mission at some point within the involved neural system. It is not known whether this modification is confined to the cerebellum or brainstem or is more distributed, involving changes at many locations in the circuit. It has been variously proposed that the cerebellum contains the engrams for motor learning, processes the error signals used for modification, or plays a role in coordinate transformations for sensory-to-motor integration. The editors have chosen not to include the cerebellar recording studies of Miles and Lisberger and of Ito because other reviews of the work have appeared, although the omission leaves a gap for readers not familiar with this cornerstone research. Two of the four theoretical chapters and the introductory chapter, by Simpson and Graf, discuss the coordinate transformations that are required in processing sensory signals for motor outputs.

As the editors point out, the morphological and biochemical changes involved in adaptive mechanisms are currently unknown. The book transmits the excitement of a field on the verge of major discovery. Parts of it require some knowledge of control systems analysis. The book will be an important addition for researchers and clinicians interested in the vestibular system, eye movements, motor systems in general, and central nervous system correlates of learning.

RICHARD A. ANDERSEN
Salk Institute,
San Diego, California 92138

Old World Archeology

Prehistoric Europe. TIMOTHY CHAMPION, CLIVE GAMBLE, STEPHEN SHENNAN, and ALASDAIR WHITTLE. Academic Press, Orlando, Fla., 1984. x, 359 pp., illus. $45.

The writing of a general textbook on the prehistory of Europe is indeed an ambitious task. The prospective authors must confront an extraordinarily rich and varied archeological record, a literature that is vast and linguistically fragmented, and interpretative frameworks reflecting diverse regional histories. *Prehistoric Europe* represents a successful confrontation.

Given the diversity of archeological materials to be covered, any textbook must generalize about regional patterns and temporal trends. There is an attendant risk, however, that local variation, which may have significant implications, will be ignored and that the account will be so divorced from specific archeological finds that it provides little understanding of the basis for interpretations. This book achieves a balance between detail and generalization. The chapters, generally covering a particular time period, each include an overall summary and a more detailed discussion of different regions (for example the west and central Mediterranean), with descriptions of key sites or studies and their significance. The descriptions are brief but are often supported by illustrations and are sufficient to acquaint readers with the kinds of evidence available. Pertinent references are also given, so that readers can investigate further. Moreover, the authors emphasize variation and exceptions to their generalizations, avoiding the creation of overly neat scenarios of the past.

The authors also achieve remarkable geographic and chronological balance. Previous textbooks have tended to emphasize the most intensively studied regions and periods, those with the most dramatic finds, or those most familiar to the authors. Consequently, students have tended to learn the Paleolithic of southwestern France, the Mesolithic of Scandinavia and England, the Neolithic of the Balkans, and the Bronze and Iron Age of central Europe. This book is much more uniform in that respect. Particular areas, such as Neolithic Wessex or the Bronze Age Aegean, are emphasized as befits their rich archeological materials, but the authors address the question of the uneven evidence. Thus, they attribute their telling little about the late Middle Paleolithic of central Europe and the Neolithic of much of Iberia to the paucity of occupation in the former case, to a lack of investigation in the latter. More than other such books, this one gives the reader an appreciation of the texture of both prehistoric developments and archeological research across the continent.

Another kind of balance is achieved among levels of archeological interpretation. Beyond the description of material objects, archeologists seek to reconstruct prehistoric behavior within sites and across regions and, ultimately, to explain this behavior, its distribution and changes in space and time. The authors include both reconstruction and explanation. For the former they draw heavily upon recent ethnoarcheological studies of living peoples, physical studies of soils and raw material composition, and quantitative studies of distribution patterns. For the latter they incorporate work in cultural anthropology and investigations of settlement patterning and burial furnishings. They are careful in their reconstructions to point out weaknesses in data or methods and to distinguish between data and interpretation. Although they do not dwell upon questions of the origins of practices such as food storage and plow agriculture, they emphasize their economic, social, and political implications in relation to their adoption and spread.

Finally, the authors attempt to balance the explanations they offer. In their explanations of sociopolitical change, for example, they emphasize subsistence and population density, but they frequently point out the inadequacies of such materialist approaches and discuss alternatives. In explaining changes in material culture, although they often reject both large-scale migrations and independent local developments, favoring models of interregional exchange and interaction, they discuss all these possibilities, providing references for the various points of view.

As in other textbooks, all the high points of European prehistory—cave paintings, Stonehenge, and Mycenae, to name a few—are discussed here. What is unique about this presentation is its balance and coherence.

MICHAEL A. JOCHIM
Department of Anthropology,
University of California,
Santa Barbara 93106

Books Received

Arms Control and the Arms Race. Readings from *Scientific American*. Introductions by Bruce Russett and Fred Chernoff. Freeman, New York, 1985. 229 pp., illus. Paper, $14.95.

Astronomy and the Imagination. A New Approach to Man's Experience of the Stars. Norman Davidson. Routledge and Kegan Paul, Boston, 1985. xviii, 238 pp., illus. $25.

Astrophysics of Active Galaxies and Quasi-Stellar Objects. Joseph S. Miller, Ed. University Science Books, Mill Valley, Calif., 1985. viii, 519 pp., illus. $30. From a workshop, Santa Cruz, Calif., July 1984.

Atlas of Dinoflagellates. A Scanning Electron Microscope Survey. John D. Dodge. Farrand Press, London, 1985. viii, 119 pp. $24.50.

Autoionization. Recent Developments and Applications. Aaron Temkin, Ed. Plenum, New York, 1985. xiv, 261 pp. $45.

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Basic and Applied Mutagenesis. With Special Reference to Agricultural Chemicals in Developing Countries. Amir Muhammed and R.C. von Borstel, Eds. Plenum, New York, 1985. xii, 441 pp., illus. $55. Basic Life Sciences, vol. 34. From a symposium, Islamabad, Pakistan, Oct. 1982.

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