matical expressions of a single principle and are related in essentially the same way as the fullness and emptiness of a container. However, both verbally and graphically, Stiner treats them as if they were independent phenomena, and she interprets her data as revealing other, equally fundamental age structures. She particularly emphasizes a "prime-dominated" pattern that characterizes some of her Neanderthal and later human prey samples and that is distinguished by an abundance of prime-age adults (as opposed to juveniles, which are more numerous in both theoretical catastrophic and attritional profiles, and to old individuals, which are relatively more common in attritional ones). In fact, however, it is not possible to discover a new fundamental age structure, and even in wildlife biology most observed age profiles depart significantly from theoretical catastrophic or attritional expectations, mainly because of uncertainties in age estimation, population instability (short-term growth or shrinkage), or unavoidable census bias. The departures may suggest the forces that shaped a sample, but they are not grounds for defining a new fundamental pattern.

Stiner's difficulties with the difference between observed and theoretical distributions also lead to a problem in her interpretation of "prime-dominated" age profiles. She attributes these to a uniquely human form of "ambush hunting" practiced by at least some Neanderthals and most later people. The difficulty is that the kind of hunting she envisions would have reduced prey populations over time. She argues otherwise, on the example of modern game-management schemes. However, game managers preferentially remove prime-age animals to curb population growth, a predicament that Neanderthals and later Paleolithic people probably did not face. A more basic problem, though, is that Stiner's approach is based on only three age classes ("juvenile," "prime," and "old") of unequal length, and the result is that it is hard to detect departures from theoretical distributions for essentially the same reason that it would be difficult to assess statistical normality from a histogram comprising only three bars of unequal breadth. A more conventional analysis involving a sufficient number of age classes to gauge profile shape might show that her "prime-dominated" profiles conceal some truly interesting mortality profile variation.

My methodological concerns are not trivial, but they are offset by strong points that I have not discussed, such as an interesting chapter in which Stiner and a close colleague attempt to integrate faunal and artifactual data. Stiner's prose style is also lively and engaging, and there is no denying the intellectual attraction of her paleoecological approach. Some flaws aside, the book should be read by anyone contemplating a similar, behaviorally oriented analysis of fossil bones.

Richard G. Klein
Department of Anthropology, Stanford University, Stanford, CA 94305, USA

■

Other Books of Interest

Quantum Mechanics. Historical Contingency and the Copenhagen Hegemony. JAMES T. CUSHING. University of Chicago Press, Chicago, 1994. xvi, 317 pp., illus. $65 or £51.95; paper, $27 or £21.50.

"The Copenhagen hegemony" at issue in this work refers in general to the physicists' rejection of—indeed refusal even to consider seriously—any interpretation of quantum mechanics that seeks to retain some features of the space-time visualizability and determinism that classical physical theories incorporated, and in particular to the cool reception accorded the interpretation of quantum mechanics put forward by David Bohm in 1952. Cushing, a physicist-philosopher, takes it as "a *historical* problem to explain [the] marginal status" of the Bohm interpretation. He addresses this historical problem by elaborating physicist Edward Nelson's hypothesis (quoted on p. 175) that "had the Schrödinger equation been derived [from stochastic mechanics] before the invention of matrix mechanics, the history of the conceptual foundations of modern physics would have been different." This brings Cushing back to the origins of the quantum mechanics and of the Copenhagen interpretation in the 1920s, with the result that his argument is divided over two, only very loosely connected historical fronts.

It is impossible not to be sympathetic to a philosopher who rejects his discipline's canonical distinction between the context of discovery and the context of justification and who, rather, believes that "any division between scientific practice and a metalevel of the methods and goals of science is largely a false dichotomy." On these grounds Cushing is prepared to give "an emphatic yes" to the historicist position that "if certain equally plausible conditions, rather than the actually occurring and highly contingent historical ones, had prevailed . . . our present understanding of the behavior of the fundamental laws of nature in terms of an inherently indeterministic physics [would] have been replaced by the apparently diametrically opposed view of absolute determinism." However, to make this case—indeed *any* counter-factual case—is considerably more difficult than Cushing appears to recognize. Moreover, the body of historical evidence he does bring forward goes so little beyond Max Jammer's long-standard historical examination of the interpretations of quantum mechanics (*The Philosophy of Quantum Mechanics*, 1974) that his theses remain at the end of this book just about what they were at the beginning. Although it fails to persuade, the book will have utility through the many capsule summaries, in two or three pages at a technical but accessible level, of theorems, thought experiments, and the like encountered in the early and the recent history of the interpretation of quantum mechanics, as well as through its very full bibliography and its exceptionally complete index.

Paul Forman
National Museum of American History

The Quantum Generation. Highlights and Tragedies of the Golden Age of Physics. MARGARITA RYUTOVA-KEMOKLIDZE. Springer-Verlag, New York, 1994. xxii, 327 pp., illus. $39.50. Translated from the Russian edition (Moscow, 1989) by John Hine.

The title of this book only remotely suggests its content, indeed is an artifact of the obstacles that the Soviet Union of the 1980s placed in the way of its original publication. True, some hundred of its 300 pages are just the sort of popularized physics that the title might lead one to expect, but most of these were written as substitutional material at the suggestion of the "two 'surgeons' [who] handled my case. One was a lady suffering from a serious goitre condition who simply would not look me straight in the eye. . . . The other was a buxom lady with a bouffant hairstyle who never doubted for a moment that she was right about everything." What these guardians of "the traditions of Soviet publishing" solicited from the author was material to substitute for some of the less pretty features of the life and times of the Russian theoretical physicist Yuri (Georg) Borisovich Rumer (1901–1985), whose biography is the real subject of this book. (Ironically, Springer-Verlag continues those traditions to the extent of adopting the misinformative title of the Russian edition.) This biography, in the concrete, down-to-earth, not-taking-themselves-too-seriously manner often found in the memoirs of Russian physicists (but much less often in those of Europeans and Americans), is based in large part upon Rumer's reminiscences as recorded by the author. The less valuable half of these 200 biographic pages is that devoted to Rumer's years, 1929–1932, in Göttingen, where he assisted Max Born and befriended "the

quantum generation." The truly valuable half is the sections dealing with Rumer's life in Russia, particularly his childhood in an upper-middle-class Jewish merchant family, his participation in the interpenetrating scientific and artistic circles in Moscow and in Petrograd in the early 1920s, and, above all, his experience as a scientist-prisoner, chiefly in the Tupolev aeronautical design bureau, from the time of his arrest in 1938 until his final rehabilitation, and appointment to head a research institute in Novosibirsk, in 1954.

Paul Forman
National Museum of American History

■

Books Received

Acid Rain and Acid Waters. Gwyneth Howells. 2nd ed. Ellis Horwood (Simon and Schuster), New York, 1994. xii, 262 pp., illus. $50.

Acidity and Basicity of Solids. Theory, Assessment and Utility. Jacques Fraissard and Leonidas Petrakis, Eds. Kluwer, Norwell, MA, 1994. viii, 513 pp., illus. $183 or £121 or Dfl. 295. NATO ASI Series C, vol. 444. From an institute, La Colle sur Loup (Nice), France, June 1993.

ADP-Ribosylation. Metabolic Effects and Regulatory Functions. Joel Moss and Peter Zahradka, Eds. Kluwer, Norwell, MA, 1994. vi, 255 pp., illus. $190 or £134.95 or Dfl. 365. Developments in Molecular and Cellular Biochemistry, 12. Reprinted from *Molecular and Cellular Biochemistry*, vol. 138, nos. 1-2.

Basins of the Rio Grande Rift. Structure, Stratigraphy, and Tectonic Setting. G. Randy Keller and Steven M. Cather, Eds. Geological Society of America, Boulder, CO, 1994. iv, 304 pp., illus. Paper, $72.50. GSA Special Paper 291.

The Beginnings of Cancer in the Cell. An Interdisciplinary Approach. J. Ladik and W. Förner. Springer-Verlag, New York, 1994. viii, 194 pp., illus. $54.50.

Behind the Wall. The Inner Life of Communist Germany. Hans-Joachim Maaz. Norton, New York, 1995. xx, 226 pp. $27.50 or $C35. Translated from the German edition (Berlin, 1990) by Margot Bettauer Dembo.

Cosmic Beginnings and Human Ends. Where Science and Religion Meet. Clifford N. Matthews and Roy Abraham Verghese, Eds. Open Court, La Salle, IL, 1995. x, 433 pp., illus. $41.95; paper, $17.95. Based on a symposium, Chicago, IL, Aug.-Sept. 1993.

Cosmic Strings and Other Topological Defects. A. Vilenkin and E. P. S. Shellard. Cambridge University Press, New York, 1995. xx, 517 pp., illus. $100. Cambridge Monographs on Mathematical Physics.

Crop Production and Crop Protection. Estimated Losses in Major Food and Cash Crops. E.-C. Oerke *et al.* Elsevier, New York, 1994. xxii, 808 pp., illus. $165.75 or Dfl. 290.

Designing Usable Electronic Text. Ergonomic Aspects of Human Information Usage. Andrew Dillon. Taylor and Francis, Philadelphia, 1994. x, 195 pp., illus. Paper, $32.

Detection of Light. From the Ultraviolet to the Submillimeter. G. H. Rieke. Karen Visnovsky, Ed. Cambridge University Press, New York, 1994. xiv, 344 pp., illus. $59.95.

Dictionary of British and Irish Botanists and Horticulturalists. Including Plant Collectors, Flower Painters and Garden Designers. Ray Desmond, with Christine Ellwood. 2nd ed. Taylor and Francis, Philadelphia, and Natural History Museum, London, 1994. xl, 825 pp. $250.

Ecology and Sustainability of Southern Temperate Ecosystems. T. W. Norton and S. R. Dovers, Eds. CSIRO, East Melbourne, Australia, 1994. x, 133 pp., illus. Paper, $39.95.

Electrochemical Engineering and Energy. F. Lapicque, A. Storck, and A. A. Wragg, Eds. Plenum, New York, 1994. x, 273 pp., illus. $89.50. From a symposium, Nancy, France, Mar. 1994.

Elements of General, Organic, and Biological Chemistry. John Holum. 9th ed. Wiley, New York, 1995. xvi, 605 pp., illus. $64.95.

The Fading of the Greens. The Decline of Environmental Politics in the West. Anna Bramwell. Yale University Press, New Haven, CT, 1995. xii, 224 pp. $25.

First-Order Logic. Raymond M. Smullyan. Dover, New York, 1994. xii, 158 pp., illus. Paper, $7.95. Reprint, 1968 ed.

Five Years After. The Long-Term Efects of Welfare-to-Work Programs. Daniel Friedlander and Gary Burtless. Russell Sage Foundation, New York, 1995. xii, 230 pp., illus. $34.95.

The Geology of Alaska. George Plafker and Henry C. Berg, Eds. Geological Society of America, Boulder, CO, 1994. x, 1055 pp., illus., + microfiche + boxed set of plates. $135. The Geology of North America, Vol. G-1.

The Green Rainbow. Environmental Groups in Western Europe. Russell J. Dalton. Yale University Press, New Haven, CT, 1995. xvii, 305 pp., illus. $35.

Guidebook to the Homeobox Genes. Denis Duboule, Ed. Oxford University Press, New York, 1994. viii, 284 pp., illus. $75; paper, $39.50. A Sambrook and Tooze publication.

Handbook of Neurotoxicology. Louis W. Chang and Robert S. Dyer, Eds. Dekker, New York, 1995. xxii, 1106 pp., illus. $195. Neurological Disease and Therapy, 36.

Handbook of Olfaction and Gustation. Richard L. Doty, Ed. Dekker, New York, 1994. xiv, 883 pp., illus. $225. Neurological Disease and Therapy, 32.

Harmonic Analysis and Special Functions on Symmetric Spaces. Gerrit Heckman and Henrik Schlicktkrull. Academic Press, San Diego, CA, 1994. xii, 225 pp. $49.95. Perspectives in Mathematics, vol. 14.

In the Shadow of the Dinosaurs. Early Mesozoic Tetrapods. Nicholas C. Fraser and Hans-Dieter Sues, Eds. Cambridge University Press, New York, 1994. x, 435 pp., illus. $89.95.

Insect Life-Cycle Polymorphism. Theory, Evolution and Ecological Consequences for Seasonality and Diapause Control. H. V. Danks, Ed. Kluwer, Norwell, MA, 1994. x, 378 pp., illus. $19 5 or £130 or Dfl. 325. Series Entomologica, vol. 52.

Intelligence Policy. Its Impact on College Admissions and Other Social Policies. Angela Browne-Miller. Plenum, New York, 1995. xx, 255 pp., illus. $39.50. Environment, Development, and Public Policy.

Learning and Cognition in Autism. Eric Schopler and Gary B. Mesibov, Eds. Plenum, New York, 1995. xxii, 346 pp., illus. $49.50. Current Issues in Autism.

Lectures on Quantum Optics. Werner Vogel and Dirk-Gunnar Welsch. Akademie Verlag, Berlin, 1994 (U.S. distributor, VCH, New York). x, 442 pp., illus. $60.

List of MAK and BAT Values 1994. Maximum Concentrations and Biological Tolerance Values at the Workplace. Deutsche Forschungsgemeinschaft, Ed. VCH, New York, 1994. 165 pp., + appendix, illus. Paper, $30. Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area, Report no. 30.

Mental Leaps. Analogy in Creative Thought. Keith J. Holyoak and Paul Thagard. MIT Press, Cambridge, MA, 1995. xiv, 320 pp., illus. $24.95.

Methods in Yeast Genetics. A Cold Spring Harbor Laboratory Course Manual. Chris Kaiser, Susan Michaelis, and Aaron Mitchell. 1994 ed. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1994. viii, 234 pp., illus. Paper, $49.

Microbes as Tools for Cell Biology. David G. Russell, Ed. AP Professional (Academic), Cambridge, MA, 1995. xvi, 339 pp., illus., + plates. $80; spiralbound, $45. Methods in Cell Biology, vol. 45.

Molecular Basis of Human Blood Group Antigens. Jean-Pierre Cartron and Philippe Rouger, Eds. Plenum, New York, 1995. xx, 492 pp., illus. $110. Blood Cell Biochemistry, vol. 6.

The Naturalist in Britain. A Social History. David Elliston Allen. 2nd ed. Princeton University Press, Princeton, NJ, 1995. xx, 270 pp., illus., + plates. $45 or £30; paper, $16.95 or £11.95.

Negotiating Climate Change. The Inside Story of the Rio Convention. Irving M. Mintzer and J. Amber Leonard, Eds. Stockholm Environment Institute and Cambridge University Press, New York, 1994. xiv, 392 pp. $59.95; paper, $22.95. Cambridge Studies in Energy and Environment.

The Norton History of Astronomy and Cosmology. John North. Norton, New York, 1995. xviii, 697 pp., illus. $35 or $C45. Norton History of Science. Published in UK as *The Fontana History of Technology*.

Optical Communications. Robert M. Gagliardi and Sherman Karp. 2nd ed. Wiley, New York, 1995. xviii, 347 pp., illus. $59.95. Wiley Series in Telecommunications and Signal Processing.

Origins of the Bronze Age Oasis Civilization in Central Asia. Fredrik T. Hiebert. Peabody Museum of Archaeology and Ethnology, Cambridge, MA, 1994. University of Pennsylvania Museum Publications, Philadelphia. xxxviii, 200 pp., illus. Paper, $40. American School of Prehistoric Research Bulletin 42.

The Origins of Violence. Approaches to the Study of Conflict. Anatol Rapoport. Transaction, New Brunswick, NJ, 1995. xxviii, 620 pp., illus. Paper, $24.95. Reprint, 1989 ed.

Practical Guide to Infrared Microspectroscopy. Howard J. Humecki, Ed. Dekker, New York, 1995. x, 472 pp., illus. Practical Spectroscopy, vol. 19.

Principles of Doppler and Color Doppler Imaging. R. Haerten and M. Mück-Weymann. 2nd ed. Siemens, Erlangen, Germany, 1994. VCH, New York. viii, 53 pp. illus. Paper, $30.

Procrastination and Task Avoidance. Theory, Research, and Treatment. Joseph R. Ferrari, Judith L. Johnson, and William G. McCown, Eds. Plenum, New York, 1995. xx, 268 pp., illus. $42.50. Plenum Series in Social/Clinical Psychology.

Quantization and Infinite-Dimensional Systems. J-P. Antoine *et al.*, Eds. Plenum, New York, 1994. x, 290 pp., illus. $89.50. From a workshop, Bialowieza, Poland, July 1993.

Quantum Field Theory and String Theory. Laurent Baulieu *et al.*, Eds. Plenum, New York, 1994. x, 420 pp., illus. $120. NATO ASI Series B, vol. 328. From a workshop, Cargèse, France, May 1993.

Recent Trends in Aerobiology, Allergy and Immunology. A Collection of Plenary Lectures and Contributory Articles. Shripad N. Agashe, Ed. Science Publishers, Lebanon, NH, 1994. xvi, 315 pp., illus. $75.

Rivers of the United States. Vol. 2, Chemical and Physical Characteristics. Ruth Patrick. Wiley, New York, 1995. xii, 237 pp., illus. $89.

Seismotectonics of the Central California Coast Ranges. Ina B. Alterman *et al.*, Eds. Geological Society of America, Boulder, CO, 1994. vi, 236 pp., illus., + plates. Paper, $67. Special Paper 292.

State of the World 1995. A Worldwatch Institute Report on Progress Toward a Sustainable Society. Lester R. Brown and the Worldwatch Institute staff. Norton, New York, 1995. xvi, 255 pp., illus. $23; paper, $11.95.

Subjected to Science. Human Experimentation in America before the Second World War. Susan E. Lederer. Johns Hopkins University Press, Baltimore, MD, 1995. xviii, 192 pp., illus. $32.95. Henry E. Sigerist Series in the History of Medicine.

The Sun as a Variable Star. Solar and Stellar Irradiance Variations. J. M. Pap *et al.*, Eds. Cambridge University Press, New York, 1994. xxiv, 355 pp., illus. $59.95. IAU Colloquium no. 143. From a colloquium, Boulder, CO, June 1993.

Systems and Networks. Mathematical Theory and Applications. Vol. 1, Key Invited Lectures. Uwe Helmke, Reinhard Mennicken, and Josef Saurer, Eds. Akademie Verlag, Berlin, 1994 (U.S. distributor, VCH, New York). 410 pp., illus. $120. Mathematical Research, vol. 77. From a symposium, Regensburg, Germany, Aug. 1993.

Time Detectives. How Archeologists Use Technology to Recapture the Past. Brian Fagan. Simon and Schuster, New York, 1995. 288 pp., illus. $24.

Turtles of the United States and Canada. Carl H. Ernst, Roger W. Barbour, and Jeffrey E. Lovich. Smithsonian Institution Press, Washington, DC, 1995. xxxviii, 578 pp., illus., + plates. $60.

Weather Cycles. Real or Imaginary? William James Burroughs. Cambridge University Press, New York, 1995. xiv, 207 pp., illus. Paper, $19.95.

Wetlands and Shallow Continental Water Bodies. Vol. 2, Case Studies. Bernard C. Patten *et al* Eds. SPB Academic, Amsterdam, 1994. xii, 732 pp., illus., + map. $165 or Dfl. 290.