



Epicenters of over 2500 earthquakes recorded during the 1983–1985 volcanic crisis at Rabaul Caldera on New Britain Island, Papua New Guinea. About 70,000 people live on the north shore of this natural harbor. The elliptical pattern of earthquakes is thought to outline a caldera ring-fault that is currently being reactivated owing to the stresses caused by rising magma. [From J. Mori *et al.*, "Earthquakes of the Rabaul seismo-deformational crisis," in *Volcanic Hazards*]

unable to distinguish most small eruptions from local clouds. Infrasonic monitoring has been very effective for the eruptions of Mt. Erebus in Antarctica but is, unfortunately, little used elsewhere.

It is the painstaking field studies and careful dating of ancient eruptions, however, that produce a frightening cumulative effect. They demonstrate long-term cycles of activity that dwarf the short historic record and make it clear that current monitoring efforts are woefully inadequate in most parts of the world. There is no high-tech alternative to the slow, unglamorous, but terribly

important building of chronologic and petrologic histories covering tens of thousands of years. Those presented here for Kamchatka and the West Indies show unfamiliar volcanoes that clearly deserve attention despite inactivity during their short recorded histories.

This book will inevitably be compared with another of the same name by Russell Blong, published by Academic Press in 1984. Blong's book, subtitled "A Sourcebook on the Effects of Eruptions," treats the subject in a systematic way and with a uniformity of style not possible in a work

with many authors. Latter's book provides a depth rarely possible in a single-authored text. Good volcanological libraries should have both. Unfortunately, many will pass up the Latter book because of its cost. If books as good as this present one are to reach the wide audience they deserve, the publishers should be encouraged to adopt a more reasonable pricing policy.

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## Genetic Mobility

**Mobile DNA.** DOUGLAS E. BERG and MARTHA M. HOWE. American Society for Microbiology, Washington, DC, 1989. xviii, 972 pp., illus. \$95; to ASM members, \$75.

Mobile DNA elements were a major surprise for the biological world, there being no *a priori* reason to expect genes to move about within a genome. The existence of mobile DNA has been generally recognized only for half of the time since it was discovered by Barbara McClintock in the 1940s. Since the discovery of the insertion sequences in *Escherichia coli* in 1968, however, information about the distribution, structures, mechanisms of mobility, and cellular roles of mobile elements has simply exploded. Mobile DNA has been found in every organism in which it has been sought and thus seems likely to be an important component of every genome. *Mobile DNA* provides thorough reviews of a wide variety of topics in the field.

The book consists of 43 chapters, proceeding from simple systems to more complex ones. It begins with chapters on bacteriophages lambda and mu and a chapter on retroviruses that consider all these viruses as free-living DNA molecules that have the essential property of mobile DNA: the viral genomes can integrate into the genome of the host. The next section starts with *E. coli* insertion sequences, and individual chapters cover each of the major complex transposons of *E. coli* and then transposons of Gram-positive bacteria, actinomycetes, and halobacteria. After a review of mobile DNA in the plant pathogen *Agrobacterium*, chapters progress through mobile DNA of yeast, maize (the organism in which mobile DNA was originally discovered), *Drosophila*, and mammals. Later chapters discuss site-specific inversions and other local DNA rearrangements that regulate gene expression and are followed by papers on transposable elements as tools for genetic engineering. Finally, an outstanding chapter, more syn-

thesis than review, explores the population dynamics of transposable elements.

In fact, the majority of these papers go well beyond being mere catalogs of what is known. The quality of writing is uniformly high, and each chapter follows a clear outline, most beginning with a good account of the history and the biology of the mobile element under discussion before taking up the molecular mechanisms of transposition. Considerable cross-referencing and a good index make the volume easy to use.

The main weakness of the book is the lack of a detailed introductory chapter. Some discussion of general distinctions between prokaryotic and eukaryotic elements would have been useful, and an introduction would have been the perfect place to point out the existence of conjugative mobile elements described in Murphy's chapter or to mention Hartl's warning concerning attempts to classify mobile elements in a few simple classes.

Who will find this book useful? The depth and breadth of papers make it a virtual necessity for every practicing molecular biologist, and it is almost ideal for graduate students trying to come to grips with this most fundamental aspect of cellular biology. As a bacterial geneticist I will probably find the chapters on prokaryotic systems and the chapter on genetic engineering (which includes a delightful section on "how to choose a transposon for your experiment") most directly useful, but the chapters on eukaryotic systems have proven the perfect antidote to my general intellectual laziness concerning important things I ought to know about. Three chapters deserve particular mention: Engel's chapter on *Drosophila* P-elements for its clarity, Federoff's chapter on maize elements for its sense of excitement at unraveling a wonderful puzzle, and Ajioka and Hartl's chapter on population dynamics for its thoughtful treatment of a topic that is touched on in virtually every other section of the book.

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## Reprints of Books Previously Reviewed

**Predation.** Direct and Indirect Impacts on Aquatic Communities. W. Charles Kerfoot and Andrew Sih, Eds. University Press of New England, Hanover, NH, 1989. Paper, \$28. Reviewed 238, 93 (1987).

**Tilings and Patterns.** An Introduction. Branko Grünbaum and G. C. Shepard. Freeman, New York, 1989. Paper, \$26.95. Reprint of chapters 1-7, 1987 ed., reviewed 236, 996 (1987).

## Books Received

**Cajal on the Cerebral Cortex.** An Annotated Translation of the Complete Writings. Javier DeFelipe and Edward G. Jones. Oxford University Press, New York, 1988. xviii, 654 pp., illus. \$65. History of Neuroscience, no. 1.

**Carnivore Behavior, Ecology, and Evolution.** John L. Gittleman, Ed. Comstock (Cornell University Press), Ithaca, NY, 1989. xvi, 620 pp., illus. \$65; paper, \$25.

**Cell Dynamics.** M. Tazawa, Ed. Springer-Verlag, New York, 1989. 2 vols. Vol. 1, Cytoplasmic Streaming, Cell Movement—Contraction and Migration, Cell and Organelle Division, Phototaxis of Cell and Cell Organelle. viii, 193 pp., illus. \$99. Vol. 2, Molecular Aspects of Cell Motility, Cytoskeleton in Cellular Structure and Activity. viii, 157 pp., illus. \$89. *Protoplasma*, supplements 1 and 2.

**Computational Aspects of Survey Data Processing.** L. C. R. J. Willenborg. Centrum voor Wiskunde en Informatica, Amsterdam, 1988. viii, 154 pp., illus. Paper, Dfl. 24.20. CWI Tract 54.

**Computer Presentation of Data in Science.** A Do-It-Yourself Guide, Based on the Apple Macintosh, for Authors and Illustrators in the Sciences. Doig Simmonds and Linda Reynolds. Kluwer, Norwell, MA, 1988. xiv, 178 pp., illus. \$49.50.

**Conceptual Issues in Environmental Archaeology.** John L. Bintliff, Donald A. Davidson, and Eric G. Grant, Eds. Edinburgh University Press, Edinburgh, 1989 (U.S. distributor, Columbia University Press). x, 320 pp., illus. \$60. Based on a symposium, Oxford, U.K., Feb. 1985.

**Criminal Behavior and the Justice System.** Psychological Perspectives. Hermann Wegener, Friedrich Lösel, and Jochen Haisch, Eds. Springer-Verlag, New York, 1989. xx, 455 pp., illus. \$99. Research in Criminology. Based on a conference, Braunschweig, F.R.G.

**Current Paleoethnobotany.** Analytical Methods and Cultural Interpretations of Archaeological Plant Remains. Christine A. Hastorf and Virginia S. Popper, Eds. University of Chicago Press, Chicago, 1989. xii, 236 pp., illus. \$24.95; paper, \$9.95. Prehistoric Archeology and Ecology. Based on a symposium, 1985.

**Dictionary of Astronomical Names.** Adrian Room. Routledge (Routledge, Chapman and Hall), New York, 1989. vi, 282 pp. \$27.50. Reprint, 1988 ed.

**Dictionary of the Environment.** Michael Allaby. 3rd ed. New York, University Press, New York, 1989 (distributor, Columbia University Press, New York). vi, 432 pp. \$70.

**Infinite Crossed Products.** Donald S. Passman. Academic Press, San Diego, CA, 1989. xii, 468 pp. \$84.50. Pure and Applied Mathematics, vol. 135.

**Information Technology and the Human Services.** Bryan Glastonbury, Walter LaMendola, and Stuart Toole, Eds. Wiley, New York, 1988. xiv, 432 pp., illus. \$16.95. From a convention, Birmingham, U.K., 1987.

**Inorganic Crystal Structures.** B. G. Hyde and Sten Andersson. Wiley-Interscience, New York, 1989. xviii, 430 pp., illus., + plates. \$65.

**Introduction to Applied Numerical Analysis.** Richard W. Hamming. Hemisphere, New York, 1989. xii, 331 pp., illus. \$29.95. Reprint, 1971 ed.

**Introduction to Flight.** John D. Anderson, Jr. 3rd ed. McGraw-Hill, New York, 1989. xx, 616 pp., illus. \$46.95. McGraw-Hill Series in Aeronautical and Aerospace Engineering.

**Progress in Catecholamine Research.** Liss, New York, 1989. 3 vols. Part A, Basic Aspects and Peripheral Mechanisms. Annica Dahlström, R. H. Belmaker, and Merton Sandler, Eds. xxxvi, 613 pp., illus. \$175. Part B, Central Aspects. Merton Sandler, Annica Dahlström, and R. H. Belmaker, Eds. xxxvi, 592 pp., illus. \$175. Part C, Clinical Aspects. R. H. Belmaker, Merton Sandler, and Annica Dahlström, Eds. xxxiv, 506 pp., illus. \$165. Neurology and Neurobiology, vol. 42. From a symposium, Jerusalem, Israel, June 1987.

**Seepage, Drainage, and Flow Nets.** Harry R. Cedergren. 3rd ed. Wiley-Interscience, New York, 1988. xx, 465 pp., illus. \$52.95.

**Self-Assembling Architecture.** Joseph E. Varner, Ed. Liss, New York, 1988. xii, 276 pp., illus. \$65. From a symposium, St. Paul, MN, June 1987.

**Semiconductor Physics.** An Introduction. Karlheinz Seeger. 4th ed. Springer-Verlag, New York, 1989. xiv, 480 pp., illus. Paper, \$45. Springer Series in Solid-State Sciences, vol. 40.

**What Is an Animal?** Tim Ingold, Ed. Unwin Hyman, Winchester, MA, 1988. xviii, 189 pp., illus. \$39.95. One World Archaeology, vol. 1. Based on a congress, Southampton, U.K., Sept. 1986.

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