

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 evenhanded 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 this 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 ap-

proach 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. Viliberto 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. Aboud 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