tions are not as simple or as closed as they appear in *The Cradle of the East*. Some middle position that recognizes the differences in environments and human populations in eastern Asia and draws out the distinctive qualities of each area is what we need now.

Paul Benedict has attempted to show that a wide range of vocabulary items, including those for the zodiacal signs, ancestor worship, and early terms for cultivation, are borrowed from Austro-Thai languages in South China (*Behav. Sci. Notes* **2**, 275 [1967]). Few linguists agree with Benedict about the reality of the Austro-Thai grouping, the reconstructed vocabulary, or the diffusion of the vocabulary items, however. Another recent theory, proposed by Edwin Pulleyblank, is that the Heavenly Stems and Earthly Branches are a quasi alphabet, which represented the consonants of Chinese in the second millennium B.C. and may have had a common origin with the 22 signs of the ancient Semitic alphabet (*J. Am. Orient. Soc.*, in press). The idea of a writing system in the Neolithic challenges many time-honored ideas concerning the origins of scripts and their social contexts. Was the Neolithic society of Yang Shao times complex enough to warrant the use of a script? I think it remains to be proven that the marks on Yang Shao pottery were symbols with abstract meanings and not signs. It is interesting that, in addition to being found at the North Chinese sites, these marks were found on Sandy Red Ware sherds from the Fengpitou site of southern Taiwan, dating to 1900–1400 B.C. (K. C. Chang, "Fengpitou, Tapengkeng, and the Prehistory of Taiwan," *Yale Univ. Publ. Anthropol.*, No. 73 [1967], pp. 95, 100), in which context they were thought to be owner's or maker's marks.

Basic to Ho's formulation is the idea of an initial agricultural system for Yang Shao based on permanent fields in an arid loess environment. A good portion of this argument is based on the interpretation of palynological data, which I have criticized elsewhere on the grounds of inadequacy of samples and lack of consideration of plant succession and anthropogenic factors (*Antiquity* **48**, No. 191, 226 [1973]). More recently I have encountered another problem with the interpretation. *Artemisia* was found to be the predominant pollen in a long core from Wu-Ch'eng County, Shansi. From this Ho concludes that *Artemisia* itself can represent only arid steppe (p. 25), citing the North American *Artemisia tridentata* (sagebrush) as an example. On checking the *Iconographia Cormophytorum Sinicorum*, volume 4 (Peking, 1975), my wife found that of some 47 species found in North China, *A. eriopoda*, *annua*, *apiacea*, *viridissimia*, *anomala*, *deversa*, *feddei*, and *argyi* all grow at the edge of forests or in sparse woodland. I still prefer to think that the Yang Shao nuclear area at the time of incipient agriculture was an open deciduous woodland, and that the initial system was one of swiddening. The area may have lain along an ecotone between forest and steppe; but I do not see the evidence that it was entirely treeless. Nor can I understand Ho's statement that swidden is a "simple and wanton method, characteristic of the tropics" (pp. 41, 49). Until the chronological relationships of the huge number of Yang Shao sites are understood, there is no reason to rule out the possibility that they were occupied for relatively short times at repeated intervals by shifting cultivators. Although permanent-field agriculture is described in the *Tso Chuan*, this document belongs to the Late Chou and cannot be used to substantiate inferences about situations that existed thousands of years earlier.

The Cradle of the East makes one stop to ponder the political and social implications of culture history, in addition to the notions of stages of culture evolution. Perhaps I am too conservative to accept the notions of cultivation systems that start with permanent fields and Neolithic farmers who invent their own writing systems. It is certain that in testing the hypotheses that are presented in this book we will advance not only in our understanding of China and her prehistoric neighbors but also in our conception of Neolithic and Bronze Age existence.

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Crustaceans

Fiddler Crabs of the World. Ocypodidae: Genus *Uca*. JOCELYN CRANE. Princeton University Press, Princeton, N.J., 1975. xxiv, 738 pp., illus. $75.

Jocelyn Crane's massive compilation of information about the genus *Uca* provides a wealth of facts on a variety of biological subjects. It contains material that will be of interest to ecologists, ethologists, and evolutionary biologists in general as well as to those concerned with crustacean behavior, morphology, and systematics. Crane does not review physiological work on *Uca* in detail, but almost all other aspects of the biology of fiddler crabs are considered in depth. Particularly in systematics, morphology, natural history, and behavior, Crane has incorporated a considerable quantity of data on *Uca* that have not been published elsewhere. Although the body of information the book presents on the genus is formidable, Crane points out numerous areas in which data are lacking or inadequate.

The main portion of the book is organized into a systematic section (where detailed data are presented species by species) and a synthesis section (where comparative viewpoints on separate aspects of the biology of *Uca* are brought together). Numerous plates, figures, and tables augment the text, although the placement of all figures and tables in one section sometimes makes for clumsy reading. Cross-referencing is generally good, although occasionally the reader must search around to track down definitions or descriptions. The keys and the appendix on field methods are helpful aids to anybody working or contemplating working on fiddler crabs.

As might be expected in such a wide-ranging book, the author does not present startling new approaches. Rather, each aspect of the subject is presented in the light of knowledge of the other aspects. Experts on specific subjects may disagree with certain conclusions (I would question some of Crane's conclusions on the functions of displays, and she is mistaken in stating that crabs do not have statocysts), but this does not detract from the substance of the book. The use of behavioral, morphological, and ecological characteristics in understanding the systematics of fiddler crabs has characterized Crane's studies for many years. The present synthesis of these features of *Uca* biology strengthens the evolutionary conclusions reached.

It is likely that significant portions of the material in the book (especially in the 300-page systematics section) will not be of interest to many readers who are not working specifically on *Uca*. The morphological detail may not be of direct concern to a vertebrate ethologist, and the behavioral detail may not excite an invertebrate taxonomist. But any biologist seeking specific information on a particular subspecies, species, or subgenus of *Uca* (Crane groups the 62 species she recognizes into nine subgenera) will appreciate being able to go to one reference work to locate it. The synthesis sections should be of interest to a much wider audience.

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