

emy. (The proceedings have been published as *The Impact of the Natural Sciences on Archeology*, T. E. Allibone, Ed., Oxford University Press, 1970.) From both that and the Nobel study radiocarbon dates for materials from the best and oldest historically determined chronology in the world appear to be somewhat too early when the bristlecone pine calibration is applied as used today. However, these studies should find important use in assessing the absolute chronology of the Neolithic. Another study of the accuracy of radiocarbon dating that is not included in the Nobel symposium has an important bearing on the matter of short-cycle variations in the production rate of the isotope (*Scientific Methods in Medieval Archeology*, R. Berger, Ed., University of California Press, 1970). Checks from both Egyptian antiquity and the Middle Ages, utilizing materials of known age, confirm the existence of short-cycle variations as well as a major long-term trend in radiocarbon production. These are thought to be caused by heliomagnetic and geomagnetic effects respectively.

It is suggested in the Nobel symposium that, since varves reach farther back in time than bristlecone pine tree rings, the organic content of these deposits may be used as a cross-check to extend tree-ring calibration. Inherently organic materials washed into a lake from surrounding soils must have an age of their own, however. At this point there is insufficient experience available to indicate whether the error introduced by such materials can be neglected.

The proceedings of the Nobel symposium point up a major trend in radiocarbon research directed toward climatic studies of the past. Obviously the full potential of radiocarbon in such studies has not been reached. Radiocarbon offers a unique advantage here in that the variations observed are not large enough to endanger accurate time measurement and yet are sufficiently pronounced to permit valuable environmental studies.

The book reviewed here belongs in the context of the two others cited, which jointly describe the present state of the art. The trilogy should be indispensable to the modern archeologist, ecologist, geochemist, geophysicist, and radiochronologist.

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Physiological Adaptation

Hormones and the Environment. Proceedings of a symposium, Sheffield, England, Sept. 1969. G. K. BENSON and J. G. PHILLIPS, Eds. Cambridge University Press, New York, 1970. xvi, 630 pp. + plates. \$22.50. *Memoirs of the Society for Endocrinology*, No. 18.

At a time when the study of environmental influences on life has become the vogue, this volume attempts to delineate the role of hormones in adaptation. Some of the original intent seems to have been lost sight of in the attempt, however. Also, some of the contributors have overlooked significant, if meager, information on mammalian species in preference to more abundant information in inframammalian groups. This reflects partially our lack of knowledge and the complexity of events in mammalian adaptive mechanisms. Regrettably, environmental influences affecting hormonal systems by way of psychobehavioral phenomena are generally ignored by the contributors. Missing also are significant data on *Homo sapiens*, his daily confrontation with various stimuli and stressors, including combat and aerospace travel, and the manner in which he effects hormonal adjustment and psychoendocrine adaptation. Additionally, several topics relating to the detecting and filtering systems for external stimulation and the internal adaptive integration are treated superficially although these systems constitute the central mechanism of environmental-hormonal interaction.

The book should be invaluable as a reference collection of experimental work on the role of hormones in environmental adaptation. Most of the authors have provided comprehensive compilations of the material most pertinent to their topics. The section on the aquatic environment provides a uniform and comprehensive coverage of a topic concerning which data have been available in abundance for a number of years. This is true also of the sections on the integument in the terrestrial environment and temporal changes in endocrine secretions. The other sections are distinctive not by the information which they present but rather by that which they do not. Most of the chapters in these sections are excellent in their coverage of such data as are available, however. In the section on neuroendocrine mediation, the presentations on the pineal and on neuroendocrine control of water metab-

olism are outstanding. The chapter on aging included in the section on the biotic environment is, possibly, the one discussion in the entire book that brings to mind our vast lack of knowledge. Its coverage of this process, which afflicts all humans but for which research has been slow in accretion, is truly comprehensive and up to date.

Occasionally, the reader will be perplexed in that the implications of the book's title are not reinforced by its content. In the words of H. A. Bern, who summarizes the proceedings, "there are some papers devoid of hormones and other papers devoid of the environment." However, it should be clear to the professional reader that this impression could have been avoided had additional scientists who have conducted research on environmental influences on the endocrine system been invited to contribute. The underlying problem of this volume is that the topic it attempts to cover is too broad and general. Perhaps more justice could have been done to several topics had the symposium restricted itself to only a part of the environment and the associated hormonal interactions.

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Data from Prehistory

The First European Agriculture. A Study of the Osteological and Botanical Evidence until 2000 B.C. JACQUELINE MURRAY. Edinburgh University Press, Edinburgh, and Aldine, Chicago, 1971. viii, 380 pp., illus. \$10.75.

Since the end of World War II there has been an increasing emphasis in archeology on the collaboration of various specialists with the excavator, so that the data from geology, palynology, botany, and zoology may augment the interpretation of more conventionally "cultural" remains. One need only compare the compilation of data on faunal and floral remains in this volume with that in Grahame Clark's *Prehistoric Europe: The Economic Basis* (1952) to see how the study of prehistory has expanded its horizons. The author has made a synopsis of information from over a thousand excavations in Europe, including Russian material unavailable outside the Soviet Union. Such a compilation is of course valuable to the prehistorian interested in the develop-

ment of food production in Europe, and the bibliography is extensive for the time period covered. Over half of the book's 380 pages are devoted to histograms and tables, so presumably it was intended primarily as a reference book. If so, it is only partially successful. Furthermore, although the author calls the book a "synthesis of current views on the beginnings of European agriculture," in fact it is not that. The text contains brief descriptions of the sites in their geographical and chronological context, but there is little additional information on the faunal and botanical remains that could not be found in the tables.

It is unfortunate that with such a mass of data available the author chose neither to make interpretations nor to report the data in detail. For example, only three tables of metrical data are given, and for the rest such vague categories as "large cattle" and "small pigs" are used, without an explanation of the metrical meaning of "large" and "small." If such information was present in the original reports it should have been included, even though it would have involved considerable additional work; if it was not, acceptance and use of these categories seems remarkably uncritical. The archeologist who has only a superficial interest in these matters might be satisfied, but any detailed comparison with new material would be extremely difficult, and made more so by the surprising absence of an index of the sites.

I have no criticism of the tables, although many archeologists seriously question the utility of the calculation of "minimum number of individuals," but the histograms are useless for the most part. It is difficult to see for what purpose they were intended since they are derived from the tables and are without scale or numbers, except for the total number of the sample. If the relevant tables and histograms had been presented following each chapter, rather than grouped at the back of the book, it would have been much more convenient for the reader.

In the brief discussion of the origins of agriculture in the Near East, the author exhibits a flaw all too common among European archeologists (and hardly unknown in this country): a lack of knowledge of work done on the other side of the Atlantic. In this case, although I have the highest regard for the work of Charles Reed and Robert Braidwood, it hardly represents the

sum total of the knowledge of the prehistoric Near East contributed by Americans. While a lack of detailed information on Near Eastern reports is understandable in a book on European agriculture, a lack of knowledge of the methodological and theoretical advances made by Americans in this area has perhaps contributed to the author's uncritical acceptance of some of the reports studied (personally, I regard Duerst's 1904 report on the Anau fauna with the gravest suspicion).

In short, this is not as useful a compilation as it might have been. Only a serious student would bother to consult it, and this serious student, at least, was disturbed by its deficiencies.

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Books Received

Adolescent Suicide. Jerry Jacobs. Wiley-Interscience, New York, 1971. xii, 148 pp. \$9.50.

Advances in Parasitology. Vol. 9. Ben Dawes, Ed. Academic Press, New York, 1971. xiv, 276 pp., illus. \$14.50.

Animal Psychophysics. The Design and Conduct of Sensory Experiments. William C. Stebbins, Ed. Appleton-Century-Crofts, New York, 1970. xiv, 434 pp., illus. \$18.75.

Animals and Architecture. David Hancock. Praeger, New York, 1971. 200 pp., illus. \$13.95. Excursions into Architecture series.

Brands, Generics, Prices and Quality. The Prescribing Debate after a Decade. Pharmaceutical Manufacturers Association, Washington, D.C., 1971. viii, 118 pp., illus. Paper. Single copies, free; in quantities, \$1 each.

Breakthrough. An Amazing Experiment in Electronic Communication with the Dead. Konstantin Raudive. Translated by Nadia Fowler. Joyce Morton, Ed. Taplinger, New York, 1971. xxxii, 392 pp. \$10.

The Calculus Book. A First Course with Applications and Theory. Louis Leithold. Harper and Row, New York, 1971. x, 802 pp., illus. + appendices. \$12.95.

Can Man Care for the Earth? Richard L. Heiss and Noel F. McInnis, Eds. Abingdon, Nashville, Tenn. 1971. 126 pp., illus. Paper, \$1.95.

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Differential Games and Related Topics. H. W. Kuhn and G. P. Szegö, Eds. North-Holland, Amsterdam, and Elsevier, New York, 1971. xii, 490 pp., illus. \$22.

Handbook of Package Engineering. Joseph F. Hanlon. McGraw-Hill, New York, 1971. Various pages, illus. \$18.50.

Mind in Evolution. An East-West Synthesis of Learned Behavior and Cognition. Gregory Razran. Houghton Mifflin, Boston, 1971. xviii, 430 pp., illus. \$16.50.

Minimal Brain Dysfunction in Children. Paul H. Wender. Wiley-Interscience, New York, 1971. xviii, 242 pp., illus. \$10.50.

Nonparametric Methods in Multivariate Analysis. Madan Lal Puri and Pranab Kumar Sen Wiley, New York, 1971. xiv, 440 pp. \$19.95.

On the Side of the Apes. Emily Hahn. Crowell, New York, 1971. xiv, 240 pp. \$7.95.

The Other Half. Roads to Women's Equality. Cynthia Fuchs Epstein and William J. Goode, Eds. Prentice-Hall, Englewood Cliffs, N.J., 1971. viii, 210 pp. Cloth, \$5.95; paper, \$2.45.

The People Problem. What You Should Know about Growing Population and Vanishing Resources. Dean Fraser. Indiana University Press, Bloomington, 1971. viii, 248 pp. \$6.95.

Personal and Community Health. C. E. Turner. Mosby, Saint Louis, Mo., ed. 14, 1971. x, 492 pp. + plates. \$9.25.

Die Rolle des Wassers in biologischen Systemen. Gerhard Hübner, Klaus Jung, and Eckart Winkler. Akademie-Verlag, Berlin, Pergamon, Oxford, and Vieweg, Braunschweig, 1971. 174 pp., illus. Paper, 8 M. Wissenschaftliche Taschenbücher, vol. 78.

Rydberg Series in Atoms and Molecules. A. B. F. Duncan. Academic Press, New York, 1971. x, 122 pp. \$7.50. Physical Chemistry, vol. 23.

Selected Bibliography on Algae, 1970. No. 11. Evelyn M. Campbell, Ed. Nova Scotia Research Foundation, Dartmouth, Nova Scotia, 1971. 169 pp. Paper, \$10.

A Simple Manual on Queues. The Long and Short of Waiting Lines. W. J. Howard. Xyzyx Information Corporation, Canoga Park, Calif. 1971. viii, 72 pp., illus. Paper, \$2.95.

Some Topics in Two-Person Games. T. Parthasarathy and T. E. S. Raghavan. Elsevier, New York, 1971. xii, 260 pp., illus. \$18. Modern Analytic and Computational Methods in Science and Mathematics Series.

T-Groups. A Survey of Research. C. L. Cooper and I. L. Mangham, Eds. Wiley-Interscience, New York, 1971. xviii, 284 pp., illus. \$12.50.

Touching. The Human Significance of the Skin. Ashley Montagu. Columbia University Press, New York, 1971. xiv, 338 pp. \$8.95.

Transport through the Ages. Drawings by Barbara Brown. Peter Bray, Ed. Taplinger, New York, 1971. 128 pp. \$6.95.

Veteran and Vintage Aircraft. Leslie Hunt. Taplinger, New York, ed. 3, 1971. xvi, 226 pp., illus. \$7.95.

William Harvey and the Circulation of the Blood. Gweneth Whitteridge. Macdonald, London, and Elsevier, New York, 1971. xvi, 270 pp. + plates. \$12.75.