



## Vignette: A Community of Scholars

I found myself in the most unstandard, and the most difficult, academic environment yet: the Institute for Advanced Study in Princeton, New Jersey. . . .

From the very beginning, the idealized nature of such a picture of the ultimate academy, a place where mind met mind and passion, self, and ignorance were absent, came under a certain amount of question. . . . Alongside . . . transcendent scholars tranquilly conversing in simple surroundings, . . . there developed the sort of highly personalized academic politics such a collection of luminaries set free from real-world constraints to rub up against one another might be expected to produce. . . .

A series of bitter, what's mine is mine, what's yours is negotiable quarrels led to chronic discord—quarrels over appointments, quarrels over the formation of schools within the Institute . . . and, of course, quarrels over salaries, then as now too small for demigods, too large for publication. Tensions between faculty and directors, directors and trustees, and trustees and faculty, as well as between all of them and the philanthropists who had endowed the institution in the first place . . . developed and spread. . . .

All this internal warfare was, as far as I was concerned, so much prehistory when I arrived. . . . But it rather soon became clear that if past is prologue anywhere, it is at the Institute, which less transcends its crises than, reproducing its culture with a fidelity that would make the Tibetans envious, reenacts them.

—Clifford Geertz, in *After the Fact: Two Countries, Four Decades, One Anthropologist* (Harvard University Press)

which covers a different aspect of the science of small solar-system bodies. Many offer a historical perspective on the subject, describing the history and development of the field. But, best of all, none is long and pedantic. A professional or an advanced student interested in solar-system science will find each chapter to be a thorough introduction to its subject with useful reference material.

The subjects covered range from ground-based asteroid and comet detection techniques to spacecraft observations, both recent (Galileo, Ulysses) and proposed (Rosetta), of asteroids, interstellar and interplanetary dust, and comets. Significant effort is made to show the connections among different solar-system small bodies, meteorites and cosmic dust samples, and the interstellar medium. I particularly enjoyed the description of the newly discovered trans-Neptunian objects in the Kuiper Belt by Luu and the discussion of the possible connection between molecular components of comet material and interstellar dust by Greenberg and Shalabiea.

I got a thorough grounding in the different theories behind the dynamics in the solar system governing the removal of material from secular resonances with Jupiter's orbit and transport of meteorites to the Earth as discussed in chapters by Ferraz-Mello and by Froeschlé and Morbidelli. The dynamics of the Trojan asteroid clouds in

Jupiter's orbit, now known to be a major asteroid reservoir, is covered by Milani.

One erroneous statement at the beginning of the chapter by Burbine and Binzel on asteroid reflectance spectroscopy should be noted. The visible spectral region contains more information about the surface mineralogy than simply the three spectral attributes discussed by the authors. The narrow-band spectrophotometry of asteroids afforded by the charge-coupled device/spectrophotograph combinations described in their chapter can delineate finer spectral features, which have in fact been identified by other researchers. Regardless, this chapter reviews some recent intriguing results in the reflectance spectrophotometry of asteroids, including tracing of the origin of the basaltic achondrite meteorites from Vesta to the 3:1 Kirkwood gap to the Earth through the reflectance characteristics of Vesta-family asteroids. The utility of reflectance spectrophotometry as a strong adjunct is again demonstrated in the chapter by McFadden reviewing evidence that ties asteroids and comets together in the search for the transition between the two types of small bodies.

Scientists studying small solar-system bodies will be interested in the last eight chapters, which describe different databases of interest, including asteroid spectral reflectance data, updated orbital element sets, albedos, light-curve photometry, rotation rates, and pole orientations. The goal of the

organizers of the symposium at which these papers were originally presented was to make individual evolving databases accessible to scientists and to keep these databases physically separate. Most of these chapters have instructions for accessing these data through anonymous file-transfer protocol or internet connections. So I tried them out. And they work. I have discovered what other planetary scientists will discover: This book is a treasure trove of information and data on asteroids, comets, and meteors.

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## Books Received

**AAAS Science and Technology Policy Yearbook 1994.** Albert H. Teich, Stephen D. Nelson, and Celia McEnaney, Eds. American Association for the Advancement of Science, Washington, DC, 1995. xii, 447 pp., illus. Paper, \$24.95.

**Advances in Electromagnetic Fields in Living Systems.** Vol. 1. James C. Lin, Ed. Plenum, New York, 1994. vii, 196 pp. \$69.50.

**Aging of Cells, Humans and Societies.** Ian K. Ross. Brown, Dubuque, IA, 1995. x, 229 pp., illus. \$42.77.

**American and Chinese Perceptions and Belief Systems.** A People's Republic of China-Taiwanese Comparison. Lorand B. Szalay *et al.* Plenum, New York, 1994. x, 270 pp., illus. Paper, \$69.50. Cognition and Language.

**Animal Cell Technology.** Basic and Applied Aspects. Vol. 6. T. Kobayashi, Y. Kitagawa, and K. Okumura, Eds. Kluwer, Norwell, MA, 1994. xvi, 615 pp., illus. \$262.50 or £172.50 or Dfl. 410. From a meeting, Nagoya, Japan, Nov. 1993.

**Babies in Bottles.** Twentieth-Century Visions of Reproductive Technology. Susan Merrill Squier. Rutgers University Press, New Brunswick, NJ, 1995. xvi, 271 pp., illus. \$48; paper, \$17.

**Bacterial Diversity and Systematics.** Fergus G. Priest, Alberto Ramos-Cormenzana, and B. J. Tindall, Eds. Plenum, New York, 1994. viii, 331 pp., illus. \$95. Federation of European Microbiological Societies Symposium Series, no. 75. From a symposium, Granada, Spain, Sept. 1993.

**Baculovirus Expression Systems and Biopesticides.** Michael L. Shuler *et al.*, Eds. Wiley-Liss, New York, 1994. x, 259 pp., illus. \$85.

**Basic Ideas and Concepts in Nuclear Physics.** An Introductory Approach. K. Heyde. Institute of Physics, Philadelphia, 1994. xx, 424 pp., illus. \$142.50 or £95; paper, \$49 or £32. Fundamental and Applied Nuclear Physics Series.

**Carnegie Atlas of Galaxies.** Allan Sandage and John Bedke. Carnegie Institution, Washington, DC, with The Flintridge Foundation, 1994. 2 vols. viii, 750 pp., illus. \$95.

**Case Studies in Abnormal Psychology.** Thomas F. Oltmanns, John M. Neale, and Gerald C. Davison, 4th ed. Wiley, New York, 1995. viii, 407 pp. Paper, \$34.95.

**Cell Biology.** A Laboratory Handbook. Julio E. Celis, Ed. Academic Press, San Diego, CA, 1994. 3 vols., spiralbound, boxed. Vol. 1, xxxvi, 683 pp., illus., + plates. Vol. 2, xxviii, 496 pp., illus., + plates. Vol. 3, xxx, 535 pp., illus., + plates. The set, \$99.

**Cell Signal Transduction, Second Messengers, and Protein Phosphorylation in Health and Disease.** A. Martin Municio and M. Teresa Miras-Portugal, Eds. Plenum, New York, 1994. x, 256 pp., illus. From a symposium, El Escorial, Spain, July 1993.

**Cellular Proteolytic Systems.** Aaron J. Ciechanover

and Alan L. Schwartz, Eds. Wiley-Liss, New York, 1994. x, 233 pp., illus. \$89.95. Modern Cell Biology, vol. 15.

**Dealing with Medical Knowledge.** Computers in Clinical Decision Making. Tibor Deutsch, Ewart Carson, and Andre Ludwig. Plenum, New York, 1994. xii, 298 pp., illus. \$69.50.

**Demonstrating Science with Soap Films.** David Lovett. Institute of Physics, Philadelphia, 1994. xii, 204 pp., illus. \$90 or £45; paper, \$35 or £17.50.

**Developmental Changes in Myocardial Inotropic Responsiveness.** Michael Artman. Landes, Georgetown, TX, 1994 (distributor, CRC Press, Boca Raton, FL). vi, 121 pp., illus. \$89.95. Medical Intelligence Unit.

**Diatoms to Dinosaurs.** The Size and Scale of Living Things. Chris McGowan. Island Press, Washington, DC, 1994. xiv, 288 pp., illus. \$24.95.

**Edison.** Inventing the Century. Neil Baldwin. Hyperion, New York, 1995. x, 531 pp., illus. \$27.95.

**Elephant Days and Nights.** Ten Years with the Indian Elephant. Rama Sukumar. Oxford University Press, New York, 1994. xvi, 184 pp., illus., + plates. \$24.95.

**Endocrinology of Embryo-Endometrium Interactions.** Stanley R. Glasser, Joy Mulholland, and Alexandre Psychoyos, Eds. Plenum, New York, 1994. xii, 415 pp., illus. \$115. Reproductive Biology. From a symposium, Bordeaux, France, Sept. 1992.

**Energy and Exergy Currents.** An Introduction to Exergonomics. E. I. Yantovskii. Nova, Commack, NY, 1994. xii, 183 pp., illus. \$69.

**Flow Cytometry Principles for Clinical Laboratory Practice.** Quality Assurance for Quantitative Immunophenotyping. Marilyn A. Owens and Michael R. Loken. Wiley-Liss, New York, 1994. xiv, 224 pp., illus. Paper, \$39.95.

**Fluid Concepts and Creative Analogies.** Computer Models of the Fundamental Mechanisms of Thought. Douglas Hofstadter and the Fluid Analogies Research Group. BasicBooks, New York, 1995. x, 518 pp., illus. \$30 or \$C42.

**From Coastal Wilderness to Fruited Plain.** A History of Environmental Change in Temperate North America 1500 to the Present. Gordon G. Whitney. Cambridge University Press, New York, 1994. xxxiv, 451 pp., illus. \$54.95.

**Geochemical Self-Organization.** Peter J. Ortolova. Oxford University Press, New York, 1994. xvi, 411 pp., illus. \$89.95.

**Good Benito.** A Novel. Alan Lightman. Pantheon, New York, 1995. vi, 216 pp. \$21. His life as recounted by a physicist.

**The Green Crusade.** Rethinking the Roots of Environmentalism. Charles T. Rubin. Free Press (Macmillan), New York, 1994. viii, 312 pp. \$22.95.

**Hamiltonian Mechanics.** Integrability and Chaotic Behavior. John Seimenis, Ed. Plenum, New York, 1994. x, 422 pp., illus. \$120. NATO ASI Series B, vol. 331. From a workshop, Torun, Poland, June-July 1993.

**Handbook of Laboratory Animal Management and Welfare.** Sarah Wolfensohn and Maggie Lloyd. Oxford University Press, New York, 1994. xii, 304 pp., illus. \$60, paper, \$32.

**Handbook of Optics.** Michael Bass *et al.*, Eds. 2nd ed. McGraw-Hill, New York, 1995. Vol. 1, Fundamentals, Techniques, and Design. Various pages, illus. \$99.50. Vol. 2, Devices, Measurements, and Properties. Various pages, illus. \$99.50.

**Handbook of Statistical Modeling for the Social and Behavioral Sciences.** Gerhard Arminger, Clifford C. Clogg, and Michael E. Sobel, Eds. Plenum, New York, 1994. xxii, 592 pp., illus. \$59.50.

**In Vivo Immunology.** Regulatory Processes during Lymphopoiesis and Immunopoiesis. E. Heinen *et al.*, Eds. Plenum, New York, 1994. xiii, 311 pp., illus. \$79.50. Advances in Experimental Medicine and Biology, vol. 355. From a conference, Liège, Belgium, July 1993.

**Industrial Ecology and Global Change.** R. Soclow *et al.* Cambridge University Press, New York, 1995. xxx, 500 pp., illus. \$49.95. Based on an institute, Snowmass, CO, July 1992.

**Inhomogeneous Superconductors.** Granular and Quantum Effects. Eugen Šimánek. Oxford University Press, New York, 1994. x, 383 pp., illus. \$75. International Series of Monographs on Physics.

**Instruments.** Albert Van Helden and Thomas L. Hankins, Eds. History of Science Society, Seattle, WA (distributor, University of Chicago Press, Chicago), 1994.

vii, 251 pp., illus. \$39; paper, \$25. *Osiris*, 2nd series, vol. 9 (1994).

**Male-Mediated Developmental Toxicity.** Andrew F. Olshan and Donald R. Mattison, Eds. Plenum, New York, 1994. xii, 406 pp., illus. \$115. Reproductive Biology. From a conference, Pittsburgh, PA, Sept. 1992.

**Marine Mammals and the Exxon Valdez.** Thomas R. Loughlin, Ed. Academic Press, San Diego, CA, 1994. xx, 395 pp., illus. \$49.95.

**Masters of Deception.** The Gang that Ruled Cyberspace. Michelle Slatalla and Joshua Quittner. HarperCollins, New York, 1995. x, 225 pp. \$23.

**Materials Processing in High Gravity.** Liya L. Regel and William R. Wilcox, Eds. Plenum, New York, 1994. viii, 222 pp., illus. \$79.50. From a workshop, Potsdam, NY, June 1993.

**Medical Microbiology.** A Short Course. Ellen Jo Baron *et al.* Wiley-Liss, New York, 1995. xii, 1057 pp., illus. Paper, \$49.95.

**New Anticonvulsants.** Advances in the Treatment of Epilepsy. M. R. Trimble, Ed. Wiley, New York, 1994. xii, 170 pp., illus. \$52.95.

**New Aspects of Complement Structure and Function.** Anna Erdei. Landes, Georgetown, TX, 1994 (distributor, CRC Press, Boca Raton, FL). x, 177 pp., illus. \$89.95. Medical Intelligence Unit.

**New Trends in Magnetism, Magnetic Materials, and Their Applications.** J. L. Morán-López and J. M. Sanchez, Ed. Plenum, New York, 1994. xiv, 472 pp., illus. \$125. From a workshop, Guanajuato, Mexico, Aug. 1993.

**Oak Ridge National Laboratory.** The First Fifty Years. Leland Johnson and Daniel Schaffer. University of Tennessee Press, Knoxville, TN, 1994. xvi, 270 pp., illus. \$30; paper, \$15.

**On the Shoulders of Giants.** Malcolm E. Lines. Institute of Physics, Philadelphia, 1994. viii, 288 pp., illus. \$90 or £49.50; paper, \$30 or £15.

**100 Inventions That Shaped World History.** Bill Yenne. Bluewood, San Francisco, CA, 1994. 112 pp., illus. Paper, \$7.95 or \$C8.95. Reprint, 1993 ed.

**Optical Diagnostics for Flow Processes.** Lars Lading, Graham Wigley, and Preben Buchhave, Eds. Plenum, New York, 1994. viii, 398 pp., illus. \$110. From a school, Roskilde, Denmark, Sept.-Oct. 1993.

**p-Adic Valued Distributions in Mathematical Physics.** Andrei Khrennikov. Kluwer, Norwell, MA, 1994. xvi, 264 pp. \$125 or £82 or Dfl. 195. Mathematics and Its Applications, vol. 309.

**Papers on General Topology and Applications.** Susan Andima *et al.*, Eds. New York Academy of Sciences, New York, 1994. x, 355 pp., illus. \$85. Annals of the New York Academy of Sciences, vol. 728. From a conference, Flushing, NY, June 1992.

**Partial Differential Equations.** Models in Physics and Biology. Günter Lumer, Serge Nicaise, and Bert-Wolfgang Schulze, Eds. Akademie Verlag, Berlin, 1995 (U.S. distributor, VCH, New York). 421 pp. \$90. Mathematical Research, vol. 82. Based on a conference, Han-sur-Lesse, Belgium, Dec. 1993.

**Particle Bombardment Technology for Gene Transfer.** Ning-Sun Yang and Paul Christou. Oxford University Press, New York, 1994. xvi, 202 pp., illus. \$35. UWBC Biotechnical Resource Series.

**Plants of the San Francisco Bay Region.** Mendocino to Monterey. Eugene N. Kozloff and Linda H. Beidleman. Sagen Press, Pacific Grove, CA, 1994. ii, 332 pp., illus. + plates. Paper, \$29.95.

**Quantum Electrodynamics.** Walter Greiner and Joachim Reinhardt. 2nd ed. Springer-Verlag, New York, 1994. xvi, 405 pp., illus. Paper, \$59. New edition of *Theoretical Physics, Text and Exercise Books*, vol. 4.

**Quantum Mechanics.** Symmetries. Walter Greiner and Berndt Müller. 2nd ed. Springer-Verlag, New York, 1994. xx, 496 pp., illus. Paper, \$49.95. New edition of *Theoretical Physics, Text and Exercise Books*, vol. 2.

**Quantum-Theoretical Formalism for Inhomogeneous Graded-Index Waveguides.** Sergei G. Krivoshlykov. Akademie Verlag, Berlin, 1994 (U.S. distributor, VCH, New York). 349 pp., illus. \$90.

**Radiative and Collisional Characteristics of Ions in Hot Plasmas.** I. I. Sobel'man, Ed. Nova, Commack, NY, 1994. xvi, 367 pp., illus. \$98. Proceedings of the Lebedev Physics Institute, Academy of Sciences of Russia, vol. 218.

**Recent Advances in the Study of Hepatitis C**

**Virus.** Epidemiological, Clinical and Molecular Basis. Okio Hino, Ed. Karger, Farmington, CT, 1994. 84 pp., illus. \$66.50 or sFr. 83 or DM 99. *Intervirology*, vol. 37, no. 2.

**The Roots of the Self.** Unraveling the Mystery of Who We Are. Robert Ornstein. HarperCollins, New York, 1995. x, 240 pp., illus. Paper, \$12. Reprint, 1993 ed.

**Sahel Visions.** Planned Settlement and River Blindness Control in Burkina Faso. Della E. McMillan. University of Arizona Press, Tucson, 1994. xlii, 225 pp., illus. \$35; paper, \$14.95. Arizona Studies in Human Ecology.

**The Sciences.** An Integrated Approach. James Trefill and Robert M. Hazen. Wiley, New York, 1995. xiv, 690 pp., illus. Paper, \$50.95.

**Seals and Sea Lions of the World.** Nigel Bonner. Facts on File, New York, 1994. 224 pp., illus. \$25.95.

**Seeing the Unseen.** Dr. Harold E. Edgerton and The Wonders of Strobe Alley. Roger R. Bruce, Ed. MIT Press, Cambridge, MA, 1995. xvi, 89 pp., illus., + photo CD. Spiralbound, \$39.95.

**The Structure and Function of Alzheimer's Amyloid Beta Proteins.** David Schubert. Landes, Georgetown, TX, 1994 (distributor, CRC Press, Boca Raton, FL). viii, 100 pp., illus. \$89.95. Medical Intelligence Unit.

**Synthetic Peptides in the Search for B- and T-Cell Epitopes.** Eva Rajnavölgyi. Landes, Georgetown, TX, 1994 (distributor, CRC Press, Boca Raton, FL). xii, 211 pp., illus. \$89.95. Molecular Biology Intelligence Unit.

**Thermal Sensors.** G. C. M. Meijer and A. W. Herwaarden, Eds. Institute of Physics, Philadelphia, 1994. xvi, 304 pp., illus. \$150 or £75. Sensors Series.

**Thought as a System.** David Bohm. Routledge, New York, 1995. xviii, 250 pp. Paper, \$16.95 or \$C22.95. From a seminar, Ojai, CA, Nov.-Dec. 1990.

**Topics in Fluorescence Spectroscopy.** Vol. 4, Probe Design and Chemical Sensing. Joseph R. Lakowicz, Ed. Plenum, New York, 1994. xviii, 501 pp., illus. \$95.

**Treatment of Thyroid Cancer in Childhood.** Jacob Robbins, Ed. U.S. Department of Energy (distributor, U.S. Department of Commerce, Technology Administration, National Technical Information Service, Springfield, VA) 1994. Paper, x, 171 pp., illus. DOE/EH-0406. From a workshop, Bethesda, MD, Sept. 1992.

**Turbulence in Spatially Extended Systems.** R. Benzi, C. Basdevant, and S. Ciliberto, Eds. Nova, Commack, NY, 1994. x, 346 pp., illus. \$98. Les Houches Series. From an institute, Les Houches, France, Jan. 1992.

**Unitary Representation Theory of Exponential Lie Groups.** Horst Leptin and Jean Ludwig. De Gruyter, Hawthorne, NY, 1994. x, 200 pp. \$98.95 or DM 198 or öS 1.545 or sFr 190. De Gruyter Expositions in Mathematics, vol. 18.

**Vandals at the Gates of Medicine.** Historic Perspectives on the Battle Over Health Care Reform. Miguel A. Faria, Jr. Hacienda Publishing, Macon, GA, 1995. xviii, 403 pp., illus. \$41.95.

**The Visual Dictionary of American Domestic Architecture.** Rachel Carley. Holt, New York, 1995. 272 pp., illus. \$40.

**Wavelets.** Theory, Algorithms, and Applications. Charles K. Chui, Laura Montefusco, and Luigia Puccio, Eds. Academic Press, San Diego, CA, 1994. xvi, 628 pp., illus., + plates. \$59.95. Wavelet Analysis and its Applications, vol. 5. Based on a conference, Taormina, Italy, Oct. 1993.

**What Children Bring to Light.** A Constructivist Perspective on Children's Learning in Science. Bonnie L. Shapiro. Teachers College Press, New York, 1994. xx, 219 pp., illus. Paper, \$19.95. Ways of Knowing Science Series.

**Why We Get Sick.** The New Science of Darwinian Medicine. Randolph M. Neese and George C. Williams. Times Books, New York, 1995. xii, 291 pp., illus. \$24.

**The World of Science.** Peter Lafferty. Facts on File, New York, 1994. 48 pp., illus. \$9.95. 101 Questions and Answers Series.

**Writing Ground Zero.** Japanese Literature and the Atomic Bomb. John Whittier Treat. University of Chicago Press, Chicago, 1995. xx, 487 pp., illus. \$29.95.

**Your Health and Your House.** A Resource Guide. Nina Anderson and Albert Benoist. Keats, New Canaan, CT, 1995. xii, 159 pp., illus. Paper, \$16.95.