

vide constraints on the regeneration mechanism of the field; however, progress on this aspect of the subject has been slow. R. Hide gives a useful review of the expected forms of fluid motion, and F. Krause discusses some results from mean-field electrodynamics. Krause finds that the associated ohmic dissipation is an important constraint on the length and time scales of the convective cells.

This brief tour demonstrates the book's diversity. No editorial attempt has been made to integrate the results of different fields. Many of the papers in the book are reports of research and not reviews. These features make the book inappropriate for teaching purposes. It does, however, provide an excellent entry to the modern literature on most aspects of the earth's core as well as some stimulating papers.

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Seismology

Earthquake Forecasting and Warning. TSUNEJI RIKITAKE. Center for Academic Publications Japan, Tokyo, and Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xxii, 402 pp., illus. \$45. Developments in Earth and Planetary Science, 03.

This is the third book in a series produced by Rikitake. In 1976, *Earthquake Prediction*, written entirely by Rikitake, provided the first comprehensive overview of initial earthquake prediction efforts in Japan, China, the Soviet Union, and the United States. The book provided a summary of theories of earthquake prediction and the observational data existing at that time that suggested that large earthquakes were indeed predictable. *Current Research in Earthquake Prediction I*, partly written by Rikitake, appeared in 1981. It covered various aspects of the Japanese earthquake prediction program, with two brief sections on U.S. activities. In this third book, Rikitake attempts to update the status of earthquake prediction efforts in Japan, China, the Soviet Union and the United States; to give an overview of some of the organizational, legal, and societal aspects of earthquake prediction in these four countries; and to update scientific findings of precursory phenomena.

For scientists interested in earthquake prediction the most important contribution of the book is the summary of the circumstances surrounding the 1975 Hai-

cheng earthquake (magnitude 7.3), the 1978 Tangshan earthquake (magnitude 7.8), and the 1976 Songpan-Pingwu earthquake (magnitudes 7.2, 6.8, 7.2) in China and the 1978 Izu-Oshima earthquake (magnitude 7.0) in Japan. As a result of several trips to China, Rikitake is able to provide insightful reports about the successful short-term predictions of the Haicheng and Songpan-Pingwu earthquakes (which probably saved several tens of thousands of lives) and the nonprediction of the Tangshan earthquake (in which 244,000 people died according to official estimates—unofficial estimates are as high as 655,000). The summaries of earthquake precursory phenomena manage to leave the reader both fascinated and perplexed, for few "hard" scientific data are actually available. Successful predictions notwithstanding, both Rikitake and the reader are forced to admit that because Chinese seismologists depend heavily upon non-scientifically sampled "macroscopic anomalies" (unusual animal behavior, water-well fluctuations, natural gas emissions, and the like) it is still nearly impossible to understand their prediction criteria.

It is unfortunate that this book fails to provide a comprehensive summary of recent advances in earthquake prediction research. Though some recent progress in Japan is cited, the significant advances made in the United States since 1979 in earthquake recurrence estimates and crustal deformation and seismicity monitoring are not covered at all. For example, on the subject of crustal deformation measurements, the author refers to several papers published over 12 years ago but totally disregards over a score of publications in the last decade that establish deformation and slip rates along the San Andreas fault zone. It is also regrettable that the only evidence offered of progress in earthquake prediction is various types of data collected over a short period preceding an earthquake, types of data that have become familiar over the years. The definition of specific seismic gaps and the quantitative assessment of earthquake probabilities, the development of detailed observation systems, and the determination of long-term rates of seismicity and crustal deformation are all significant accomplishments that readers will be unable to assess.

The exact form earthquake prediction information should take for effective transmission to the public and the public response to such information are extremely important topics that are each the subject of a chapter in the book. The

Japanese experience with these issues provides important insight. Also of interest is the summary of the circumstances surrounding the "Ishibashi hypothesis." In this case a mild panic occurred owing to the misinterpretation of a reasonable scientific hypothesis about the area that would be affected by a repeat occurrence of a great earthquake that occurred in 1854. This case reminds us of the difficult task we face in maintaining scientifically credible earthquake prediction research efforts in the face of possibly extreme public pressure for up-to-date information.

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Books Received

Absorption and Scattering of Light by Small Particles. Craig F. Bohren and Donald R. Huggman. Wiley-Interscience, New York, 1983. xvi, 530 pp., illus. \$44.95.

Advances and Trends in Structural and Solid Mechanics. Papers from a symposium, Washington, D.C., Oct. 1982. Ahmed K. Noor and Jerrold M. Housner, Eds. Pergamon, New York, 1983. viii, 588 pp., illus. \$165.

Advances in Agronomy. Vol. 35. N. C. Brady, Ed. Academic Press, New York, 1983. xii, 306 pp., illus. \$45.50.

Advances in Drying. Vol. 2. Arun S. Mujumdar, Ed. Hemisphere, Washington, D.C., 1983. xiv, 302 pp., illus. \$55.

Advances in Vertebrate Neuroethology. Proceedings of an institute, Kassel, Germany, Aug. 1981. Jörg-Peter Ewert, Robert R. Capranica, and David J. Ingle, Eds. Plenum, New York, 1983. xviii, 1238 pp., illus. \$150. NATO Advanced Science Institutes Series A, vol. 56.

Agricultural Development in China, Japan and Korea. Papers from a conference, Taipei, Dec. 1980. Chi-ming Hou and Tzong-shian Yu, Eds. Academia Sinica, Taipei, Republic of China, 1983 (U.S. distributor, University of Washington Press, Seattle). xiv, 878 pp., illus. \$40.

Algebra of Conscience. A Comparative Analysis of Western and Soviet Ethical Systems. Vladimir A. Lefebvre. Reidel, Boston, 1982 (distributor, Kluwer Boston, Hingham, Mass.). xxx, 194 pp., illus. \$39. Theory and Decision Library, vol. 26.

The Alligator Rivers. Prehistory and Ecology in Western Arnhem Land. Carmel Schrire. Department of Prehistory, Research School of Pacific Studies, Australian National University, Canberra, 1982 (distributor, Australian National University Press, Canberra). xxx, 278 pp., illus. Paper, \$A14.50. Terra Australis 7.

The Amateur Naturalist's Diary. Vinson Brown. Prentice-Hall, Englewood Cliffs, N.J., 1983. viii, 184 pp., illus. Cloth, \$16.95; paper, \$9.95.

Androgenization in Women. Pathophysiology and Clinical Aspects. Papers from a symposium, Turin, Italy, Sept. 1981. Gian Michele Molinatti, Luciano Martini, and Vivian H. T. James, Eds. Raven, New York, 1983. xiv, 202 pp., illus. \$42.

Annual Review of Pharmacology and Toxicology. Vol. 23. Robert George, Ronald Okun, and Arthur K. Cho, Eds. Annual Reviews, Palo Alto, Calif., 1983. xii, 714 pp., illus. \$27.

Annual Review of Public Health. Vol. 4. Lester Breslow, Jonathan E. Fielding, and Lester B. Lave, Eds. Annual Reviews, Palo Alto, Calif., 1983. viii, 424 pp. \$27.

Application of High Magnetic Fields in Semiconductor Physics. Proceedings of a conference, Grenoble, France, Sept. 1982. G. Landwehr, Ed. Springer-Verlag, New York, 1983. xii, 552 pp., illus. Paper, \$28.50. Lecture Notes in Physics, vol. 177.

Atlas of Dermatology with Differential Diagnosis. Gernot Rassner. Translated from the German edition (Munich, 1983) and edited by Guinter Kahn. Urban and Schwarzenberg, Baltimore, ed. 2, 1983. xii, 208 pp. \$29.50.

'Autistic' Children. New Hope for a Cure. Niko (Continued on page 337)