

adumbrated Michael Faraday awaiting his James Clerk Maxwell in Fresnel? Here, as elsewhere, Cantor's book raises questions, and that is the mark of a good book.

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European Prehistory

The Prehistory of Germanic Europe. HERBERT SCHUTZ. Yale University Press, New Haven, Conn., 1983. viii, 421 pp., illus. \$45.

The aim of this book is "to present a systematic survey of central European cultural history from earliest times to the beginning of the historic period." It describes archeological artifacts, sites, and contexts, and their interpretations, from the earliest traces of human activity in Europe during the Pleistocene until the Romans. Six main chapters deal in turn with the Paleolithic, Neolithic, Bronze Age, Early Iron Age, Late Iron Age, and Northern Iron Age. The book is illustrated with numerous maps and photographs, some in color.

For the general reader interested in learning about the archeology of prehistoric central Europe this is a very useful book. The author discusses the most important sites from each period and puts them into chronological, geographical, and interpretative contexts. Representative tools, weapons, jewelry, and other artifacts from each period are described and illustrated. The author does not shy away from difficult problems of interpretation, and he addresses the significance of such finds as Paleolithic cave art, Bronze Age hoards, and Iron Age bog bodies clearly and sensibly. Footnotes are well handled, and they lead the reader easily to the literature dealing with specific sites and interpretations. The notes are organized at the end and hence do not interrupt the flow of the text. An excellent bibliography of principal works dealing with the topics of each of the six main chapters follows the notes.

The book will not be as useful to professional archeologists, either those working in Europe or those concerned with other parts of the world. The author is not an archeologist but, according to the jacket, a professor of Germanic studies at Brock University, St. Catharines, Ontario. The text does not explore new approaches, methods, or theories. No

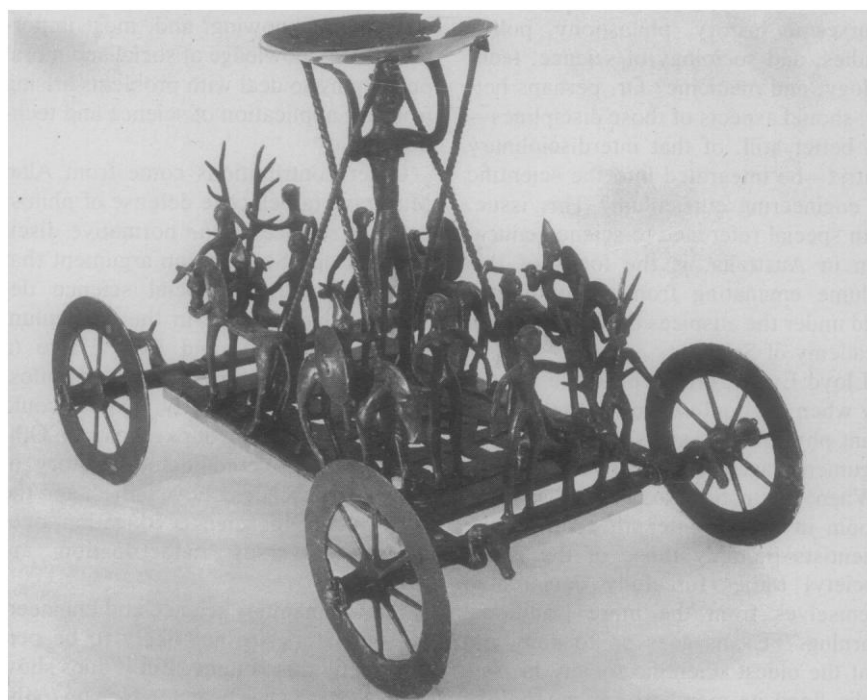


Repoussé mask and metal cutouts from a wagon from Dejbjerg on Jylland, Denmark, after about 100 B.C. [From *The Prehistory of Germanic Europe*; Nationalmuseet, Copenhagen]

attempt is made to explain the processes of change in the principal cultural transformations of prehistory—the development of agriculture, of metallurgy, and of towns and cities. Nor are comparisons made between patterns of change in Europe and those elsewhere in the ancient world. The book is too specific to serve as a textbook for most courses on Euro-

pean archeology taught in North America. A vast quantity of data are presented, but they are not organized around central themes.

The author relies heavily on published syntheses for the various periods rather than on original site reports, and he often perpetuates models current in earlier generations. The term "culture" is used in a traditional sense (for example on p. 24) with no discussion of the problems of defining cultural entities. Migrations are cited to account for changes (for example on p. 247, on Celts "expanding" in central Europe), whereas most current opinion would suggest other mechanisms. The author's reliance on secondary sources and his only partial direct familiarity with the material permit a number of errors to creep in. For example, the figurine from Petersfels (p. 48) is of jet, not "black amber." The famous gold cup from Fritzdorf (p. 126) dates around 1500 B.C., not 2500 B.C. The spectacular ceramic vessel from Gemeinlebarn with two bulls' heads projecting from the shoulder (p. 138) belongs to the Early Iron Age, not the Middle Bronze Age. Bronze Age settlements are not particularly rare (p. 182). Kromer's notion that the Hallstatt cemetery represented a male-dominated work camp (pp. 204, 206) rather than a family-organized community has been generally rejected as a result of Häusler's important demographic study (1968) of that key site.



"Ritual" vehicle from Strettweg near Judenburg in Styria, after about 700 B.C. [From *The Prehistory of Germanic Europe*; Landesmuseum Joanneum, Graz]

The majority of the photographs are of good quality, though some are poorly lighted and a few show reflections of the glass museum cases through which they were taken. The photographs are well selected and provide an excellent overview of the material. The maps, however, are disappointing, and contain some mistakes (for example, Saône River mislabeled Rhône on p. 236; Dürrnberg misspelled on p. 250; Grächwil shown as a Late Iron Age rather than an Early Iron Age burial on p. 266).

Despite such errors of detail, the book is a good introduction to the subject for the non-professional reader. In making this enormously rich body of data accessible to English-speaking audiences the author has done a valuable service.

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Outside Views of Science

Science under Scrutiny. The Place of History and Philosophy of Science. R. W. HOME, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 182 pp. \$36. Australasian Studies in History and Philosophy of Science, vol. 3. From a conference, Melbourne, Aug. 1979.

Should students majoring or doing graduate work in physics or biology or psychology or various branches of medicine or engineering be required to take courses in history, philosophy, policy studies, and sociology of science, technology, and medicine? Or, perhaps better, should aspects of those disciplines—or, better still, of that interdisciplinary matrix—be integrated into the scientific or engineering curriculum? This issue, with special reference to science education in Australia, is the focus of this volume emanating from a conference held under the auspices of the Australian Academy of Science.

Lloyd Evans, president of the Academy when the conference was held and a plant physiologist, sums up some of the arguments against such a requirement: "When the natural sciences began to bloom in the seventeenth century, the scientists [notably those of the Royal Society] rather forcefully demarcated themselves from the more traditional learning." Evans goes on to point out that the oldest scientific society in Australia fined its members for mentioning theology or partisan politics—while, on the other side, the Australasian Associa-

tion for the History and Philosophy of Science does not recognize scientists as members of its professional guild. Philosopher John Passmore, in his contribution to the volume, reports a strong feeling he has encountered among scientists: "How can so insecure a discipline as philosophy expect that scientists should pay any attention to it?"

Among the contributions to the volume the one that makes the best argument for relevance is by historian Everett Mendelsohn. He provides a masterly survey, based on the best recent work in history of science, of the intersections between scientific knowledge and political power since Francis Bacon claimed that "knowledge is power." When, in the mid-20th century, science and technology finally gained the control over nature that could have led to genuine power and the ability to better the human condition, the public, supposed beneficiaries, had grown suspicious of science and scientists. Mendelsohn's conclusion may be trite—"Science is too powerful to leave to the experts"—but his historical lesson is one that scientists and engineers should learn.

Another solid contribution is Passmore's. He provides a patient, lucid, helpful survey of recent philosophies of science with a view to determining which varieties might usefully be taught to science students. He recommends some awareness of epistemological studies (as much as anything to disabuse non-science students of misunderstandings of the nature of science); even more study of comparisons between science and other forms of knowing; and, most important of all, knowledge of social and moral philosophy to deal with problems arising from the application of science and technology.

Other contributions come from Alan Musgrave (a bellicose defense of philosophy of science as *the* normative discipline), Hugh Stretton (an argument that "value-structured" social science deserves a larger place in the curriculum than it has had), and Rom Harré (a demonstration of how history and philosophy of science, rightly taught, could change the teaching of psychology). Other subjects covered include history of medicine, science policy studies, and the controversy in science education over discovery versus indoctrination approaches.

Anti-humanities science and engineering educators are not likely to be persuaded by this volume. But it does show how Australia has begun to face up to the claims of historians, philosophers, and sociologists of science, technology, and

medicine. It is thus an interesting contribution to a long-standing debate—and one that has a certain urgency in times of criticism of science and technology.

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Books Received

Abnormal Functional Development of the Heart, Lungs, and Kidneys. Approaches to Functional Teratology. Robert J. Kavlock and Casimer T. Grabowski, Eds. Liss, New York, 1983. xx, 392 pp., illus. \$58. Progress in Clinical and Biological Research, vol. 140. From a conference, Asheville, N.C., May 1983.

Adaptation, Stress, and Prophylaxis. Felix Z. Meerson. Springer-Verlag, New York, 1984. x, 329 pp., illus. \$45. Translated from the Russian by Joseph Shapiro.

Advanced Medicine 19. K. B. Saunders, Ed. Pitman, London, 1983 (U.S. distributor, Urban & Schwarzenberg, Baltimore). xii, 420 pp., illus. \$37.50.

The Bad Earth. Environmental Degradation in China. Vaclav Smil. Sharpe, Armonk, N.Y., and Zed Press, London, 1984. xvi, 247 pp., illus. \$25; paper, \$13.95.

Basic and Clinical Tumor Immunology. Ronald B. Herberman, Ed. Nijhoff, The Hague, 1983 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 348 pp. \$72. Cancer Treatment and Research.

The Beaches Are Moving. The Drowning of America's Shoreline. Wallace Kaufman and Orrin H. Pilkey, Jr. Duke University Press, Durham, N.C., 1983. x, 336 pp. Paper, \$9.75. Living with the Shore. Reprint, 1979 ed.

Bone and Mineral Research Annual 2. A Yearly Survey of Developments in the Field of Bone and Mineral Metabolism. William A. Peck, Ed. Elsevier, New York, 1984. xiv, 432 pp., illus. \$73.

The Book of Ages. Desmond Morris. Viking, New York, 1984. Unpagged, illus. \$17.95.

Brain Tumors in Children. Principles of Diagnosis and Treatment. Michael E. Cohen and Patricia Kressel Duffner. Raven, New York, 1983. xii, 378 pp., illus. \$45. The International Review of Child Neurology.

Cancer and the Cardiopulmonary System. M. Khalil Ali and Michael S. Ewer. Raven, New York, 1984. xii, 242 pp., illus. \$45.

Current Methods in Cellular Neurobiology. Vol. 2, Biochemical Techniques. Jeffery L. Barker and Jeffrey F. McKelvy, Eds. Wiley-Interscience, New York, 1984. xii, 319 pp., illus. \$59.50.

Current Problems in Germ Cell Differentiation. A. McLaren and C. C. Wylie, Eds. Cambridge University Press, New York, 1983. x, 401 pp., illus. \$79.50. From a symposium, London, Sept. 1982.

Darwin's Plots. Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction. Gillian Beer. Routledge and Kegan Paul, Boston, 1983. xii, 303 pp. \$35.

Design against Crime. Beyond Defensible Space. Barry Poyner. Butterworths, Boston, 1983. viii, 118 pp., illus. \$29.95.

A Development of Quantum Mechanics. Based on Symmetry Considerations. George H. Duffey. Reidel, Boston, 1984 (distributor, Kluwer Boston, Hingham, Mass.). xiv, 342 pp., illus. \$60. Fundamental Theories of Physics.

The Explanation of Organic Diversity. The Comparative Method and Adaptations for Mating. Mark Ridley. Clarendon (Oxford University Press), New York, 1983. viii, 272 pp. \$37.50.

Explosive Volcanism. Inception, Evolution, and Hazards. Geophysics Study Committee. National Academy Press, Washington, D.C., 1984. xii, 176 pp., illus., + maps. \$24.50. Studies in Geophysics.

The Facts On File Dictionary of Telecommunications. John Graham. Facts on File, New York, 1984. 199 pp., illus. Paper, \$6.95. Reprint, 1983 edition.

Fatty Acids in Cystic Fibrosis. Vera Rogiers. Editions de l'Université de Bruxelles, Brussels, 1983. 106 pp., illus. Paper, 450 BF. Monographies Pédiatriques.

The Global Biogeochemical Sulphur Cycle. M. V. Ivanov and J. R. Freney, Eds. Published on behalf of the Scientific Committee on Problems of the Environment of the ICSU by Wiley, New York,

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