is representative of only a fraction of the pentachlorophenol commercially produced today. The failure to provide answers to the valid questions raised in this section is a reflection of the current state of the art.

This book adequately serves two purposes: It provides data concerning the environmental consequences of the use of pentachlorophenol, and it describes another case in which nontarget effects have become the main issue in the assessment of the suitability of an environmental chemical.

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Climatic Misfortunes

North American Droughts. Papers from a AAAS meeting, Denver, Feb. 1977. NORMAN J. ROSENBERG, Ed. Published for the American Association for the Advancement of Science by Westview Press, Boulder, Colo., 1978. xxii, 178 pp., illus. $15. AAAS Selected Symposia Series, 15.

Nothing seems more constant than the variability of the weather, and in its range of variations occur many of the hazards to the safety, comfort, and economic welfare of the inhabitants of an area. Drought is one of the less dramatic of these variations, constituting, as is pointed out by several of the contributors to this symposium volume, a "nonevent," but J. Eugene Haas, in his contribution, ranks it third in economic cost among the "more than a dozen significant geophysical hazards faced by Americans." It is called a "nonevent" because, unlike a hurricane or a flood, it does not produce its damage in a well-defined time period in response to well-defined meteorological and hydrological phenomena. How deficient precipitation must be and for how long the deficiency must persist before it is clear that there is a drought depend on the effect the deficiency has and thus on the nature of human activities in the region and the way they are carried out.

As Rosenberg explains in his introduction, the present volume consists of papers presented at the height of the 1977 drought, but by the time the book was published natural weather variability had brought rains to many areas affected by the drought and together with governmental action had relieved the economic effects for much of the United States.

The fact that the 1977 drought has joined those reviewed by L. Dean Bark in chapter 1, "History of American droughts," as part of the past does not reduce the value of the book as a stimulus to the study of the nature of the effects of drought and the ways to ameliorate them. The short chapter "Strategies in the event of drought" by Haas is a particularly clear summary of possible ameliorative actions, the degree to which they have been employed, and their effectiveness. For the future Haas says that if "heavy emphasis and eventual success in developing long range climate prediction" took place "net benefits would be expected to be very positive and catastrophe potential would be drastically reduced."

From this standpoint the chapter by Stephen H. Schneider entitled "Forecasting future droughts: Is it possible?" is disappointing. Instead of focusing on the physical processes in the atmosphere that may be related to the occurrence of persistent deficiencies in the precipitation of particular areas, Schneider devotes most of the chapter to problems concerning the statistical detection of climatic anomalies and to the predictability of the effects of specific external influences, such as solar variability and the increase of the carbon dioxide in the atmosphere. While these matters are of interest, the fact is that there is no detection problem: droughts are all too conspicuous, and the "climate" variations they represent are of shorter period than the known variations of external forces, so that internal relationships in the atmosphere–ocean–solid-earth system are almost surely the ones that will provide the explanation of droughts, and thereby the way to forecast them.

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Books Received

Aerodynamic Drag Mechanisms of Bluff Bodies and Road Vehicles. Papers from a symposium, Warren, Mich., Sept. 1976. Gino Sovran, Thomas Morel, and William T. Mason, Jr. Plenum, New York, 1978. xii, 380 pp., illus. $39.50.

Alkaloid Biology and Metabolism in Plants. George R. Waller and Edmund K. Nowacki. Plenum, New York, 1978. xviii, 294 pp., illus. $22.50.

Amino Acids, Peptides and Proteins. An Introduction. H.-D. Jakubke and H. Jeschkeit. Translated from the German edition (Berlin, 1973) by G. P. Cotterell and J. H. Jones. Halsted (Wiley), New York, 1978. xvi, 336 pp., illus. $24.95.

Ancient Native Americans. Jesse D. Jennings, Ed. Freeman, San Francisco, 1978. xvi, 698 pp., illus. Cloth, $24.50; paper, $19.95.

Annual Review of Materials Science. Vol. 8. Robert A. Huggins, Richard H. Bube, and Richard W. Roberts, Eds. Annual Reviews, Palo Alto, Calif., 1978. x, 524 pp., illus. $17.

Annual Reviews Reprints: Cell Membranes, 1975–1977. Compiled by L. J. Mullins. Annual Reviews, Palo Alto, Calif., 1978. vi, 560 pp., illus. Paper, $12.

Applied Dream Analysis. A Jungian Approach. Mary Ann Matoon. Winston, Washington, D.C., and Halsted (Wiley), New York, 1978. xvi, 254 pp. $12.50.

Applied Numerical Modelling. Proceedings of a conference, Southampton, England, July 1977. C. A. Brebbia, Ed. Halsted (Wiley), New York, 1978. xii, 714 pp., illus. $37.50.

The Arithmetic of Al-Uqlīdisī. The Story of Hindu-Arabic Arithmetic as Told in *Kitāb al-Fuṣūl fī al-Ḥisāb al-Hindī*. Abū Al-Ḥasan Aḥmad ibn Ibrāhīm al-Uqlīdisī. Translated and annotated by A. S. Saidan. Reidel, Boston, 1978. xviii, 492 pp. $78.

Asteroids. An Exploration Assessment. Papers from a workshop. Chicago, Jan. 1978. David Morrison and William C. Wells, Eds. National Aeronautics and Space Administration, Washington, D.C., 1978. vi, 300 pp., illus. Paper. NASA Conference Publication 2053.

Atherosclerosis Reviews. Vol. 3. Rodolfo Paoletti and Antonio M. Gotto, Jr., Eds. Raven, New York, 1978. xii, 268 pp., illus. $22.

Atlantis. Fact or Fiction? Edwin S. Ramage, Ed. Indiana University Press, Bloomington, 1978. xiv, 210 pp., illus. $10.95.

An Atlas of Representative Stellar Spectra. Yasumasa Yamashita, Kyoji Nariai, and Yuji Norimoto. Halsted (Wiley), New York, 1978. 130 pp. $60.

Atmosphere, Weather and Climate. R. G. Barry and R. J. Chorley. Methuen, London, ed. 3, 1978 (U.S. distributor, Halsted [Wiley], New York). 432 pp., illus. + plates. Paper, $9.95.

Atomic Energy Levels—The Rare-Earth Elements. The Spectra of Lanthanum, Cerium, Praseodymium, Neodymium, Promethium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium, and Lutetium. W. C. Martin, Romuald Zalubas, and Lucy Hagan. National Bureau of Standards, Washington, D.C. 1978 (available from the Superintendent of Documents, Washington, D.C.). viii, 412 pp. $9.50. NSRDS-NBS 60.

Biology: Its Historical Development. Howard B. Baumel. Philosophical Library, New York, 1978. viii, 102 pp., illus. $6.

Biology of Reproduction. Peter J. Hogarth. Halsted (Wiley), New York, 1978. viii, 190 pp., illus. $15.95. Tertiary Level Biology.

The Biophysical Characterization of the Cell Surface. G. V. Sherbet. Academic Press, New York, 1978. xx, 298 pp., illus. $26.50.

Biosocial Genetics. Human Heredity and Social Issues. Gerald James Stine. Macmillan, New York, and Collier Macmillan, London, 1977. xii, 580 pp., illus. $13.95.

The Breakdown and Restoration of Ecosystems. Papers from a conference, Reykjavik, Iceland, July 1976. M. W. Holdgate and M. J. Woodman, Eds. Plenum, New York, 1978. xii, 496 pp., illus. $30. NATO Conference Series I, vol. 3.

Cancer. A Problem of Developmental Biology. G. Barry Pierce, Robert Shikes, and Louis M. Fink. Prentice-Hall, Englewood Cliffs, N.J., 1978. xiv, 242 pp., illus. $15.95.

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