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;

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.

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

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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.

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Critical Rationalism. A Restatement and Defence. David Miller. Open Court, La Salle, IL, 1994. xiv, 264 pp. $44.94; paper, $19.95.

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Population Policy. A New Consensus. Robert Cassen with Lisa M. Bates. Overseas Development Council, Washington, DC, 1994. x, 92 pp., illus. Paper, $17.95. Policy Essay no. 12.

Positive Definite and Definitizable Functions. Zoltán Sasvári. VCH, New York, 1994. 206 pp. $65. Mathematical Topics, vol. 2.

Practioner's Guide to Developmental and Psychological Testing. Glen P. Aylward. Plenum, New York, 1994. xviii, 258 pp., illus. Spiral bound, $37.50. Critical Issues on Developmental and Behavioral Pediatrics.

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.

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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.

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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.