and Gallagher (I think correctly) stress the importance of understanding physical-chemical conditions before turning to complex biological constructs. They also emphasize that hypothesis guides observation (defending the importance of mathematical community dynamics), but it seems to me that ecological theory played a minor role in two of the more important advances of recent years: the use of the baited cameras of Isaacs and the discovery of the vent communities. Some of the questions raised in this paper come up again in the last one, on the antiquity of the deep-sea fauna. It is written from a paleobiologist's point of view and has much to offer to deep-sea biologists. Papers on in situ respiration and on enzyme adaptations are also highly relevant in this context.

Those interested in the deep-sea environment will want to own this volume and to use it in their graduate classes. They may also wish to consult a somewhat similar volume (*The Dynamic Environment of the Ocean Floor*, K. A. Fanning and F. T. Manheim, Eds., Lexington [Heath], 1982), which treats physical-chemical aspects of the benthic interface more extensively and at a more technical level than the volume at hand.

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Volcanic Processes

The 1980 Eruptions of Mount St. Helens, Washington. PETER W. LIPMAN and DONAL R. MULLINEAUX, Eds. U.S. Geological Survey, Reston, Va., 1982 (also available from Superintendent of Documents, Washington, D.C.). xxviii, 844 pp., illus., + map. $35. Geological Survey Professional Paper 1250.

A good many undeserved superlatives have been used in reference to the recent activity at Mount St. Helens, but it is certainly not an overstatement to say that no other major historic eruption has been as closely observed and thoroughly documented as that of 18 May 1980.

The events are now familiar to every geologist. At precisely 8:32 in the morning, the northern slope of the mountain, which had been bulging at an alarming rate for more that a week, finally failed in a gigantic avalanche when a magnitude-5.1 earthquake shook the mountain. The sudden relief of pressure triggered an explosion of steam and gas-charged magma that swept with hurricane force down the flank and across 150 square miles of one of the most beautiful forests of the Pacific Northwest. More than a cubic kilometer of the mountain, along with glacial ice, uprooted trees, and a torrent of mud, poured down the Toutle and Cowlitz rivers and finally into the Columbia, where it dumped over 34 million cubic meters of sediment and closed the port of Portland to shipping. At least 60 lives were lost, and property losses are estimated to have exceeded a billion dollars.

One can gain a vivid impression of the eruption from the various accounts given in the book under review. The events of 1980 are described and interpreted in more than 60 papers by authors not only from the Geological Survey but from the academic community as well.

Mention of some of the major topics covered may convey the scope of the book. A description of the geological evolution of the volcano is followed by a carefully documented chronology of the eruptive activity of 1980. A notable part of this section is a detailed analysis of the extraordinary sequential photographs taken by witnesses to the eruption of 18 May. This is followed by accounts of seismic activity and deformation, gas emissions, thermal anomalies, and various types of monitoring. A long section is devoted to the pyroclastic eruptions and debris flows and to the early stage of growth of a dome in the huge crater that occupies what was once the summit of the mountain. Preliminary reports are included on the effects of the ash falls and mudflows on the hydrology and vegetation of the region. And finally the problems of assessing and alleviating hazards are discussed, and an effort is made to analyze the implications of the eruption and the possibilities of future activity elsewhere in the Cascade Range.

Each paper is capable of standing on its own, so that the reader need not wade through earlier sections in order to understand later ones. This results in a certain amount of repetition, but it adds immeasurably to the usefulness of the book as a reference. I found no evidence that the editors attempted to achieve uniformity in interpretation. Though there seems to be no serious disagreement about factual evidence, reasoned differences of opinion have been given the full latitude they deserve.

The volume is sure to join the ranks of classic accounts of great eruptions, such as LaCroix's account of the eruption of Mont Pelee in 1902, Taylor's description of the eruption of Mount Lamington in 1951, and Bostok's famous report on the great catastrophe at Agumgijyh in 1928. It differs, of course, in that it is written by a host of authors, but what it lacks in the style and individual character of earlier works it makes up for in depth and detail. It is profusely illustrated with many full-page color photographs and diagrams, and a quadrangle-size geological map is enclosed in a pocket. Given the prices of commercially published books, this volume is the bargain of the year.

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Books Received

Cancer-Associated Genodermatoses. Henry T. Lynch and Ramon M. Fusaro, Eds. Van Nostrand Reinhold, New York, 1982. x, 560 pp., illus. $32.

Catastrophe Theory and Applications. D. K. Sinha, Ed. Halsted (Wiley), New York, 1982. xii, 158 pp., illus. $15.95. Mathematics of Mathematical Sciences.

Catastrophe Theory for Scientists and Engineers. Robert Gilmore. Wiley-Interscience, New York, 1981. xx, 666 pp., illus. $45.95.

Evoked Potentials. Papers from a conference, June 1981. Ivan Bodis-Wollner, Ed. New York Academy of Sciences, New York, 1982. xii, 738 pp., illus. Cloth or paper, $157. Annals of the New York Academy of Sciences, vol. 388.

Fetal and Neonatal Pathology. Perspectives for the General Pathologist. Papers from a symposium, Birmingham, England, Apr. 1981. A. J. Barson, Ed. Praeger, New York, 1982. x, 262 pp., illus. $33.

A Field Guide to Mushrooms and Their Relatives. Booth Courtenay and Harold H. Burdsall, Jr. Van Nostrand Reinhold, New York, 1982. 144 pp., illus. $18.95.

The Human Primate. R. E. Passingham. Freeman, San Francisco, 1982. xii, 390 pp., illus. $14.95.

Igneous and Metamorphic Petrology. Myron G. Best. Line drawings by the author. Freeman, San Francisco, 1982. xx, 630 pp. $29.95.

Multicomputers and Image Processing. Algorithms and Programs. Papers from a workshop, Madison, Wis., May 1981. Kendall Preston, Jr., and Leonard Uhr, Eds. Academic Press, New York, 1982. xx, 470 pp., illus. $34. Notes and Reports in Computer Science and Applied Mathematics, 3.

The Nervous System. Peter Nathan. Oxford University Press, New York, ed. 2, 1982. xvi, 298 pp., illus. $24.95.

Outcome Uncertain. Science and the Political Process. Mary E. Ames. Avon, New York, 1982. x, 230 pp. Paper, $3.50. A Discus Book. Reprint of the 1978 edition.

Ozonation in Organic Chemistry. Vol. 2, Nonolefinic Compounds. Philip S. Bailey. Academic Press, New York, 1982. xx, 500 pp., illus. $69.50. Organic Chemistry, vol. 39-II.

The Parasite. Michel Serres. Translated, with notes, from the French by Lawrence R. Schehr. Johns Hopkins University Press, Baltimore, 1982. x, 260 pp., illus. $17.50.

Research Techniques in the Rat. Clayton Petty. Thomas, Springfield, Ill., 1982. xiv, 368 pp. $36.75.

The Research Universities and Their Patrons. Robert M. Rosenzweig with Barbara Turlington. University of California Press, Berkeley, 1982. xiv, 152 pp. $14.50.

Reversed-Phase High-Performance Liquid Chromatography. Theory, Practice, and Biomedical Applications. Ante M. Krstulović and Phyllis R. Brown. Wiley-Interscience, New York, 1982. xiv, 296 pp., illus. $35.

Review of Human Development. Tiffany M. Field, Aletha Huston, Herbert C. Quay, Lillian Troll, and Gordon E. Finley, Eds. Wiley-Interscience, New York, 1982. xxii, 664 pp., illus. $45.

RNA Tumor Viruses. Robin Weiss, Natalie Teich, Harold Varmus, and John Coffin, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1982. xii, 1396 pp., illus. $110. Second edition of *Molecular Biology of Tumor Viruses*. Cold Spring Harbor Monograph Series, vol. 10C.

The Time of Darkness. Local Legends and Volcanic Reality in Papua, New Guinea. R. J. Blong. University of Washington Press, Seattle, 1982. xii, 258 pp., illus. $25.

Toxicology of the Liver. Papers from a symposium. Gabriel L. Plaa and William R. Hewitt, Eds. Raven, New York, 1982. xii, 338 pp., illus. $41. Target Organ Toxicology Series.