

of this book are generally excellent. The extensive list of references alone will make it a worthwhile acquisition for many readers. Organisms, rivers, and subject matter are all indexed, some (but unfortunately not all) chapters are cross-referenced, and a guide to the literature on particular rivers is included in an appendix. Typographical errors and awkward wording are frequent enough to be mildly annoying.

The book nicely complements the few others available on river ecology. New material and original insights are provided in a few of the chapters, and others concisely summarize present knowledge. *River Ecology* will be a welcome addition to the bookshelf of any student of those fascinating, complex, highly variable, vital sources of water, sites of waste disposal, and subjects of contemplation and enjoyment we call rivers.

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Space Physics

International Conference on X-Rays in Space. (Cosmic, Solar and Auroral X-Rays.) Calgary, Alberta, Canada, Aug. 1974. Published by Dr. D. Venkatesan, University of Calgary Department of Physics, Calgary, Canada, 1975. Two volumes. xx, 1236 pp., illus. + appendices. Paper, \$40.

These two volumes are the result of a week-long conference on x-rays in space. The purpose of the meeting was to bring about an exchange of ideas among researchers in cosmic, solar, and auroral x-rays, three currently active and fascinating fields. After the conference the participants submitted manuscripts, and this proceedings consists of 33 invited talks (mostly reviews), 16 contributed papers (many of which have since appeared in journals in essentially identical form), and eight panel discussions.

The nature and depth of these papers vary considerably. A few are very broad discussions of large fields of research. The inaugural lecture on high energy astronomy by H. Friedman and a review of high energy plasmas by C. de Jager are two examples of this genre. Both are lucid expositions that do not go into much detail. The majority of the papers, however, treat more specific topics in greater depth. H. S. Hudson's review of the solar x-ray continuum and S. R.

Kane's discussion of solar flare x-rays and cosmic gamma-ray bursts are particularly noteworthy in that they present clear summaries of a large mass of observational data as well as some of the conclusions that can be drawn about these phenomena. These qualities do not, however, justify the inclusion of the identical paper by Kane twice, almost a thousand pages apart.

There are a number of reviews of observational techniques. R. Novick's paper on the emerging field of x-ray polarimetry is quite readable; positive results have already been obtained for solar flares and the Crab nebula, confirming the synchrotron nature of its x-ray emission. A few of the observational papers on x-rays from electron precipitation in the magnetosphere require some familiarity with the field to be understandable. Purely theoretical papers are in the minority. Reviews on x-ray binaries by R. M. McCray and by F. K. Lamb and on solar corona models by A. B. C. Walker, Jr., are all reasonably current and yet provide good background material.

Overall, there is little attempt to provide systematic coverage of various fields. For example, there is no single critical review of the evidence that Cygnus X-1 is a black hole, although there are extensive and understandable discussions of binary mass determinations by J. N. Bahcall, of the radio and x-ray emission of Cygnus X-1 by R. M. Hjellming and by M. P. Ulmer, and of its x-ray time variability by M. Oda and the Goddard x-ray group, as well as a somewhat too specialized compendium of black hole theory by R. Ruffini. As a result, the book is not suitable for students unfamiliar with the subject, but it is a useful collection for active researchers.

The attempt to find a common ground for cosmic, solar, and terrestrial x-ray scientists is particularly valuable. As F. D. Seward points out in one of the concluding summaries, the earth, if it were viewed in x-rays by a distant observer, would appear as a binary x-ray source whose emission is produced by particles accreted from a stellar wind and funneled through the magnetosphere. This emission would then appear to pulse with the rotation frequency of the earth, in a manner very similar to that of cosmic x-ray sources—the main difference being 20 orders of magnitude in luminosity.

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Books Received

Acupuncture Anesthesia. Translated from the Chinese edition. U.S. Directory Service, Miami, 1975. xii, 344 pp., illus. \$30.

Adhesion Science and Technology. Part B. Proceedings of a symposium, Philadelphia, Apr. 1975. Lieng-Huang Lee, Ed. Plenum, New York, 1975. xiv + pp. 441-882, illus. \$37.50. Polymer Science and Technology, vol. 9B.

Advances in Lipid Research. Vol. 13. Rodolfo Paoletti and David Kritchevsky, Eds. Academic Press, New York, 1975. xviii, 260 pp., illus. \$27.50.

Advances in Nuclear Physics. Vol. 8. Michel Baranger and Erich Vogt, Eds. Plenum, New York, 1975. xiv, 384 pp., illus. \$27.50.

Annual Review of Genetics. Vol. 9. Herschel L. Roman, Allan Campbell, and Laurence M. Sandler, Eds. Annual Reviews, Palo Alto, Calif., 1975. viii, 498 pp., illus. \$15.

Anomalous Scattering. Proceedings of a conference, Madrid, April 1974. S. Ramaseshan and S. C. Abrahams, Eds. Published for the International Union of Crystallography by Munksgaard, Copenhagen, 1975 (U.S. distributor, Polycrystal Book Service, Pittsburgh). xii, 540 pp., illus. \$36.

Astronomy and Astrophysics Abstracts. Vol. 13, Literature 1975, Part 1. S. Böhme and nine others, Eds. Published for Astronomisches Rechen-Institut by Springer-Verlag, New York, 1975. x, 634 pp. \$35.30.

Babies. Human Development during the First Year. Bengt Zachau-Christiansen and Euan M. Ross. Wiley, New York, 1975. xiv, 336 pp. \$28.

Basic Inorganic Chemistry. F. Albert Cotton and Geoffrey Wilkinson. Wiley, New York, 1976. x, 580 pp., illus. \$14.95.

Behavior and Brain Electrical Activity. Proceedings of a symposium, Houston, Nov. 1973. Neil Burch and H. I. Altshuler, Eds. Plenum, New York, 1975. xx, 564 pp., illus. \$32.50.

Complex Adaptations in Evolving Populations. T. H. Frazzetta. Sinauer, Sunderland, Mass., 1975. xiv, 270 pp., illus. Cloth, \$11; paper, \$4.95.

Computers in Life Science Research. Proceedings of a conference. William Siler and Donald A. B. Lindberg, Eds. FASEB, Bethesda, Md., and Plenum, New York, 1975. viii, 272 pp., illus. \$19.50. FASEB Monographs, vol. 2. Reprinted from *Federation Proceedings*, vol. 33, No. 12.

The Microflora of Lakes and Its Geochemical Activity. S. I. Kuznetsov. Translated from the Russian edition (Leningrad, 1970). Carl H. Oppenheimer, Ed. University of Texas Press, Austin, 1975. xvi, 504 pp., illus. \$19.95.

Morphogenesis and Malformation of Face and Brain. Proceedings of a conference, Airlie House, Va., June 1974. Daniel Bergsma, Jan Langman, and Natalie W. Paul, Eds. Liss, New York, 1975. xii, 364 pp., illus. \$30. National Foundation—March of Dimes Birth Defects, vol. 11, No. 7.

Muon Physics. Vol. 3, Chemistry and Solids. Vernon W. Hughes and C. S. Wu, Eds. Academic Press, New York, 1975. xii, 306 pp., illus. \$41.50.

The Nature of Psychodynamic Interpretation. Neil M. Cheshire. Wiley, New York, 1975. xii, 230 pp. \$15.95.

New Concepts in Human Placental Biology. (Notions Récentes dans la Biologie du Placenta Humain.) Papers from a colloquium,

(Continued on page 75)