John Spencer and Jacqueline Mitton have produced a very different but very complementary book composed of chapters by knowledgeable astronomers on each aspect of Shoemaker-Levy 9. Although the book is not a personal narrative in the manner of Levy's book, each scientist recounts his or her participation in the different phases of the story, along with explanations of the key findings. Where the book really shines, though, is in its illustrations, providing a photo album of the newly discovered comet, its evolution as it headed for its catastrophic end, the Galileo and HST impact observations, and the wealth of ground-based infrared and visual imagery. Also included are snapshots of the observers at work, including the University of Chicago team at the South Pole, who braved temperatures of −75 degrees Fahrenheit and blowing snow to view every one of the impacts through the polar night.

The final scientific text on Shoemaker-Levy 9 has yet to be written. The ongoing analysis and synthesis of the data will likely take years. In the meantime, these two books have begun to record both the scientific and the human story. Both books are highly recommended.

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Running Waters

Stream Ecology. Structure and Function of Running Waters. J. DAVID ALLAN. Chapman and Hall, New York, 1995. xii, 388 pp., illus. Paper, $44.95.

For pure love of the environment in which they're working, stream ecologists are an enviable bunch. This should not be surprising—what youngster has not been enthralled by the mysteries of the brook, the lure of the river? Streams and rivers have an organic connection to all that is upstream and hidden from view and to the future, embodied in the sea. Rivers are the bloodstream of the land—a sign of its vitality, too often a reflection of its maladies. These grand integrators transport, harbor, nourish, deposit and erode, connect and disconnect, produce, consume, transform, and assemble all that is organic about the environment. At the same time they host an array of aquatic denizens found nowhere else.

There is a science here too, and J. David Allan's *Stream Ecology* is its new handbook. H. B. Noel Hynes (*The Ecology of Running Waters*, University of Toronto Press, 1970) produced the only indisputable classic in the history of the science some 25 years ago. That book, now out of print, has guided the development of the field for a quarter century. Allan's volume, which should be the second classic, shows us how far we've come.

Eighty-five percent of the material reviewed by Allan has been published since Hynes's effort. Indeed, Allan's book reflects a revolution in stream ecology—a substantial increase in experimental technique, an increasingly holistic perspective, an appreciation for the geographic diversity of streams and rivers worldwide, and a new dedication to redressing the environmental insults hurled in the name of water resource development.

The strength of this book is the even-handed way in which Allan reviews a voluminous literature in search of generality. Allan takes us inside original research papers and builds his book on the evidence provided rather than the claims of the authors. Reading this book is not a travelogue, but a pleasant journey. The route is braided, there are multiple channels downstream, and Allan has left many hints for rewarding thesis projects for the graduate student who is willing to explore a bit.

Streams interdigitate with the land, but stream ecology has not interdigitated well with the larger field of ecology. Few devotees of streams venture beyond their boundaries, and almost no ecologists trained in other areas venture in. Streams have been a research arena fostering detailed, elegant studies of predator-prey dynamics, competition, control of community structure, and a host of conservation issues. Seldom is this work cited in the general textbooks of ecology or used to bolster development of ideas generated in more cumbersome systems such as tropical forests or grasslands. Allan's book provides the generalist with easy access to this wealth of information by casting his chapters on biotic interactions and community structure in the broad framework of theoretical ecology.

Ecosystem-level topics, such as productivity, nutrient cycling, and ecosystem energetics do not fare as well. These topics are treated largely as stream phenomena and remain mired in an isolated disciplinary pool. But it is too much to expect Allan to anneal everything—workers in thus subarea need to work harder to facilitate such a synthesis.

There is no question that David Allan has provided an unusually lucid and judicious reassessment of the state of stream ecology. There is also no question that there is an energetic, creative mass of stream ecologists who will gladly receive and build on this message. There is a question, however, whether a habitat-based approach to ecology is appropriate at this stage of the science. Just as streams ramify with the larger landscape and thereby blur boundaries, so might disciplines aspire to erase the effects of spatial peculiarity and seek a stronger conceptual integration. If this second classic in the history of stream ecology is successful, we may not need a third.

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Books Received

Affine Analysis of Image Sequences. Larry S. Shapiro. Cambridge University Press, New York, 1995. xiv, 210 pp., illus. $49.95. Distinguished Dissertations in Computer Science.

Air Pollution and Community Health. A Critical Review and Data Sourcebook. Frederick W. Lipfert. Van Nostrand Reinhold, New York, 1994. xiv, 556 pp., illus. $74.95.

Biotechnology of Ectomycorrhizae. Molecular Approaches. Vilberto Stocchi, Paola Bonfante, and Marco Nuti, Eds. Plenum, New York, 1995. viii, 251 pp., illus. $85. From a symposium, Urbino, Italy, Nov. 1994.

Biothols, Part B: Glutathione and Thioredoxin. Thiols in Signal Transduction and Gene Regulation. Lester Packer, Ed. Academic Press, San Diego, 1995. xxx, 382 pp., illus. $80. Methods in Enzymology, vol. 252.

Cardiac Growth and Regeneration. William C. Claycomb and Paolo Di Nardo, Eds. New York Academy of Sciences, New York, 1995. xiv, 525 pp., illus. $135. Annals of the New York Academy of Sciences, vol. 752. From a workshop, Viterbo, Italy, June 1994.

Combined Vaccines and Simultaneous Administration. Current Issues and Perspectives. Jim C. Williams *et al.*, Eds. New York Academy of Sciences, New York, 1995. xvi, 404 pp., illus. $140. Annals of the New York Academy of Sciences, vol. 754. From a conference, Bethesda, MD, July 1993.

Disease in Evolution. Global Changes and Emergence of Infectious Diseases. Mary E. Wilson, Richard Levins, and Andrew Spielman, Eds. New York Academy of Sciences, New York, 1994. xx, 503 pp., illus. $145. Annals of the New York Academy of Sciences, vol. 740. From a conference, Woods Hole, MA, Nov. 1993.

Diversity of Interacting Receptors. Leo G. Abood and Abel Lajtha, Eds. New York Academy of Sciences, New York, 1995. x, 534 pp., illus. $145. Annals of the New York Academy of Sciences, vol. 757. From a conference, Washington, DC, May 1994.

Elementary Linear Programming with Applications. Bernard Kolman and Robert E. Beck. 2nd ed. Academic Press, San Diego, 1995. xxii, 449 pp., illus. $59.95. Computer Science and Scientific Computing.

Enzyme Engineering XII. Marie-Dominique Legoy and Daniel Thomas, Eds. New York Academy of Sciences, New York, 1995. xiv, 506 pp., illus. $140. Annals of the New York Academy of Sciences, vol. 750. From a conference, Deauville, France, Sept. 1993.

Fraud and Fallible Judgement. Varieties of Deception in the Social and Behavioral Sciences. Nathaniel J. Pallone and James J. Hennessy, Eds. Transaction, New Brunswick, NJ, 1995. x, 190 pp. Paper, $19.95. Reprinted largely from *Society*, vol. 31, no. 3 (1994).

Fundamental Problems in Quantum Theory. A Conference Held in Honor of Professor John A. Wheeler. Daniel M. Greenberger and Anton Zeilinger, Eds. New York Academy of Sciences, New York, 1995. xiv, 908 pp., illus. $190. Annals of the New York Academy of Sciences, vol. 755. From a conference, Baltimore, June 1994.

A Guide to Wildflowers in Winter. Herbaceous Plants of Northeastern North America. Carol Levine. Yale

University Press, New Haven, CT, 1995. xiv, 329 pp., illus. $40; paper, $20.

Guided-Wave Optoelectronics. Device Characterization, Analysis, and Design. Theodor Tamir, Giora Griffel, and Henry L. Bertoni, Eds. Plenum, New York, 1995. xiv, 501 pp., illus. $129.50. From an symposium, Brooklyn, NY, Oct. 1994.

Home-Based Employment and Family Life. Ramona K. Z. Heck, Alma J. Owen, and Barbara R. Rowe, Eds. Auburn House (Greenwood), New York, 1995. xviii, 277 pp., illus. $65.

Household Composition in Latin America. Susan M. De Vos. Plenum, New York, 1995. xiv, 251 pp., illus. $39.50. Plenum Series on Demographic Methods and Population Analysis.

Introduction to Analytic and Probabilistic Number Theory. Gérald Tenenbaum. Cambridge University Press, New York, 1995. xvi, 448 pp., illus. $64.95. Cambridge Studies in Advanced Mathematics, 46. Translated from the French edition (1990) by C. B. Thomas.

Investigating Disease Patterns. The Science of Epidemiology. Paul D. Stolley and Tamar Lasky. Scientific American Library (HPHLP), New York, 1995 (distributor, Freeman, New York). xii, 242 pp., illus. $32.95.

Legal and Ethical Aspects of HIV-Related Research. Sana Loue. Plenum, New York, 1995. xiv, 218 pp. $39.50.

The Manufactured Crisis. Myths, Fraud, and the Attack on America's Public Schools. David C. Berliner and Bruce J. Biddle. Addison-Wesley, Reading, MA, 1995. xvi, 414 pp., illus. $25.

Medically Important Fungi. A Guide to Identification. Davise H. Larone. 3rd ed. ASM Press, Washington, DC, 1995. xvi, 274 pp., illus. Paper, $42.95.

Medicine Worth Paying For. Assessing Medical Innovations. Howard S. Frazier and Frederick Mosteller, Eds. Harvard University Press, Cambridge, MA, 1995. xiv, 311 pp., illus. $39.95.

Molecular and Cellular Mechanisms of Neostriatal Function. Marjorie A. Ariano and D. James Surmeier, Eds. Springer-Verlag, New York, and Landes, Austin, TX, 1995 (distributor, CRC Press, Boca Raton, FL). xviii, 325 pp., illus. $79. Neuroscience Intelligence Unit.

New Uncertainty Concepts in Hydrology and Water Resources. Zbigniew W. Kundzewicz, Ed. Cambridge University Press, New York, 1995. xiv, 322 pp., illus. $125. International Hydrology Series. From a workshop, Madralin, Poland, Sept. 1990.

Nitric Oxide. A Modulator of Cell-Cell Interactions in the Microcirculation. Paul Kubes. Springer, New York, and Landes, Austin, TX, 1995 (distributor, CRC Press, Boca Raton, FL). x, 171 pp., illus. $79. Molecular Biology Intelligence Unit.

Nitrocarbons. Arnold T. Nielsen. VCH, New York, 1995. x, 190 pp., illus. $110. Organic Nitro Chemistry.

Optical Coherence and Quantum Optics. Leonard Mandel and Emil Wolf. Cambridge University Press, New York, 1995. xxvi, 1166 pp., illus. $49.95.

Optical Physics. S. G. Lipson, H. Lipson, and D. S. Tannhauser. 3rd ed. Cambridge University Press, New York, 1995. xvi, 306 pp., illus. $84.95. Cambridge Monographs on Atomic, Molecular and Chemical Physics, 4.

Phosphatases in Cell Metabolism and Signal Transduction. Structure, Function and Mechanism of Action. John B. Vincent and Michael W. Crowder. Springer, New York, and Landes, Austin, TX, 1995 (distributor, CRC Press, Boca Raton, FL). viii, 203 pp., illus. $89. Molecular Biology Intelligence Unit.

Photographic Atlas of the Rat Brain. The Cell and Fiber Architecture Illustrated in Three Planes with Stereotaxic Coordinates. Lawrence Kruger, Samuel Saporta, and Larry W. Swanson. Cambridge University Press, New York, 1995. xvi, 299 pp. Spiralbound, $69.95.

Physical and Technical Problems of SOI Structures and Devices. J. P. Colinge, V. S. Lysenko, and A. N. Nazarov, Eds. Kluwer, Norwell, MA, 1995. x, 290 pp., illus. $160 or £99 or Dfl. 225. NATO ASI Series 3, vol. 4. From a workshop, Gurzuf, Ukraine, Nov. 1994.

Romantic Passion. A Universal Experience? William Jankowiak. Columbia University Press, New York, 1995. x, 310 pp. $27.50.

Rotifera. Vol. 2, The Lecanidae (Monogononta). Hendrik Segers. SPB Academic, Amsterdam, 1995. vi, 226 pp., illus. Paper, $69. Guides to the Identification of the Microinvertebrates of the Continental Waters of the World, 6.

Royal Observatory, Cape of Good Hope, 1820-1831. The Founding of a Colonial Observatory. Brian Warner. Kluwer, Norwell, MA, 1995. xii, 241 pp., illus. $119 or £75 or Dfl. 165.

Science and Technology on the Internet PLUS. An Instructional Guide. Gail P. Clement. Library Solutions, San Carlos, CA, 1995. xx, 264 pp. + diskettes. Paper, $60. Internet Workshop no. 4. A supplement to *Crossing the Internet Threshold*.

Science and the Raj, 1857-1905. Deepak Kumar. Oxford University Press, New York, 1995. xvi, 273 pp., + plates. $27.

Science in the Making. Vol. 1, 1798-1850. E. A. Davis, Ed. Taylor and Francis, Philadelphia, 1995. xxxvi, 401 pp., illus., + plates. $115. Papers reprinted from the *Philosophical Magazine*.

Technical Advances in AIDS Research in the Human Nervous System. Eugene O. Major and Jay A. Levy, Eds. Plenum, New York, 1995. x, 373 pp., illus. $95. From a symposium, Washington, DC, Oct. 1993.

Technology in the Hospital. Transforming Patient Care in the Early Twentieth Century. Joel D. Howell. Johns Hopkins University Press, Baltimore, 1995. xviii, 342 pp., illus. $47.50.

Technology, Pessimism, and Postmodernism. Yaron Ezrahi, Everett Mendelsohn, and Howard Segal, Eds. University of Massachusetts Press, Amherst, 1995. viii, 216 pp. Paper, $14.95. Reprint, 1994 ed.

Urban Ecology as the Basis of Urban Planning. H. Sukopp, M. Numata, and A. Huber, Eds. SPB Academic, Amsterdam, 1994. viii, 218 pp., illus. Paper, $47. Based on a congress, Yokohama, Japan, 1990.

Virtual Reality Applications. R.A. Earnshaw, J. A. Vince, and H. Jones, Eds. Academic Press, San Diego, 1995. xviii, 328 pp., illus., + plates. $29.95.

Wilms Tumor. Clinical and Molecular Characterization. Max J. Coppes, Christine E. Campbell, and Bryan R. G. Williams. Springer-Verlag, New York, and Landes, Austin, TX, 1995 (distributor, CRC Press, Boca Raton, FL). viii, 158 pp., illus. $69. Molecular Biology Intelligence Unit.

Vignettes: Progress in Transportation

Whereas skiing began as a way of getting about and evolved into a sport, bicycling began as a sport activity and evolved into a means of transport. Even when the rider of a high-wheeled bicycle was not actually racing, he viewed his activity primarily as an athletic pastime. It was not easy to mount the high-wheeled bicycle . . . . Uwe Timm . . . gives a convincing and colorful description of his uncle Franz Schröder's efforts to learn how to ride a high-wheeled bicycle: "Schröder experienced this afternoon the large and fundamental difference between theory and practice. He mounted and fell down. The crowd of spectators was standing there and kept silent. He stood up again and fell off again." He repeated this motion several times, to increasingly enthusiastic clapping and cheering: "Hopf, hopf, hopf, immer aufem Kopf!" By the end of the afternoon he had learned how to mount and ride in a straight line; making a curve and dismounting were not yet in his repertoire, so each little ride ended in a fall. However, after another week of trying (in which he lost two finger tips between the spokes of the front wheel), he had mastered the art of riding a high-wheeled bicycle. No wonder bicyclists wore an anxious air. "Bicyclist's face," this expression was called, and newspapers predicted a generation with hunchbacks and tortured faces as a result of the bicycle craze.

—*Wiebe E. Bijker*, in *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change* (MIT Press)

I recall Roy Rogers and Trigger—an all-terrain vehicle with abundant onboard intelligence. Trigger always knew where he was, could find his way home if necessary, and understood moment-by-moment what his master needed; horse and cowboy functioned as one. But when the horse vanished from everyday life, leaving behind the horseless carriage, the onboard intelligence went too; there was a technological gap to be filled. (Roy obviously didn't have quite the same relationship to his jeep.) Increasingly, now, electronics are doing the job. Soon, our automobiles will be at least as smart as Trigger, and the car-and-driver relationship will return to the cowpoke-and-horseflesh mode. And when they get smarter still, the horseless carriage may evolve into the driverless automobile.

—*William J. Mitchell*, in *City of Bits: Space, Place, and the Infobahn* (MIT Press)

Publishers' Addresses

Below is information about how to direct orders for books reviewed in this issue. A fuller list of addresses of publishers represented in *Science* appears in the issue of 26 May 1995, page 1220.

Cambridge University Press, 110 Midland Ave., Port Chester, NY 10573-4930. Phone: 800-872-7423; 914-937-9600. Fax: 914-937-4712.

Chapman and Hall, c/o International Thomson Publishing, 7625 Empire Dr., Florence, KY 41042. Phone: 800-842-3636; 606-525-6600. Fax: 606-525-7776.