



Vignettes: Studying Science

I was thinking of whether I could graduate from high school if for the second year in a row I failed biology. I was surprised to be failing it, because I loved it; I'd loved it the first time I'd failed it too. My favorite part was gene-recession charts. I liked working out the sequence of blue eyes in families that had no characteristics except blue eyes and brown eyes. My family had a lot of characteristics—achievements, ambitions, talents, expectations—that all seemed to be recessive in me.

—Susanna Kaysen, in *Girl, Interrupted* (Random House)

A postlab discussion of an activity called "Experimenting with Mixtures" provided a forum for identifying the activity's successes and difficulties. Students expressed frustration over my expectation that they could inductively derive a distinction between homogeneous and heterogeneous mixtures. Students' preconceptions of mixtures were far richer and more complex than the scientific dichotomy of homogeneous/heterogeneous. "Why couldn't we just read about it before the activity?" they asked.

—Glen Aikenhead, in *STS Education: International Perspectives on Reform* (Joan Solomon and Glen Aikenhead, Eds.; Teachers College Press)

I think I got in [MIT] by being a nerd and getting good grades.

—Bill Gosper, in *More Mathematical People* (Donald J. Albers, Gerald L. Alexanderson, and Constance Reid, Eds.; Academic Press)

as a career, and programs like the Minority Biomedical Research Support (MBRS) and Minority Access to Research Careers (MARC) have the same aims as the program of the Institute of Biomedical Research and use some of the same approaches. All try to inculcate the scientific ethos by having the students actually do research and discover both that hard work is necessary to do science and that the rewards of science are not only in the results but in the search itself. A key component in both programs is mentoring by senior scientists and the feeling of belonging to the scientific community. An important difference is that the students at the Institute in Mexico were a select upper-middle-class group with professional parents, whereas most students in the MBRS program are first-generation college students who come from a lower socioeconomic level. Remarkably, despite this, the graduation rate of these minority students in some programs exceeds that of the Institute (MBRS 88 percent, MARC 99 percent at Wayne State University, according to Joseph Dunbar of the Medical School). Another difference is that whereas most of the Institute graduates went on to graduate degrees in science, there is a significant (45 percent) diversion of MBRS graduates to medical school, with only about 30 percent continuing in science. This is probably due to the much greater financial differential between M.D.'s and

Ph.D.'s in the United States than in Mexico. A surprising difference was that female students in the Institute outnumbered male students by two to one.

Fortes and Lomnitz's book provides a number of illuminating views of the process and difficulties of socializing students into science. It will be of interest to those concerned with increasing the proportion of scientists in traditionally underrepresented groups.

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Books Received

The Almanac of Renewable Energy. Richard Golub and Eric Brus. Holt, New York, 1994. xvi, 348 pp., illus. Paper, \$19.95.

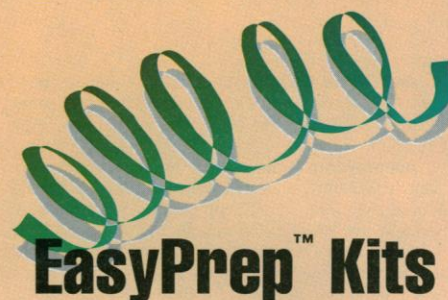
Analysis of Vertebrate Structure. 4th ed. Milton Hildebrand. Wiley, New York, 1994. xiv, 657 pp., illus. \$46.

Angiogenesis. Molecular Biology, Clinical Aspects. Michael E. Maragoudakis, Pietro M. Gullino, and Peter I. Lelkes, Eds. Plenum, New York, 1994. x, 372 pp., illus. \$105. NATO ASI Series A, vol. 263. From an institute, Rhodes, June 1993.

Applied Virology Research. Vol. 3, New Diagnostic Procedures. Edouard Kurstak *et al.*, Eds. Plenum, New York, 1994. xv, 174 pp., illus. \$69.50.

The Aqueous Phase Behavior of Surfactants. Robert G. Laughlin. Academic Press, San Diego, CA, 1994. xxii, 558 pp., illus. \$70. Colloid Science.

Archaeology of the Southeastern United States. Paleoindian to World War I. Judith A. Bense. Academic Press, San Diego, CA, 1994. xviii, 388 pp., illus. \$75;

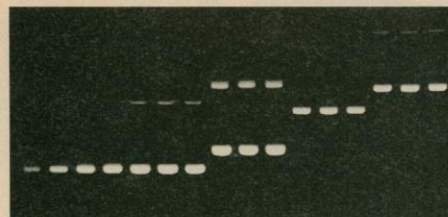


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paper, \$34.95.

Are Genes Us? The Social Consequences of the New Genetics. Carl F. Cranor, Ed. Rutgers University Press, New Brunswick, NJ, 1994. x, 271 pp. Paper, \$18.95.

Ascomycete Systematics. Problems and Perspectives in the Nineties. David L. Hawksworth, Ed. Plenum, New York, 1994. xii, 453 pp., illus. \$120. NATO ASI Series A, vol. 269. From a workshop, Paris, May 1993.

Assessing Genetic Risks. Implications for Health and Social Policy. Lori B. Andrews et al., Eds. National Academy Press, Washington, DC, 1994. xiv, 338 pp. \$44.95.

Astronomy from Wide-Field Imaging. H. T. MacGillivray et al., Eds. Published for the International Astronomical Union by Kluwer, Norwell, MA, 1994. xxxii, 760 pp., illus. \$215 or £46 or Dfl.365. From a symposium, Potsdam, Germany, Aug. 1993.

The Atlantic Vision. Olaus Rudbeck and Baroque Science. Gunnar Eriksson. Science History Publications/U.S.A. (Watson), Nantucket, MA, 1994. viii, 196 pp., illus. \$27.95. Uppsala Studies in History of Science, vol. 19.

Atmospheric Convection. Kerry A. Emanuel. Oxford University Press, New York, 1994. x, 580 pp., illus. \$59.95.

Atmospheric Halos. Walter Tape. American Geophysical Union, Washington, DC, 1994. viii, 143 pp., illus. \$40; to AGU members, \$28. Antarctic Research Series, vol. 64.

Attention and Performance XV. Conscious and Nonconscious Information Processing. Carlo Umiltà and Morris Moscovitch, Eds. MIT Press, Cambridge, MA, 1994. xx, 945 pp., illus. \$85. From a symposium, Erice, Italy, July 1992.

Circuit Complexity and Neural Networks. Ian Parberry. MIT Press, Cambridge, MA, 1994. xxiv, 270 pp., illus. \$35. Foundations of Computing.

Circular Dichroism. Principles and Applications. Koji Nakamishi, Nina Berova, and Robert W. Woody, Eds. VCH, New York, 1994. xviii, 570 pp., illus. \$125.00.

Clusters and Colloids. From Theory to Applications. Günther Schmid, Ed. VCH, New York, 1994. xvi, 555 pp., illus. + plates. \$145.

Cognition and the Visual Arts. Robert L. Solso. MIT Press, Cambridge, MA, 1994. xviii, 294 pp., illus. \$39.95. MIT Press/Bradford Books Series in Cognitive Psychology.

The Colloidal Domain. Where Physics, Chemistry, Biology, and Technology Meet. D. Fennell Evans and Håkan Wennerström. VCH, New York, 1994. xxxii, 515 pp., illus. \$65.00. Advances in Interfacial Engineering.

The Concise Oxford Dictionary of Ecology. Michael Allaby, Ed. Oxford University Press, New York, 1994. viii, 415 pp. \$35.

Consensus in Clinical Nutrition. Richard V. Heatley, J. Hilary Green, and Monty S. Losowsky, Eds. Cambridge University Press, New York, 1994. xiv, 506 pp., illus. \$110.

The Creation Hypothesis. Scientific Evidence for an Intelligent Designer. J. P. Moreland, Ed. InterVarsity Press, Downers Grove, IL, 1994. 335 pp. Paper, \$12.99.

Creation Revisited. P. W. Atkins. Penguin, New York, 1994. x, 163 pp. Paper, \$10.95 or £6.99. Reprint, 1992 ed.

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Culture of Hemopoietic Cells. R. Ian Freshney, Ian B. Pragnell, and Mary G. Freshney, Eds. Wiley-Liss, New York, 1994. xiv, 281 pp., illus. Paper, \$49.95. Culture of Specialized Cells.

Energy-Efficient Electric Motors and Their Applications. 2nd ed. Howard E. Jordan. Plenum, New York, 1994. x, 188 pp., illus. \$49.50.

England's National Nature Reserves. Peter Marren. Harcourt Brace, New York, 1994. xxii, 272 pp., illus. + plates. \$20.

Entrepreneurship, Management, and the Structure of Payoffs. William J. Baumol. MIT Press, Cambridge, MA, 1994. xii, 311 pp., illus. \$29.95.

Environmental Analysis. Roger N. Reeve. John D. Barnes, Ed. Published for ACOL by Wiley, New York, 1994. xx, 263 pp., illus. Paper, \$34.95. Analytical Chemistry by Open Learning.

An Environmental Proposal for Ethics. The Principle of Integrity. Laura Westra. Rowman and Littlefield,

Lanham, MD, 1994. xxii, 237 pp. \$55; paper, \$21.95. Studies in Social and Political Philosophy.

Everglades Agricultural Area (EAA). Water, Soil, Crop, and Environmental Management. A. B. Bottcher and F. T. Izuno, Eds. University Press of Florida, Gainesville, 1994. xvi, 318 pp., illus. \$44.95.

The Evolutionary Biology of the Threespine Stickleback. Michael A. Bell and Susan A. Foster, Eds. Oxford University Press, New York, 1994. xii, 571 pp., illus. \$98.

Physics by Example. 200 Problems and Solutions. W. G. Rees. Cambridge University Press, New York, 1994. xiv, 374 pp., illus. \$69.95; paper, \$24.95.

The Pinnacle of Life. Consciousness and Self-Awareness in Humans and Animals. Derek Denton. HarperSanFrancisco, San Francisco, 1994. xvi, 250 pp., illus. Paper, \$13.50. Reprint, 1993 ed.

The Planet Observer's Handbook. Fred W. Price. Cambridge University Press, New York, 1994. xx, 410 pp., illus. \$34.95.

Plant Cell and Tissue Culture. Indra K. Vasil and Trevor A. Thorpe, Eds. Kluwer, Norwell, MA, 1994. x, 593 pp., illus. \$215 or £144 or Dfl.360.

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Plasma Physics. An Introduction to the Theory of Astrophysical, Geophysical, and Laboratory Plasmas. Peter A. Sturrock. Cambridge University Press, New York, 1994. xii, 335 pp., illus. \$64.95; paper, \$24.95.

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Preservations of Near-Earth Space for Future Generations. John A. Simpson, Ed. Cambridge University Press, New York, 1994. xii, 248 pp., illus. \$79.95. From a symposium, Chicago, June 1992.

The Shorter Science and Civilisation in China. An Abridgement of Joseph Needham's Original Text. Vol. 4, The Main Sections of Vol. 4, Part 2 of the Major Series. Engineers-Their Status, Tools and Materials, Basic Mechanical Principles and Types of Machines, Land Transport, Clockwork, Windmills and Aeronautics. Colin A. Ronan. Cambridge University Press, New York, 1994. xvi, 334 pp., illus. \$69.95; paper, \$34.95.

Sickle Cell Disease. Basic Principles and Clinical Practice. Stephen H. Embury et al., Eds. Raven, New York, 1994. xxvi, 902 pp., illus. \$145.

Simple and Direct. A Rhetoric for Writers. 2nd ed. Jacques Barzun. University of Chicago Press, Chicago, 1994. xii, 291 pp. Paper, \$14.95.

Tomography of Soil-Water-Root-Processes. S. H. Anderson and J. W. Hopmans, Eds. American Society of Agronomy and Soil Science Society of America, Madison, WI, 1994. xviii, 148 pp., illus. + plates. Paper, \$21.00. SSSA Special Publication, 36. From a symposium, Minneapolis, MN, Nov. 1992.

Topics in Matrix Analysis. Roger A. Horn and Charles R. Johnson. Cambridge University Press, New York, 1994. viii, 607 pp. Paper, \$29.95. Reprint, 1991 ed.

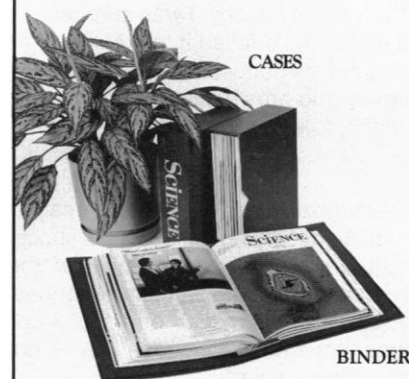
Toys, Play, and Child Development. Jeffrey H. Goldstein, Ed. Cambridge University Press, New York, 1994. viii, 189 pp. \$49.95; paper, \$14.95. Based on a seminar, London, Oct. 1992.

Transition Metal Chemistry. The Valence Shell in d-Block Chemistry. Malcolm Gerloch and Edwin C. Constable. VCH, New York, 1994. xii, 211 pp., illus. \$75; paper, \$35.

William Harvey's Natural Philosophy. Roger French. Cambridge University Press, New York, 1994. xii, 393 pp., illus. \$64.95.

Wind-Diesel Systems. A Guide to the Technology and Its Implementation. Ray Hunter and George Elliot. Cambridge University Press, New York, 1994. xii, 249 pp., illus. \$59.95.

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