Oct. 1987. Reprint, 1990 ed.

Earthquakes. Bruce A. Bolt. 3rd ed. Freeman, New York, 1993. xviii, 331 pp., illus. Paper, $15.95.

Electron Diffraction Techniques. Vol. 1. John M. Cowley, Ed. Oxford University Press, New York, 1992. xii, 584 pp., illus. $85. International Union of Crystallography Monographs on Crystallography, 3.

Electronic Light Microscopy. The Principles and Practice of Video-Enhanced Contrast, Digital Intensified Fluorescence, and Confocal Scanning Light Microscopy. David Shotton, Ed. Wiley-Liss, New York, 1993. xii, 355 pp., illus. $89.95. Techniques in Modern

Vignettes: Retrospectives on Development

I have been told that Arthur Arndt, who made the first motion picture of slime mold development, used to argue in his public lectures in Germany in the 1930s that their life history was so amazing it could only be explained by resorting to vitalism! As a beginning assistant professor, I gave a brief lecture at the Marine Biological Laboratory at Woods Hole in Massachusetts, and apparently word had spread to the world of journalists about this queer organism. Some days later I received a letter from J. J. O'Neill, the science reporter of the *New York Herald Tribune*, saying that he had heard I had done something more important than discovering the atomic bomb: I had created a multicellular organism! I quickly replied that it was not I but God who had managed the remarkable phenomenon and please, for my sake, to restrain his journalistic ardor. My leaning so heavily on support from God may be excused by my anxiety not to be embarrassed by the newspaper . . . . If I had wanted to give the reason that I really believe explains the peculiar life cycle of slime molds I would have said natural selection, the brainchild of Darwin and Wallace.

—*John Tyler Bonner*, in *Life Cycles: Reflections of an Evolutionary Biologist* (Princeton University Press)

The insularity of disciplines before the 1970s is reflected by popular slogans—the condensed wisdom of the elders. The biochemists' doctrine was "never waste a clean thought on a dirty enzyme." In the early 1970s, as an editor for the Journal of Biological Chemistry who was considered to be a developmental biologist, I received two kinds of papers to review. The first had to do with purification of an enzyme from an embryonic source. The second was any paper dealing with chromatin. In those days, scientists studying chromatin considered themselves biochemists, and biochemists, when forced to categorize a paper on chromatin, thought it had something to do with developmental biology. After all, you should never waste a clean thought on a dirty enzyme. Developmental biology was viewed as hopelessly complicated and, therefore, to be avoided by a traditional biochemist. Biochemistry, when applied to development, measured the increase or decrease of an enzymatic activity as development proceeded. The sophisticated biochemist distinguished between a genuine change in the amount of a protein and the change simply in enzyme activity. . . .

The embryology elders held the opposite point of view. I remember hearing a famous embryologist say that over the years he had developed a working relationship with the chicken embryo. The embryo promised to occasionally divulge a secret if he, in turn, promised never to homogenize it.

—*Donald D. Brown*, in *Evolutionary Conservation of Developmental Mechanisms* (Allan C. Spradling, Ed.; Wiley-Liss)

Biomedical Microscopy.

Faith in a Seed. The Dispersion of Seeds and Other Late Natural History Writings. Henry D. Thoreau. Bradley P. Dean, Ed. Abigail Rorer, illustrator. Island Press, Washington, DC, 1993. xviii, 283 pp., illus. $25.

Final Solutions. Biology, Prejudice, and Genocide. Richard M. Lerner. Pennsylvania State University Press, University Park, 1992. xxii, 238 pp., illus. $19.95.

Flow Visualization and Image Analysis. F. T. M. Nieuwstadt, Ed. Kluwer, Norwell, MA, 1993. x, 271 pp., illus. $133. Fluid Mechanics and Its Applications, vol. 14. From a meeting, July 1991.

Fourier Integrals in Classical Analysis. Christopher D. Sogge. Cambridge University Press, New York, 1993. x, 238 pp., illus. $39.95. Cambridge Tracts in Mathematics, 105.

Fractals in Chemistry, Geochemistry, and Biophysics. An Introduction. K. S. Birdi. Plenum, New York, 1993. xiv, 263 pp., illus. $49.50.

Fragrance. The Psychology and Biology of Perfume. S. Van Toller and G. H. Dodd, Eds. Elsevier, New York, 1992. xx, 343 pp., illus. $95. From a conference, Coventry, U.K., July 1991.

France at the Crystal Palace. Bourgeois Taste and Artisan Manufacture in the Nineteenth Century. Whitney Walton. University of California Press, Berkeley, 1992. xii, 240 pp. + plates. $40.

Genetic Analysis of Animal Development. Adam S. Wilkins. 2nd ed. Wiley-Liss, New York, 1993. xvi, 546 pp., illus. $99.95; paper, $54.95.

Genie. An Abused Child's Flight from Silence. Russ Rymer. HarperCollins, New York, 1993. xii, 221 pp. $20.

Herpetology. An Introductory Biology of Amphibians and Reptiles. George R. Zug. Academic Press, San Diego, CA, 1993. xvi, 527 pp., illus. $50.

Hidden Attraction. The History and Mystery of Magnetism. Gerrit L. Verschuur. Oxford University Press, New York, 1993. x, 256 pp., illus. $25.

The Hijacking of the Humane Movement. Rod and Patti Strand. Doral, Wilsonville, OR, 1993. xiv, 174 pp. Paper, $16.95.

History and Origins of Cryogenics. Ralph G. Scurlock, Ed. Clarendon (Oxford University Press), New York, 1992. xxiv, 653 pp., illus. $165. Monographs on Cryogenics, 8.

Information Dispersal and Parallel Computation. Yuh-Dauh Lyuu. Cambridge University Press, New York, 1992. xviii, 179 pp., illus. $39.95. Cambridge International Series on Parallel Computation, 3.

Integration of Pharmacokinetics, Pharmacodynamics, and Toxicokinetics in Rational Drug Development. Avraham Yacobi *et al.*, Eds. Published with the American Association of Pharmaceutical Scientists by Plenum, New York, 1993. xvi, 270 pp., illus. $79. From a conference, Arlington, VA, April 1991.

Introduction to Bacteria for Students of Biology, Biotechnology, and Medicine. Paul Singleton. 2nd ed. Wiley, New York, 1992. viii, 221 pp., illus. Paper, $27.95.

The Lenses of Gender. Transforming the Debate on Sexual Inequality. Sandra Lipsitz Bem. Yale University Press, New Haven, CT, 1993. xii, 244 pp. $28.50.

Lexical and Conceptual Semantics. Beth Levin and Steven Pinker, Eds. Blackwell, Cambridge, MA, 1992. vi, 244 pp., illus. Paper, $21.95. Cognition Special Issues. Reprinted from *Cognition: International Journal of Cognitive Science*, vol. 41, nos. 1–3 (1991).

Life Under a Cloud. American Anxiety About the Atom. Allan M. Winkler. Oxford University Press, New York, 1993. vi, 282 pp. $27.50.

Liquid Crystals. S. Chandrasekhar. 2nd ed. Cambridge University Press, New York, 1992. xvi, 460 pp., illus. $100; paper, $39.95

Location Modeling in Practice. Applications (Site Location, Oil Field Generators, Emergency Facilities, Postal Boxes), Theory, and History. Bruce L. Golden and H. A. Eiselt, Eds. American Sciences Press, Columbus, OH, 1992. ii, 87 pp., illus. Paper, $98.75. American Series in Mathematical and Management Sciences, vol. 31. Published as *American Journal of Mathematical and Management Sciences*, vol. 12, no. 1.

Logic Programming. Operational Semantics and Proof Theory. James H. Andrews. Cambridge University Press, New York, 1992. xii, 104 pp., illus. $39.95. Distinguished Dissertations in Computer Science.

Manual of Ornithology. Avian Structure and Function. Noble S. Proctor and Patrick J. Lynch. Yale University Press, New Haven, CT, 1993. xii, 340 pp., illus. $40.

Materials Science and Technology. A Comprehensive Treatment. Vol. 1, Structure of Solids. Volkmar Gerold, Ed. VCH, New York, 1993. xiv, 621 pp., illus. DM 430.

Mathematical Modeling. Mark M. Meerschaert. Academic Press, San Diego, CA, 1993. xiv, 287 pp., illus. $49.95.

Mathematics as a Science of Quantities. Hippocrates G. Apostle. Arnold M. Adelberg and Elizabeth A. Dobbs, Eds. Peripatetic Press, Grinnell, IA, 1991. xii, 80 pp., illus. $15.

Mathematics in Society and History. Sociological Inquiries. Sal Restivo. Kluwer, Norwell, MA, 1992. xvi, 201 pp. $89. *Episteme*, vol. 20.

The Medical Skills of Ancient Egypt. J. Worth Estes. 2nd ed. Science History Publications/U.S.A. (Watson), Canton, MA, 1993. xvi, 198 pp., illus. Paper, $15.95.

Micropropagation of Orchids. Joseph Arditti and Robert Ernst. Wiley, New York, 1993. xiv, 682 pp., illus. $115.

The Mind's Sky. Human Intelligence in a Cosmic Context. Timothy Ferris. Bantam, New York, 1993. xviii, 281 pp. Paper, $13.95. Reprint, 1992 ed.

Minerals and Reactions at the Atomic Scale. Transmission Electron Microscopy. Peter R. Buseck, Ed. Mineralogical Society of America, Washington, DC, 1992. xvi, 508 pp., illus. Paper, $28. Reviews in Mineralogy, vol. 27. From a course, College Corner, OH, Oct. 1992.

Nevanlinna Theory and Complex Differential Equations. Ilpo Laine. De Gruyter, Hawthorne, NY, 1993. viii, 341 pp. $89. De Gruyter Studies in Mathematics, 15.

New Astronomy. Johannes Kepler. Cambridge University Press, New York, 1992. xvi, 665 pp., illus.

$140. Translated from the Latin by William H. Donahue.

1993 Earth Journal. Environmental Almanac and Resource Directory. Joseph E. Daniel *et al.*, Eds. Buzzworm Books, Boulder, CO, 1992. xiv, 430 pp., illus. Paper, $9.95.

Nobel Lectures Including Presentation Speeches and Laureates' Biographies. Physiology or Medicine, 1971–1980. Jan Lindsten, Ed. Published for the Nobel Foundation by World Scientific, River Edge, NJ, 1992. xii, 660 pp., illus. $96; paper, $48.

The Origin and Evolution of the Cell. H. Hartman and K. Matsuno, Eds. World Scientific, River Edge, NJ, 1992. viii, 434 pp., illus. $76. From a conference, Shimoda, Japan, April 1992.

The Origin of Values. Michael Hechter, Lynn Nadel, and Richard E. Michod, Eds. Aldine de Gruyter, Hawthorne, NY, 1993. x, 342 pp., illus. $49.95; paper, $25.95. Sociology and Economics. From a conference, Feb. 1989.

The Photosynthetic Bacterial Reaction Center II. Structure, Spectroscopy, and Dynamics. Jacques Breton and André Verméglio, Eds. Plenum, New York, 1992. x, 429 pp., illus. $110. NATO Advanced Science Institutes Series A, vol. 237. From a workshop, Centre d'Etudes Nucléaires de Cadarache, France, May 1992.

Physical Activity and Health. N. G. Norgan, Ed. Cambridge University Press, New York, 1992. xii, 251 pp., illus. $69.95. Society for the Study of Human Biology Symposium Series, 34. From a symposium, 1988.

Physics of Massive Neutrinos. Felix Boehm and Petr Vogel. 2nd ed. Cambridge University Press, New York, 1992. x, 249 pp., illus. $69.95; paper, $27.95.

Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Jeffrey B. Harborne and Herbert Baxter, Eds. Taylor and Francis, Philadelphia, 1993. x, 791 pp., illus. $350.

Picturing Nature. American Nineteenth-Century Zoological Illustration. Ann Shelby Blum. Princeton University Press, Princeton, NJ, 1993. xxxiv, 403 pp., illus. $59.50.

Pollination Ecology. A Practical Approach. A. Dafni. IRL (Oxford), New York, 1992. xvi, 250 pp., illus. $56.95; paper, $39.95. The Practical Approach Series.

Quantum Chaos. A New Paradigm of Nonlinear Dynamics. Katsuhiro Nakamura. Cambridge University Press, New York, 1993. xii, 208 pp., illus. $59.95. Cambridge Nonlinear Science Series, 3.

Renewable Energy. Sources for Fuels and Electricity. Thomas B. Johansson *et al.*, Eds. Island Press, Washington, DC, 1993. x, 1166 pp., illus. $85; paper, $45.

Research Amateur Astronomy. Stephen J. Edberg, Ed. Astronomical Society of the Pacific, San Francisco, 1992. x, 267 pp., illus. $40; to ASP members, $36. ASP Conference Series, vol. 33. From a symposium, La Paz, Baja California Sur, Mexico, July 1991.

Rethinking AIDS. The Tragic Cost of Premature Consensus. Robert S. Root-Bernstein. Free Press (Macmillan), New York, 1993. xviii, 512 pp., illus. $24.95.

Rhythms in Fishes. M. A. Ali, Ed. Plenum, New York, 1992. viii, 348 pp., illus. $95. NATO Advanced Science Institutes Series A, vol. 236. From an institute, Montreal, Aug. 1991.

Risk and Protective Factors in the Development of Psychopathology. Jon Rolf *et al.*, Eds. Cambridge University Press, New York, 1992. xvi, 554 pp., illus. Paper, $24.95. Reprint, 1990 ed.

The River of the Mother of God and Other Essays. Aldo Leopold. Susan L. Flader and J. Baird Callicott, Eds. University of Wisconsin Press, Madison, 1993. xvi, 384 pp., illus. Paper, $14.95. Reprint, 1991 ed.

Science in Russia and the Soviet Union. A Short History. Loren R. Graham. Cambridge University Press, New York, 1993. x, 321 pp. + plates. $29.95. Cambridge History of Science.

The Simulation of Human Intelligence. Donald Broadbent, Ed. Blackwell, Cambridge, MA, 1993. viii, 222 pp., illus. Paper, $19.95. Wolfson College Lectures.

Sleep, Sleepiness and Performance. Timothy H. Monk, Ed. Wiley, New York, 1991. xvi, 325 pp., illus. $89.95. Wiley Series in Human Performance and Cognition.

Social Stratification and Socioeconomic Inequality. Vol. 1, A Comparative Biosocial Analysis. Lee Ellis, Ed. Praeger, Westport, CT, 1993. xviii, 238 pp., illus. $55.

The Social Survey in Historical Perspective 1880–1940. Martin Bulmer, Kevin Bales, and Kathryn Kish Sklar, Eds. Cambridge University Press, New York, 1991. xx, 383 pp., illus., + plates. $69.95.

The Solar Transition Region. John T. Mariska. Cambridge University Press, New York, 1992. xiv, 276 pp., illus. $59.95. Cambridge Astrophysics Series, 23.

Sourcebook of Family Theories and Methods. A Contextual Approach. Pauline G. Boss *et al.*, Eds. Plenum, New York, 1993. xxvi, 748 pp., illus. $95.

Synthetic Microstructures in Biological Research. Joel M. Schnur, Martin Peckerar, and Helen M. Stratton, Eds. Plenum, New York, 1992. xii, 249 pp., illus. $75. From a conference, Williamsburg, VA, Sept. 1991.

Technology and Transition. A Survey of Biotechnology in Russia, Ukraine and the Baltic States. Anthony Rimmington with Rod Greenshields. Quorum (Greenwood), Westport, CT, 1992. x, 227 pp., illus. $75.

Therapeutic Applications of Interleukin-2. Michael B. Atkins and James W. Mier, Eds. Dekker, New York, 1993. xviii, 494 pp., illus. $175. Basic and Clinical Oncology, 2.