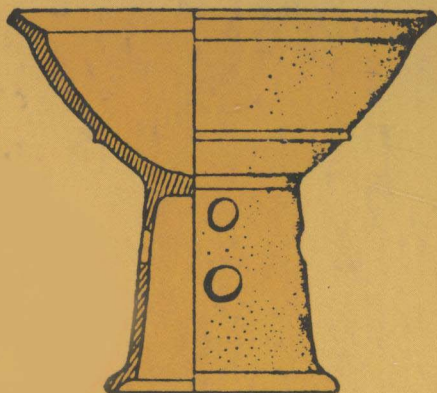

THE ORIGINS OF CHINESE CIVILIZATION



Edited by
DAVID N. KEIGHTLEY

THE ORIGINS OF CHINESE CIVILIZATION

STUDIES ON CHINA 1
Sponsored by the Joint Committee on Chinese Studies
of the American Council of Learned Societies
and the Social Science Research Council

University of California Press
Berkeley and Los Angeles, California
University of California Press, Ltd.
London, England

© 1983 by
The Regents of the University of California

Library of Congress Cataloging in Publication Data

Main entry under title:

The Origins of Chinese Civilization.

Includes bibliographies and index.

I. China—Civilization—To 221 B.C. I. Keightley,
David N. II. Barnard, Noel.

DS741.65.074 931 81-4595

ISBN 0-520-04229-8 (cloth) AACR2

0-520-04230-1 (paper)

Composition in Hong Kong by Asco Trade Typesetting Ltd.
Printed in the United States of America

1 2 3 4 5 6 7 8 9

CONTRIBUTORS

Noel Barnard is a Senior Fellow in the Department of Far Eastern History of the School of Pacific Studies at the Australian National University. He specializes in ancient Chinese paleography, metallurgy, the history of technology, and the application of science in archaeological studies. Among his books are *Bronze Casting and Bronze Alloys in Ancient China* and, co-authored with Satō Tamotsu, *Metallurgical Remains of Ancient China*.

K. C. Chang was born in Peking and educated in Taiwan; he received his Ph.D. from Harvard University, where he is now a Professor in the Department of Anthropology. Chang is the author of numerous articles about early Chinese culture; his most recent books include *The Archaeology of Ancient China* and *Shang Civilization*.

Te-tzu Chang is a geneticist and leader of the genetic resources program at the International Rice Research Institute, Los Baños, Philippines. His main research has involved the development of high-yielding rices and the global conservation of rice germ plasm, but he also has a strong interest in retracing the ancient history of Asian crop plants through multidisciplinary analysis and synthesis.

Cheung Kwong-yue is a Senior Research Officer in the Department of Far Eastern History, Australian National University. He specializes in ancient Chinese inscriptions and has worked on the problem of the forgery of inscribed bronzes. He has traveled extensively in China, the United States, Europe, and Japan in connection with his research on Chinese bronzes and has participated in several international symposia.

Wayne H. Fogg is presently a Visiting Professor in the Department of Geography at the University of Oregon. His primary research interests are biogeography, swidden agriculture, and the geography of China.

Ursula Martius Franklin is a Professor of Metallurgy and Materials Science at the University of Toronto, a Research Associate of the Royal Ontario Museum, and an Affiliate of the University of Toronto's Institute for the

History and Philosophy of Science and Technology. Her research has centered on the characterization of ancient materials in general and on the development of bronze technology in China in particular.

Morton H. Fried is a Professor of Anthropology at Columbia University, where he has taught since 1949. He first visited mainland China in 1947, and he was there most recently in 1977. He has also worked in Taiwan. Among his recent books is *The Problem of Tribe*.

W. W. Howells has taught at Harvard University since 1954 and has been Professor Emeritus since 1974. His research interests include human evolution and human variation in the living, as well as the analysis of recent human crania to specify the nature of racial or population differences in terms of multivariate analysis. His books include *Mankind in the Making*, *Cranial Variation in Man*, *Evolution of the Genus Homo*, and *The Pacific Islanders*. He was a member of the Paleoanthropology Delegation to the People's Republic of China in 1975.

Louisa G. Fitzgerald Huber served as Assistant Professor of Fine Arts at Harvard University from 1975–1980. Her dissertation on the traditions of Chinese Neolithic ceramics will be published in the *Bulletin of the Museum of Far Eastern Antiquities*.

Karl Jettmar is a member of the Heidelberg Academy of Sciences and the German Archaeological Institute and he is Head of the Department of Anthropology at the University of Heidelberg, where he has taught since 1964. Jettmar, the author of five books and numerous articles, has participated in ethnographic expeditions to Pakistan, Afghanistan, India, and Thailand.

David N. Keightley is a Professor of History at the University of California, Berkeley, where he has taught since 1969. Keightley, the author of *Sources of Shang History: The Oracle-Bone Inscriptions of Bronze Age China*, is currently at work on a study of temperament and mentality in Late Shang China. He is one of the editors of the journal *Early China*.

Fang Kuei Li is Professor Emeritus at the University of Washington and at the University of Hawaii. A member of the Academia Sinica, he has made numerous contributions to the study of Athapaskan and Tai languages and to Tibetan and Chinese linguistics.

Hui-lin Li is John Bartram Professor of Botany and Horticulture at the University of Pennsylvania. Born in China and educated there and in the United States, he holds degrees from Soochow, Yenching, and Harvard

universities. A member of the Academia Sinica, he has published numerous articles on the natural vegetation and cultivated floras of China.

William Meacham is editor of the *Journal of the Hong Kong Archaeological Society* and Research Fellow at the Centre of Asian Studies, University of Hong Kong. He has directed several major excavations of prehistoric sites in Hong Kong and has served as an adviser on archaeological exhibits to the Hong Kong Museum of History.

Richard Pearson specializes in the prehistory of China, Japan, and Korea; he has conducted fieldwork in Taiwan, Okinawa, Korea, and the Hawaiian Islands. He is currently a Professor of Anthropology at the University of British Columbia.

E. G. Pulleyblank is a Professor of Chinese in the Department of Asian Studies, University of British Columbia. He is the author of *The Background of the Rebellion of An Lu-shan* and of articles on the history of the T'ang dynasty and earlier periods. His work has focused recently on the history of the Chinese language, including the reconstruction of the sound system of Chinese and investigations into its relation to other languages.

Robert Orr Whyte was a Visiting Fellow at the Institute of Southeast Asian Studies in Singapore when he contributed his chapter of this volume. For the past thirty years he has worked on several aspects of applied ecology in monsoonal Asia and has produced a series of papers presenting an environmental interpretation of the origin of Asian cereal and grain legumes during a botanical Neolithic revolution. He is now engaged on a longer-term study of the evolving biogeography of China since the mid-Tertiary, at the Centre of Asian Studies, University of Hong Kong.

PREFACE

The origins of Chinese civilization is a complex and noble theme that has its own history. Chinese myths tell of sage emperors who rapidly invented the strategic elements of culture in relatively recent times. Fu Hsi (traditional dates, 2852–2738 B.C.), for example, introduced hunting, fishing, animal husbandry, and the eight trigrams used in the *Yi-ching*. Shen Nung, the divine farmer (2737–2698 B.C.), invented agriculture and discovered the medicinal properties of plants. Living in a golden age, the sages and their ministers were thought to have created Chinese civilization by what we might call “the immaculate conception of culture traits”; they were certainly the analogues, and probably the creations, of the culture-bearing *chün-tzu* (noble man) of later times.

Such a rationalized and foreshortened view of prehistory, combined with a comfortable assurance about the priority and superiority of Western culture, persuaded many Western scholars that early China lacked any culture of its own. Joseph de Guignes, for example, claimed (1759) that the Chinese had originally come from Egypt. Terrien de Lacouperie, in a series of works written over a hundred years later, became increasingly convinced that the Chinese “are themselves intruders in China proper” (1887:4), “that the early civilisation and writing of the Chinese were simply derivations from those of Elam and Chaldaea,” and that Chinese civilization was “a loan, a derivation, an extension eastward from a much older form of culture in the west” (1894:1). Such works as these were characterized by a lack of archaeological evidence, a great trust in Chinese texts of a far later date than the period under discussion, a reliance on the assumption of *post hoc, ergo propter hoc*, an inability to distinguish between significant genetic connection and trivial coincidence, and, not infrequently, the tendentious assumption “that in all investigated cases, culture is the result of an introduction from abroad, and not of a spontaneous development” (de Lacouperie 1894:x).

Berthold Laufer was far better informed about the Chinese evidence,

but even he assumed that “as far as the present state of our archaeological knowledge and the literary records point out, the Chinese have never passed through an epoch which for other cultures has been designated as a stone age” (1912:29, cf. p. 55). Laufer omitted all mention of a Shang dynasty and started his account of Chinese jade with the Chou. Lauriston Ward found it “impossible to escape the conviction,” less than thirty years ago, that “many of the fundamental elements of Chinese culture had their origin in the countries near the Mediterranean sea” (1954:130). And the hypothesis that ceramics, the idea of a script, and the technique of bronze casting were originally transmitted to China from such regions as Iran or south Russia is still to be found in the latest *Encyclopaedia Britannica* (Loehr 1979:300–301).

On the basis of “the present state of our archaeological knowledge”—and those words must be emphasized—there is now little doubt that, whatever the origin of a few particular elements, the complex of culture traits that we refer to as Chinese civilization developed in China. It possesses a respectable antiquity and an indigenous, documented pedigree. The golden age now beginning is that of Chinese archaeology which, despite the political and social turmoil of the twentieth century, has amply demonstrated the existence of a Chinese Neolithic, a Neolithic which has begun to make its mark on the study of human prehistory just as China is making its mark on the modern world. We have immeasurably more data to work with than did scholars who wrote only fifty years ago; and, thanks to the development of archaeology, anthropology, and related disciplines and ancillary techniques, we are able to ask, as in the pages that follow, more precise and sophisticated questions about the origins of Chinese civilization.

The value of this book stems, in fact, not only from the importance of its subject but also from the way in which the different but overlapping methods of the archaeologist, art historian, botanist, climatologist, cultural anthropologist, ethnographer, epigrapher, linguist, metallurgist, physical anthropologist, and political and social historian are all brought to bear on the topic of early cultural development in China. Time after time we benefit not just from “thick description” but, to adapt Clifford Geertz’s phrase, “thick analysis” as scholars from various complementary disciplines make their contributions to the discussion of a specific issue.

This sense of reinforcement and complexity helps to create a spirit of intellectual excitement and thus even of optimism, but the mood of the contributors is also one appropriate to continuing exploration rather than definitive conclusion. Despite the thousands of Neolithic and early Bronze

Age sites already known, the startling number of new archaeological finds that continue to be reported indicates that few if any large, final answers should be expected in the following chapters. The move from specific artifact assemblages, decor analyses, linguistic reconstructions, and so on, to a reconstruction of the social realities that produced them is still, in many cases, premature if not impossible. Further, it must be acknowledged that the study of early China is still too specialized and fragmented in its research concerns and disciplines for a comprehensive synthesis to be established. Volumes like this one, together with the conferences that produce them, may eventually lead to such a synthesis, but what emerges here—in addition, of course, to the factual data and analytical schemes that lie at the heart of the individual chapters—are primarily some considerations of methodology and conceptualization, some major hypotheses, and some crucial disagreements.

The basic methodological issue is, for the Chinese case as for all others, how should the archaeological evidence be gathered and interpreted so as to best satisfy the concerns with which we approach it? For the contributors to this volume it is clear that the question of origins needs to be dealt with, not in terms of first events and achievements, but in terms of processes of intensification and cultural exchange, in terms of the development of the social and political organism, and in terms of continually expanding areas of settlement and the changing natural environment.

Historiographical or even epistemological questions are fundamentally important. In archaeological terms this involves the developmental models, Marxist or otherwise, the political or patriotic biases we bring to China, and the ways these considerations influence research designs and interpretations. There is always the possibility that a primary concern with chronology, typology, and stratigraphy, for example, will lead to a selection of data unsuited to the study of interassemblage variability or the reconstruction of settlement patterns and the environment. The need for a terminology that will advance beyond the current practice—which is both narrow and, because not standardized, potentially confusing—of naming Chinese cultures and phases after type-sites is another source of concern. Overemphasis on class structure and property relations, as well as the natural desire to publish the more glamorous finds, could lead to a disproportionate interest in elite burials as compared with, for example, more mundane lithic technology, domestic architecture, and refuse heaps. Questions of data retrieval and selection also involve technical competence and training, as well as ideological predispositions. The striking absence of plant remains in most Chinese archaeological reports, for example, may

well be attributed to the shortage of paleobotanists rather than to a lack of interest in the data.

The conceptions and influences that shape the published Chinese archaeological record, in short, have a historical character of their own, and they are, of course, not unique to China—where, as elsewhere, the ancient material culture is the product of the archaeologist's eye. All the contributors share the concern of their Chinese colleagues to reconstruct the full range of early Chinese society and to discover how this can best be done.

In anthropological terms, the assumptions underlying the title of this volume need to be questioned. Should "origins" be considered as history or as process? Should "Chinese" and "culture" be defined in terms of ethnic, racial, linguistic, geographical, social, technological, or other considerations? Some of the chapters below address such theoretical issues explicitly. Fried, for example, discusses the nature of the tribe and its creation by the emerging state. Pearson considers the limitations of the present archaeological data, particularly in terms of patterns of adaptation, for the Ch'ing-lien-kang culture. The chapters by K. C. Chang and by me bear on the issue of how states function. In questions of these sorts, the Chinese case has as much to offer scholars of other cultures as it has to learn from them.

The contributors employ a remarkably wide range of methods: Whyte's comprehensive reconstruction of the paleoclimate (not presented at the conference, but graciously submitted for the volume); Hui-lin Li's meticulous definition of the three ecogeographical zones; T. T. Chang's botanical and historical study of the way cereal grains developed from wild phenotypes; Fogg's imaginative use of ethnographic analogy to provide a scenario for the domestication of millet (as well as to capture a sense of the natural color and religious excitement involved); Franklin's thoughtful reflections about the social implications of large-scale metal production; Howells' preliminary but highly significant multivariate analysis of skulls; Fang Kuei Li's valuable introduction to the reconstruction of Archaic Chinese; Pulleyblank's wide-ranging use of linguistic and historical data, and so on.

One of the contributions of the volume is to delineate problems of definition, problems of inadequate data, and the kinds of research strategies (in terms of both excavation and reporting techniques) and the use of analytical models that future scholars may wish to pursue. I have termed all these considerations of evidence and intention historiographical and epistemological because they are finally concerned not just with what we know, but with how we know what we know, why others want us to know it, and why we want to know it. They should, in the Chinese case as elsewhere, be constantly borne in mind.

In addition to these methodological considerations, several chapters propose a series of hypotheses about the origins of certain aspects of Chinese culture. These include, to cite some examples, the interaction between the east coast and Chung Yüan cultures (Huber), the contribution of non-Chinese populations, especially from the west (Pulleyblank), the origins of Chinese writing (Cheung), the origins of Chinese metal winning, metal production (Franklin), and metal-working (Barnard), the links between Hsia, Shang, and Chou (K. C. Chang), and the extent and nature of the Shang state (Keightley).

Numerous questions—rhetorical, perhaps, at present, but well worth bearing in mind for the future—were raised during the conference: If *Setaria italica* is poor fodder for horses, is it possible that *Panicum miliaceum* appeared in China at the same time as the horse? What consequences do climatic conditions and the quality of edibles have for social organization? What cultural effect, for example, does the need for greater storability of the northern food crops imply by contrast with the perishability but readier availability of the southern crops? What kind of archaeological evidence can document a transition from (open membership) clan to (closed membership) lineage organization? Is evidence of social stratification greater for the east coast than for other areas of neolithic development, and to what ecological features, if any, should such differences be related? To what extent is interaction between a number of diverse societies a precondition for the rise of the pristine state? Do archaeological remains indicate increasing exploitation during the Chinese Neolithic? Does exploitation arise from competition between groups or does it develop within single communities? To what extent were linguistic groups and tribes coterminous? Does the ablaut relationship suggest common origins between Indo-European and Sino-Tibetan? How can the art historian's analysis of individual motif development be integrated with considerations of overall design to illustrate patterns of social interaction?—a particularly important question for both the ceramic vessels of the Chinese Neolithic and the ritual bronzes of early historic times. What criteria—racial, social, political, economic, territorial, ideological—should be used to define early populations in China? Would it be more appropriate to speak of a Lung-shan tradition than a Lung-shan culture? It is not surprising that, at this stage of our knowledge, there are more questions than answers. But the high probability that the extraordinarily rich evidence will eventually permit some of these questions to be answered confirms the importance the Chinese case has and will have in helping us to understand the origins of civilization in general.

The conference was particularly fortunate in the participation of Karl

Jettmar, who presented two wide-ranging talks of extraordinary interest on the cultures and ethnic groups to the north and west of China in Neolithic and early historic times. His review article (ch. 8) gives a tantalizing indication of the richness, complexity, and immense scale of the archaeological data to be found in such areas as Cis- and Trans-Baikalia, the Mongolian People's Republic, the Amur Basin, and the Maritime Province of the USSR. Whatever conclusions are finally reached about the influences that entered China from these areas, or vice versa—and the conclusions have their political dimension (see, e.g., Price 1976)—the origins of Chinese civilization will not be fully understood until the Neolithic and Bronze Age context of the Eurasian steppe as a whole is clarified. When and where does the “Neolithic revolution” appear in these areas? Is there evidence for iron casting in the second millennium B.C.? What significance should be attached to the rock engravings in the Karatau range which depict chariots in a style similar to that of Shang oracle-bone graphs?

Soviet archaeology presents its own methodological problems. Readers of Jettmar's contribution will note, for example, how Cheboksarov's conclusions drawn from the analysis of An-yang skulls differ from those of Howells (ch. 11). But, as Jettmar makes clear, Soviet archaeology is a field that scholars of early China ignore at their peril. Similar considerations, of course, apply to the potential significance of Southeast Asia, which, apart from the discussions in Meacham's presentation (ch. 6), is not well represented in this volume.

Such matters as the place of production of the southern variants of Miao-ti-kou ware (ch. 7), the origins of written Chinese (ch. 12), the distinction between Hsia and Early Shang sites (ch. 16), and the nature and location of the Late Shang capital (ch. 17), also need to be considered. One of the most important issues involves the question of whether China was a primary area for the development of metallurgy. The art historians (such as Huber, ch. 7) generally argue for the existence of wrought sheet-metal prototypes, reflected in the metallic-looking shapes of Ch'i-chia ceramics and the appearance of rivet-like knobs on both Erh-li-t'ou pots and Middle Shang *li-ho* bronzes. The existence of such a sheet-metal tradition, strongly implied but not yet demonstrated, would suggest that knowledge of metal working had been imported into China from cultures to the west.

The archaeologists, by contrast (represented in this volume by Barnard, ch. 9), pointing to the absence of actual metallic prototypes and the indifference to and ignorance of smithy techniques of the Shang and early and middle Chou bronze industry, argue for the indigenous development of a piece-mold metal-casting industry, deriving naturally from ceramic

prototypes and the highly developed technical skills of the Neolithic potters. Unless the actual sheet-metal prototypes are discovered, this issue will be difficult to resolve with finality. (The debate continues. The claims of the wrought-metal advocates are forcefully argued by Robert W. Bagley in Fong 1980: 74, 103–104. Barnard [in press] provides a rebuttal on behalf of those favoring the cast-metal hypothesis.)

A second key issue involves stimulus diffusion versus independent invention. The origins of metallurgy, of the written script, of ceramic designs, of tribal organization—all have to be considered in these terms. It seems likely that the main thrust of future research will be toward identifying, in the Neolithic, various nuclear areas rather than one North China Nuclear Area and to explaining their mutual influences. Whether one nuclear area proves more nuclear than others remains to be seen. The role of nuclear areas is also crucial to our understanding of the formation and interaction of the early Bronze Age states, the Hsia, Shang, and Chou, in the Chung Yüan area. The identification of strategic culture traits and complexes and of their transmission will teach us much about the processes involved. So will carbon-14 dates.

The use of thermoluminescent techniques is still in its infancy (Barnard 1979: x–xiv; Wang Wei-ta 1979), but carbon-14 dating has already made contributions of major significance, particularly in demonstrating the contemporaneity and cultural diversity of the early nuclear areas of the Neolithic in the Pan-p'o, Ch'ing-lien-kang, and Ta-p'en-keng regions (K. C. Chang 1977: 84, fig. 31), and with regard to the whole question of the relation between the Chung Yüan, east coast, and southeast coastal cultures. The carbon-14 dates cited (see finding list) are taken from the latest, invaluable survey of Barnard (1980); as a result they may differ, but generally not significantly, from the dates given in the original archaeological reports. So far as possible, the carbon-14 dates are cited according to the dendrochronological calibrations of Damon, Ferguson, Long, and Wallick (1974), referred to hereafter as DFLW. (On the problems involved, see Barnard 1980: 7–9). When specific dates are being discussed, all corrected dates below are recorded as B.C. or B.P.; the uncorrected ones are recorded as b.c. or b.p. The raw dates and other calibrations can readily be consulted in Barnard's pages; his book also provides, as does his previous survey (1975), an excellent introduction to the considerable cautions to be exercised when dealing with radiocarbon dates. There is no doubt, as techniques become more refined and as large numbers of dates become available, that scientific dating will aid in the formulation and testing of hypotheses about the development of Chinese culture, not only within the

territories of modern China but also in such areas as Siberia, Central Asia, and Southeast Asia.

Geography is as important as chronology to our understanding of the development and interaction of cultures in early China. In addition to the maps that accompany some chapters below, a general map of China, placed at the end of the preface, shows the major sites discussed. Since no units smaller than the *hsien* are given on this map, readers looking for a particular site should locate it at the *hsien* level; Sian (Shensi), for example, represents Pan-p'o, Ch'ing-chiang (Kiangsi) represents Wu-ch'eng, and so on.

A word should be said about various other conventions used herein. In the interests of consistency, modern Chinese characters are, so far as possible, given in their full forms, regardless of whether simplified characters were used in the original publication (on the problems involved, see Barnard and Satō 1975:xxvi). The Wade-Giles system of romanization given in *Mathews' Chinese-English Dictionary*, pp. xviii–xxi, is used throughout (with three exceptions: the use of *yi* instead of *i*; the use of post office spellings for many provinces and large cities; and K. C. Chang's preference [ch. 16] for Sandai rather than San tai). The romanization of Chinese place names follows that used in Chang's *Archaeology of Ancient China* (1977). The names of Chinese and Japanese authors are treated in two ways. No comma is used when one or more of the works cited is in Chinese and Japanese, thus: Chang Kwang-chih. If all the works by a Chinese or Japanese author are in Western languages, then the name is treated in Western style, thus: Chang, Kwang-chih. But when an author has written in both Oriental and western languages, then the Oriental form is followed: Chang Kwang-chih. Russian names are transliterated according to the Library of Congress system. Chinese research institutes, museums, and their committees are treated as authors in the bibliographical citations, but, to avoid excessively unwieldy citations, work groups and university departments are not; their articles are referred to by journal title and date.

The Conference on the Origins of Chinese Civilization, at which original versions of the chapters in this volume were presented, was held in Berkeley from June 26 to 30, 1978. Though some revisions have taken account of more recent archaeological publications—K. C. Chang's "Concluding Remarks," for example, was written in the spring of 1979—the volume should generally be considered to represent our understanding at that time. New discoveries and new hypotheses continue to appear. To take but one example, Tsou Heng (1979) has recently argued, on the basis of stratigra-

phical considerations and traditional texts, that the domed *ho* 盃 that he believes was characteristic of the Erh-li-t'ou sites in the Cheng-chou area was a ritual vessel that identifies Hsia culture. It is precisely the *li-ho* 鬲盃 form that proponents of the wrought-metal hypothesis cite as ceramic evidence of a wrought-metal culture and which, in the view of one of the discussants, may have been an import. Huber's view (ch. 7) that the Hsia was indeed such a metal-working culture thus receives explicit support from Tsou Heng's attempt to identify the repertoire of Hsia vessel types.

The Berkeley conference was funded by the Committee for the Study of Chinese Civilization of the American Council of Learned Societies and by the Wenner-Gren Foundation for Anthropological Research. Additional grants from the American Council of Learned Societies and the Association for Asian Studies paid for the editorial assistance involved in revising the original papers for publication. The willingness of these institutions to support our work is deeply appreciated and gratefully acknowledged. I am particularly glad to acknowledge the generous assistance of K. C. Chang, who was an invaluable source of practical guidance and scholarly inspiration during the planning of both the conference and this volume and who generously supplied a chapter of Concluding Remarks. I owe a great debt to Noel Barnard, Nancy Price, and E.G. Pulleyblank, who also provided much valuable advice in the planning stages. Essential logistic support, provided by the Center for Chinese Studies of the University of California at Berkeley, left the participants free to read, discuss, and reflect while the conference was in progress. Special thanks is also due W. Thomas Chase, Clarence F. Shangraw, Hsio-yen Shih, and Henry Stewart, whose papers, which added much to the breadth of our discussions, are not included in this volume because they did not bear directly on the question of origins. (For a list of the institutions where the original papers, together with a record of the discussions, should be on deposit, see *Early China* 4 [1978–79]: 89–90.) Their work, when published, will add still further to our knowledge of China's early culture. I should also like to express gratitude to Robert Bagley, Virginia Kane, John LaPlante, Nancy Price, and Dorothy Washburn, who provided informed and stimulating commentary for some of the discussion sessions. I am grateful to Constance Cook, Mary Garrett, and Meryl Lanning for indefatigable assistance in editing the manuscript and to Anne Holmes and David J. Pauleen for their painstaking care in helping prepare the index and glossary. Lynn Mally's help with Russian transliteration and Adrienne Morgan's preparation of most of the maps are deeply appreciated. Finally, my thanks must go to the conference

rapporteurs, Dessa P. Bucksbaum, John Ewell, and David Goodrich, whose transcripts of the panel discussions provide a valuable record of the issues raised; their numerous acts of assistance, well beyond the call of duty, did much to make the conference memorable.

DAVID N. KEIGHTLEY

April 1980

REFERENCES

Barnard, Noel

- 1975 *The First Radiocarbon Dates from China*. Rev. and enl. Monographs on Far Eastern History 8. Canberra.
- 1979 *Radiocarbon Dates and Their Significance in the Chinese Archaeological Scene: A List of 280 Entries Compiled from Chinese Sources Published up to close of 1978*. Canberra.
- 1980 *Radiocarbon Dates and Their Significance in the Chinese Archaeological Scene: A List of 420 Entries Compiled from Chinese Sources Published up to Close of 1979*. Canberra.
- in press "Wrought Metal-Working Prior to Middle Shang (?)—A Problem in Archaeological and Art-Historical Research Approaches." *Early China* 6 (1980–81).

Barnard, Noel, and Satō, Tamotsu

- 1975 *Metallurgical Remains of Ancient China*. Tokyo

Chang, K. C.

- 1977 *The Archaeology of Ancient China*. 3d ed., rev. and enl. New Haven.

Damon, P. E., Ferguson, C. W., Long, A., and Wallick, E. I.

- 1974 "Dendrochronologic Calibration of the Radiocarbon Time Scale." *American Antiquity* 39.2: 350–366.

Fong, Wen, ed.

- 1980 *The Great Bronze Age of China: An Exhibition from the People's Republic of China*. New York.

de Guignes, Joseph

- 1759 *Mémoire dans lequel on prouve que les Chinois sont une colonie Egyptienne*. Paris.

de Lacouperie, Terrien

- 1887 *The Languages of China Before the Chinese: Researches on the Languages Spoken by the Pre-Chinese Races of China Proper Previously to the Chinese Occupation.* London.
1894 *Western Origin of the Early Chinese Civilisation from 2,300 B.C. to 200 A.D.* London.

Laufer, Berthold

- 1912 *Jade: A Study in Chinese Archaeology and Religion.* Field Museum of Natural History Publication 154. Anthropology ser., vol. 10. Chicago.

Loehr, Max

- 1979 "History of China: Prehistory and Archaeology." In *The New Encyclopaedia Britannica: Macropaedia*, vol. 4: 297–301.

Mathews, R. H.

- 1956 *Mathews' Chinese-English Dictionary.* Rev. ed. Cambridge, Mass.

Price, Don C.

- 1976 "The Origins of Chinese Culture: Some Russian and Chinese Views." *Early China* 2: 60–67.

Tsou Heng 鄒衡

- 1979 "Kuan-yü t'an-t'ao Hsia wen-hua ti chi-ke wen-t'i 關於探討夏文化的幾個問題." *WW* 1979.3: 64–69.

Wang Wei-ta 王維達

- 1979 "Ku-tai t'ao-ch'i ti je-shih-kuang nien-tai 古代陶器的熱釋光年代." *KK* 1979.1: 82–88.

Ward, Lauriston

- 1954 "The Relative Chronology of China through the Han Period." In *Relative Chronologies in Old World Archeology*, edited by Robert W. Ehrich: pp. 130–144. Chicago.