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.

RAINER BERGER
Departments of Anthropology and *History* and *Institute of Geophysics, University of California, Los Angeles*

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 metabolism 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.

BASIL E. ELEFTHERIOU
Jackson Laboratory, Bar Harbor, Maine

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-