

## SOCIAL COMPLEXITY IN PREHISTORIC EURASIA MONUMENTS, METALS, AND MOBILITY

Social Complexity in Prehistoric Eurasia challenges current interpretations of the emergence, development, and decline of social complexity in the steppe region of China and the former Soviet Union. Through a thematic investigation of archaeological patterns ranging from monument construction and use to the production and consumption of metals and the nature of mobility among societies, the essays in this volume provide the most up-to-date thinking on social and cultural change in prehistoric Eurasia. Collectively, they challenge broader theoretical trends in Anglo-American archaeology, which have traditionally favored comparative studies of sedentary agricultural societies over mobile pastoralist or agro-pastoralist communities. By highlighting the potential and limitations of comparative studies of social complexity, this volume sets the agenda for future studies of this region of the world. It emphasizes how the unique nature of early steppe societies can contribute to more comprehensive interpretations of social trajectories in world prehistory.

BRYAN K. HANKS is associate professor in the Department of Anthropology at the University of Pittsburgh and research associate at the Carnegie Museum of Natural History in Pittsburgh. He has been involved in collaborative archaeological research in the Russian Federation since 1998 and has received funding from the National Science Foundation and the Wenner-Gren Foundation for Anthropological Research.

KATHERYN M. LINDUFF is UCIS Professor of Art History and Anthropology at the University of Pittsburgh. She is the co-editor (with Karen S. Rubinson) of *Are All Warriors Male? Gender Roles on the Ancient Eurasian Steppes* and (with Sun Yan) *Gender and Chinese Archaeology*.



More information

Cambridge University Press 978-0-521-51712-6 - Social Complexity in Prehistoric Eurasia: Monuments, Metals, and Mobility Edited by Bryan K. Hanks and Katheryn M. Linduff Frontmatter



# SOCIAL COMPLEXITY IN PREHISTORIC EURASIA

MONUMENTS, METALS, AND MOBILITY



EDITED BY

Bryan K. Hanks

University of Pittsburgh

Katheryn M. Linduff

University of Pittsburgh





CAMBRIDGE UNIVERSITY PRESS Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi, Dubai, Tokyo

Cambridge University Press 32 Avenue of the Americas, New York, NY 10013–2473, USA

www.cambridge.org Information on this title: www.cambridge.org/9780521517126

© Cambridge University Press 2009

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2009

Printed in the United States of America

A catalog record for this publication is available from the British Library.

Library of Congress Cataloging in Publication data

Social complexity in prehistoric Eurasia : monuments, metals, and mobility / edited by Bryan K. Hanks, Katheryn M. Linduff.

p. cm. Includes bibliographical references and index. ISBN 978-0-521-51712-6 (hbk.)

1. Social archaeology – Eurasia. 2. Steppe archaeology – Eurasia. 3. Prehistoric peoples – Eurasia. 4. Monuments – Eurasia – History. 5. Metallurgy – Eurasia – History. 6. Social mobility – Eurasia – History. 7. Excavations (Archaeology) – Eurasia.

8. Eurasia – Antiquities. 9. China – Antiquities. 10. Soviet Union – Antiquities. I. Hanks, Bryan K., 1967– II. Linduff, Katheryn M. III. Title.

D\$328.863 2009 930-dc22 2008040587

ısвn 978-0-521-51712-6 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLS for external or third-party Internet Web sites referred to in this publication and does not guarantee that any content on such Web sites is, or will remain, accurate or appropriate.



#### CONTENTS

| Contributors  | page 1x |
|---|---------|
| Foreword: From Myth to Method: Advances in the Archaeology of the Eurasian Steppe   |         |
| Colin Renfrew   | XV      |
| CHAPTER I Introduction: Reconsidering Steppe Social Complexity within World Prehistory Bryan K. Hanks and Katheryn M. Linduff | ī       |
| Diyun in Tunno und Isutheryn 1121 Dinddir   | •       |
| PART ONE FRAMING COMPLEXITY   |         |
| CHAPTER 2 Introduction  |         |
| Ludmila Koryakova   | II      |
| CHAPTER 3 Differentiated Landscapes and Non-uniform Complexity among Bronze Age Societies of the Eurasian Steppe              |         |
| Michael D. Frachetti  | 19      |
| CHAPTER 4 The Sintashta Genesis: The Roles of Climate Change, Warfare, and Long-Distance Trade                                |         |
| David W. Anthony  | 47      |
| CHAPTER 5 Settlements and Cemeteries of the Bronze Age of the Ural.  The Potential for Reconstructing Early Social Dynamics   | s:      |
| Andrei V. Epimakhov   | 74      |
| CHAPTER 6 The Maikop Singularity: The Unequal Accumulation of Wealth on the Bronze Age Eurasian Steppe?                       |         |
| Philip L. Kohl  | 91      |
|   |         |



#### vi | Contents

#### PART TWO MINING, METALLURGY, AND TRADE

| CHAPTER 7 Introduction  Katheryn M. Linduff   | 107  |
|---|------|
| CHAPTER 8 Formation of the Eurasian Steppe Belt Cultures: Viewed through the Lens of Archaeometallurgy and Radiocarbon Dating Evgenii N. Chernykh   | 115  |
| CHAPTER 9 Late Prehistoric Mining, Metallurgy, and Social<br>Organization in North Central Eurasia<br>Bryan K. Hanks  | 146  |
| CHAPTER 10 The Bronze-Using Cultures in the Northern Frontier of Ancient China and the Metallurgies of Ancient Dian Area in Yunnan Province Rubin Han and Xiaocen Li  | 168  |
| CHAPTER 11 Production and Social Complexity: Bronze Age  Metalworking in the Middle Volga  David L. Peterson  | 187  |
| CHAPTER 12 Early Metallurgy and Socio-Cultural Complexity: Archaeological Discoveries in Northwest China Jianjun Mei  | 215  |
| PART THREE FRONTIERS AND BORDER DYNAMIC   | ES . |
| CHAPTER 13 Introduction Thomas Barfield   | 235  |
| CHAPTER 14 Violence on the Frontiers? Sources of Power and Socio-<br>Political Change at the Easternmost Parts of the Eurasian Steppe<br>during the Late Second and Early First Millennia BCE<br>Gideon Shelach | 241  |
| CHAPTER 15 First-Millennium BCE Beifang Artifacts as Historical  Documents  Emma C. Bunker  | 272  |
|   |      |



Index

Cambridge University Press 978-0-521-51712-6 - Social Complexity in Prehistoric Eurasia: Monuments, Metals, and Mobility Edited by Bryan K. Hanks and Katheryn M. Linduff Frontmatter More information

#### Contents | vii

| CHAPTER 16 Blurring the Boundaries: Foragers and Pastoralists in the Volga-Urals Region Laura M. S. Popova           | 296 |
|--|-----|
| Part Four Social Power, Monumentality, and Mobility  |     |
| CHAPTER 17 Introduction Francis Allard   | 323 |
| CHAPTER 18 Re-writing Monumental Landscapes as Inner Asian Political Process William Honeychurch, Joshua Wright, and |     |
| Chunag Amartuvshin   | 330 |
| CHAPTER 19 Socially Integrative Facilities and the Emergence of<br>Societal Complexity on the Mongolian Steppe       |     |
| Jean-Luc Houle   | 358 |
| CHAPTER 20 Pre-Scythian Ceremonialism, Deer Stone Art, and<br>Cultural Intensification in Northern Mongolia          |     |
| William W. Fitzhugh  | 378 |

413



#### CONTRIBUTORS

Francis Allard is associate professor in archaeology at Indiana University of Pennsylvania. He has worked, lived, and studied in China at various times since the early 1980s and has conducted archaeological research in south China and Vietnam. Most recently he has directed a project in central Mongolia, focusing on the emergence and development of nomadic pastoralism in that region.

Chunag Amartuvshin is a senior research archaeologist at the Mongolian Institute of Archaeology, Academy of Sciences, and co-director of the Institute's National Cultural Resource Management Sector. Dr. Amartuvshin is also co-director of the Joint Mongolian-American Baga Gazaryn Chuluu Expedition, and his research interests include the emergence of social complexity among nomadic groups, the study of mortuary process, and the preservation of steppe nomadic heritage.

**David W. Anthony** is professor of anthropology and anthropology curator at the Yager Museum of Art and Culture at Hartwick College. Anthony was director with Dorcas Brown of the Samara Valley Project in Russia and has published *The Horse, the Wheel, and Language: How Bronze Age Riders from the Eurasian Steppe Shaped the Modern World*, which combines 20 years of research in Ukraine, Russia, and Kazakhstan in a study of the Proto-Indo-European language.

**Thomas Barfield** is professor of anthropology at Boston University and president of the American Institute for Afghanistan Studies. Barfield has



#### x | Contributors

conducted extensive fieldwork among nomads in northern Afghanistan and is the author of *The Central Asian Arabs of Afghanistan* and co-author of *Afghanistan: An Atlas of Indigenous Domestic Architecture.* He has written more broadly on the history and culture of nomadic pastoral societies in *The Perilous Frontier: Nomadic Empires and China* and *The Nomadic Alternative.* Barfield's current research focuses on the political economy of Afghanistan, the rule of law, and state building.

Emma C. Bunker is a research consultant to the Denver Art Museum's Asian Art Department and specializes in the arts of ancient China and Southeast Asia. Bunker is a well-known authority on personal adornment in China, the art of the horse-riding groups of the Eurasian steppe, and Khmer art of Southeast Asia. Her numerous publications have presented groundbreaking research on these subjects.

**Evgenii N. Chernykh** is a member of the Institute of Archaeology at the Russian Academy of Sciences in Moscow. He has carried out research for decades on ancient metallurgy and has published five volumes on the excavations at Kargaly, the best-known and only recently studied mining complex in Siberia.

**Andrei V. Epimakhov** is a Ph. D. research Fellow at the Institute of History and Archaeology, Russian Academy of Sciences, as well as assistant professor at Southern Ural State University. He has recently coauthored (with Ludmila Koryakova) *The Urals and Western Siberia in the Bronze and Iron Ages*.

William W. Fitzhugh, an anthropologist specializing in circumpolar archaeology, ethnology, and environmental studies, is director of the Arctic Studies Center and curator in the Department of Anthropology, National Museum of Natural History, Smithsonian Institution. He has spent more than 30 years studying and publishing on Arctic peoples and cultures in northern Canada, Alaska, Siberia, and Scandinavia. He has produced international exhibitions, *NOVA* specials, and several films.

**Michael D. Frachetti** is assistant professor of anthropology at Washington University in St. Louis. Frachetti's archaeological fieldwork has been conducted in Kazakhstan, and he has published numerous articles on Bronze Age pastoral societies. He has also conducted ethnographic studies of Kazakh pastoralists and carried out research on



#### Contributors | xi

prehistoric rock art in the Italian Alps, Roman and Islamic landscapes in North Africa, and Neolithic hunter-gatherers in Finland.

**Rubin Han** is professor and past director of the Institute for Historical Metallurgy and Materials at the University of Science and Technology Beijing. Han has published widely on the production of alloyed metals and on the history of metallurgy in early China. She has taken special interest recently in the intersection between the imperial Chinese and their northern neighbors.

**Bryan K. Hanks** is associate professor in the Department of Anthropology at the University of Pittsburgh and research associate at the Carnegie Museum of Natural History in Pittsburgh. He has been involved in collaborative archaeological research in the Russian Federation since 1998 and has received funding from the National Science Foundation and the Wenner-Gren Foundation for Anthropological Research.

William Honeychurch is assistant professor of anthropology at Yale University. He has conducted field research in Mongolia for more than a decade and has written many articles on pastoralism in Mongolia in the Bronze and Iron Ages. His work in Egiin Gol was the first pedestrian survey conducted in Mongolia. He has also conducted a field survey in the southern, arid regions of Mongolia.

**Jean-Luc Houle** is a Ph.D. candidate in the Department of Anthropology, University of Pittsburgh. His fieldwork over the past five years has taken place in Mongolia, where he is conducting a pedestrian surface survey aimed at the reconstruction of pastoral lifeways during the Bronze and Iron Ages.

**Philip L. Kohl** is professor of anthropology and Kathryn W. Davis Professor of Slavic Studies at Wellesley College. He is the author of *The Making of Bronze Age Eurasia* and scores of articles on Bronze and Iron Age Eurasia and is the co-editor of *Nationalism*, *Politics*, *and the Practice of Archaeology*.

**Ludmila Koryakova** is professor at the Ural State University and Institute of History and Archaeology, Ural Branch of the Russian Academy of Sciences. She has received fellowships from the European Community (INTAS), the Russian Academy of Sciences, Centre National de la



#### xii | Contributors

Recherche Scientifique (CNRS), and the French Ministry of Foreign Affairs. She has published more than 80 articles in American, European, and Russian journals. She has recently co-authored (with Andrei Epimakhov) *The Urals and Western Siberia in the Bronze and Iron Ages*.

**Xiaocen Li** completed his Ph.D. in 2004 at the Institute of Historical Metallurgy and Materials, University of Science and Technology Beijing, in the Department of History of Science and Technology under the direction of Rubin Han. His research focuses on the metallurgical technology used by the bronze-using cultures of southwest China in the late first millennium BCE. He has recently joined the faculty at the University of Science and Technology Beijing.

**Katheryn M. Linduff** is UCIS Professor of Art History and Anthropology at the University of Pittsburgh. She is the co-editor (with Karen S. Rubinson) of *Are All Warriors Male? Gender Roles on the Ancient Eurasian Steppes* and (with Sun Yan) *Gender and Chinese Archaeology*. She has conducted field research in Inner Mongolia for many years.

**Jianjun Mei** is professor and director of the Institute for Historical Metallurgy and Materials at the University of Science and Technology Beijing. His research focuses on the transmission of metallurgy and the intersection of cultures in the Neolithic period and Bronze Age in northwestern China and eastern Kazakhstan.

**David L. Peterson** is assistant professor of anthropology and a scientist at the Center for Archaeology, Materials and Applied Spectroscopy at Idaho State University. He is co-editor (with Laura M. S. Popova and Adam T. Smith) of *Beyond the Steppe and the Sown* and the author of several articles on Bronze Age metallurgy in the Eurasian steppes and Caucasus. He is currently involved in geo-archaeological survey and source analysis of copper ores and copper and bronze artifacts in Armenia and laboratory investigations of the biological effects of copper production on Bronze Age populations in the southeastern Urals.

**Laura M. S. Popova** is an Honors Faculty Fellow, Barrett Honors College, Arizona State University. Her current research and publications focus on the politics of pastoral land use, past and present, highlighting the ways in which the socio-political, ecological, and cultural orders of pastoral societies shape and restructure global and local environments.



#### Contributors | xiii

**Colin Renfrew** is Disney Professor Emeritus of Archaeology in the University of Cambridge and Senior Fellow of the McDonald Institute for Archaeological Research. He has worked in the field of European prehistory and is the author of *Archaeology and Language: The Puzzle of Indo-European Origins* and other works.

**Gideon Shelach** is professor and chair of East Asian studies and director of the Louis Frieberg Center for East Asian Studies at The Hebrew University, Jerusalem. He has engaged in fieldwork in northeastern China since 1994. His latest book is *Prehistoric Societies on the Northern Frontiers of China: Archaeological Perspectives on Identity Formation and Economic Change during the First Millennium BCE.* 

Joshua Wright received his Ph.D. in Anthropology from Harvard University (2006), where he studied the relationship between community, subsistence, and landscape while writing on the transformation of the monumental landscape in northern Mongolia during the adoption of nomadic pastoralism. He continues to pursue his interests in the archaeological prehistory and history of Inner Asia as well as general anthropological, spatial, and natural-science-based studies of megaliths, monumentality, nomadism, and mobility through the rubric of landscape archaeology and human ecology.



#### **FOREWORD**

### From Myth to Method

Advances in the Archaeology of the Eurasian Steppe

#### COLIN RENFREW

In Recent years, the archaeology of the Eurasian steppe has seen some remarkable advances. Up to a couple of decades ago, it seemed that little progress was being made, despite important archaeological discoveries in a number of relevant countries. The same rather simple models, based on an undifferentiated view of mobile steppe pastoralism and the notion of a short yet significant episode in which the domestication of the horse was achieved, had held sway since the early twentieth century. The valid contrasts emphasized in *The Steppe and the Sown* by Peake and Fleure (1928) led in the early work of Gordon Childe (1926) to a simplistic view of mounted nomad pastoralists, a view that has survived into recent times, although it was later reassessed by Childe himself (1950).

Today the picture is completely transformed, as the present volume emphasizes. In particular, recent discoveries have now allowed a clear differentiation to be established between the developments of the Bronze and Iron Ages in the steppes, in social and economic terms as much as in metallurgy. The development toward a pastoralist economy in the earlier Bronze Age, as well exemplified by the Sintashta culture of western Siberia with its chariot burials (Koryakova and Epimakhov 2007: 66–80; Parzinger 2006: 251–259, 338–342), was not accompanied by any conspicuous evidence of horse riding for military purposes, although horses are documented for drawing chariots as early as 2000 BCE and were presumably ridden earlier than this for the purposes of herding (see Renfrew 1998). It was not until the Iron Age, in the first millennium BCE, that Eurasian nomad pastoralism developed as a militarily significant enterprise with a complex, hierarchical, and ramified social



#### xvi | Colin Renfrew

structure utilizing effective military power based upon the deployment of mounted warriors (Koryakova and Epimakhov 2007: 209–220; Parzinger 2006, 679–692). This was the period of the first great kurgans, such as at Arzhan in the Tuva area (Parzinger 2006: 606–619; Koryakova and Epimakhov 2007: 327), which may be regarded as royal burials of a nomadic elite, anticipating by several centuries the Scythians as they appear in the writings of Herodotus.

Steppe archaeology is now one of the most dynamic fields in the whole ambit of prehistoric studies, as is reflected in the publications of some earlier conferences (e.g., Mair 1988; Levine et al. 1999; Boyle et al. 2002; Levine et al. 2003) and documented in the recent magisterial survey by Parzinger (2006). The reasons for this upsurge in interest and in productive research are several, and they are well exemplified here.

In the first place, the vast terrain of central Eurasia has opened up to scholarship. International meetings are being held within the area, at sites such as Arkaim or Gonur Tepe, as much as in Beijing or Pittsburgh. This new openness has facilitated publication in the West by major scholars who did not earlier enjoy a wide readership there (e.g., Chernykh 1992; Mei 2000) and the participation in the field of a whole new generation of younger workers, many of whom are represented in this volume.

Second, it is at last possible to compare and contrast the various cultures, across a terrain that reaches almost to the Pacific Ocean in the east to lands bordering the Mediterranean Sea in the west, with the benefit of a secure chronological framework. Radiocarbon dates, increasingly accompanied by tree-ring dates in some cases, are beginning, for the first time, to produce a coherent chronology (see Hanks et al. 2007). Already there have been some shocks. The relatively early date of the Sintashta culture, associated with the first use of the chariot, is now well documented. And at the conference whose papers are presented here, the early dates for the Maikop burial, presented by Chernykh, and discussed also by Kohl, offer not so much a refinement as a disruption of most earlier assumptions.

Through these new projects, new areas of research are opening up. Prominent among these is the development of trade. New research on the sources and early use of tin has offered this commodity as one salient vector for the rapid development of bronze metallurgy in the later Bronze Age. There, as in other areas of steppe archaeology, the work of colleagues from the German Archaeological Institute, often in collaboration with scholars from the steppe lands or neighboring countries, has been particularly important. Moreover, the ecology of the exploitation



#### Foreword | xvii

of the steppe lands is now the subject for sustained research. The basis for the early use of the area, before the development of the full system of mobile pastoralism seen during the Iron Age, is under investigation. And the much-debated question of the domestication of the horse is seen in a new light, especially when careful distinction is made between horses for food, to facilitate herding, for pulling chariots, and to support armed warriors. Molecular genetic research, applied to plant and animal species, is proving as relevant here as when applied to living human populations.

These approaches and the application of new models for change and of new explanatory frameworks have led to an exciting quickening in the pace of research, as the chapters in this volume document. A number of broad questions can now be posed rather more clearly. It is evident that the mounted warriors of the great chiefdoms of the Iron Age, some of them designated by classical writers as Cimmerians and Scythians, relied upon a social order and an economic system that were remarkably successful. They seem to have emerged in the first millennium BCE but were based on earlier antecedents. How can we better define the social and economic systems that sustained these prosperous mobile communities?

The communities of the Bronze Age of the second millennium BCE that preceded these clearly were themselves innovators, and it was during this time that the first great trading networks seem to have been established. We see the settlement archaeology of some of these communities in sites like Sintashta and Arkaim, in the so-called country of towns. But can we define more precisely the economies and societies at this time, including those of the Andronovo culture? The horse is documented as used for pulling chariots already at the beginning of the second millennium. But can we establish more clearly when horse riding became significant for military purposes? Yet the initial domestication of the steppes must have begun before this time. The evidence for plant and animal domesticates is not yet very abundant before 2000 BCE, yet by then some of the important transitions must have been occurring.

Issues need to be defined more clearly before we can hope to understand by what means, for instance, the horse-drawn chariot reached China. Early steppe metallurgy too needs further study, if we are to establish definitively whether the surprisingly late use in China of copper and of bronze was a technology learned from the West. Perhaps we are close to seeing answers to some of these questions.



#### xviii | Colin Renfrew

The benefits to our understanding of world prehistory will then be immense. From a broad perspective, the degree and nature of the influence and which way the arrows of transmission point still have to be established conclusively on the basis of secure data. That goal is now within reach. There are also vast issues in linguistic prehistory. What was the role of the steppe communities in the dissemination of the languages of the Indo-European family? That vexed question has not yet been satisfactorily answered (see Anthony 2007), and some recent initiatives offer results that are disconcertingly inconclusive (Lamberg-Karlovsky 2002). In particular, the problem of how the Indo-Iranian languages (or their precursor) reached South Asia remains to be resolved. In a similar vein, we need to understand better the archaeological record to document the Mongol invasions and to explain the present-day distribution of languages in the area.

Such linguistic issues, however, simply serve to emphasize the critical role of the Eurasian steppe lands in world prehistory. At times, these vast tracts of land have served to separate two very active and sometimes independent heartlands of cultural activity: western Asia (with the eastern Mediterranean) to the west and China to the east. At other times, particularly with the more effective use of the horse and of the camel, they have formed an important zone connecting these two great centers (or congeries of centers) of domestication and later of civilization. The proper understanding of these changing interactions is now one of the major tasks that prehistoric archaeology has to address, and the essays here take some important steps in that direction. A few decades ago, the question of long-distance interactions across the Pacific Ocean was a puzzling and a much-disputed one. Today it seems largely resolved, and the complex question of trans-Eurasian interactions now seems more pressing. Significant interpretive problems remain, however, and continue to be controversial, as noted by Philip Kohl (2007: 133) in his recent thoughtful study of Bronze Age Eurasia:

Simplifying [two] starkly opposed interpretive models, one can say that the first group [of scholars] sees the basic direction of movements or cultural impulses even before the beginnings of the Bronze Age as proceeding east to west, whereas the latter group reverses the arrows and essentially interprets developments on the Pontic steppes and further east as ultimately dependent on innovations that were associated with the sedentary agricultural societies first of southeastern Europe, including the Cucuteni-Tripolye culture, and the mixed agricultural/transhumant societies of the Caucasus.



Cambridge University Press 978-0-521-51712-6 - Social Complexity in Prehistoric Eurasia: Monuments, Metals, and Mobility

Edited by Bryan K. Hanks and Katheryn M. Linduff

Frontmatter

More information

#### Foreword | xix

That expresses the dilemma, perhaps in its simplest form. It is further complicated by the additional role that the steppe lands may have played through their interactions with the Indian sub-continent, mediated by the arid yet potentially fertile lands that lie between, such as Turkmenistan and Serindia (including Xinjiang Province). These interactions varied dramatically with the changing nature of the societies in those different regions and with their assessment of the benefits of trade, travel, and conquest in the context of developing transport mechanisms and of the fluctuating range of commodities traded, not least metals and silk.

This timely volume addresses some of these important topics. It will make a significant contribution to the understanding of the prehistory and the cultures of the steppe lands and their neighbors.

#### References

- Anthony, D.W. 2007. The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World. Princeton: Princeton University Press.
- Boyle, K., C. Renfrew, and M. Levine (eds.). 2002. *Ancient Interactions: East and West in Eurasia*. Cambridge: McDonald Institute.
- Chernykh, E.N. 1992. Ancient Metallurgy in the USSR: The Early Metal Age. Cambridge: Cambridge University Press.
- Childe, V. G. 1926. *The Aryans: A Study of Indo-European Origins*. London: Kegan Paul, Trench, Trubner.
  - 1950. Prehistoric Migrations in Europe. London: Kegan Paul, Trench, Trubner.
- Hanks, B.K., A.V. Epimakhov, and A.C. Renfrew. 2007. Towards a Refined Chronology for the Bronze Age of the Southern Urals, Russia, *Antiquity* 81: 353–367.
- Kohl, P. L. 2007. *The Making of Bronze Age Eurasia*. Cambridge: Cambridge University Press.
- Koryakova, L., and A. Epimakhov. 2007. *The Urals and Western Siberia in the Bronze and Iron Ages*. Cambridge: Cambridge University Press.
- Lamberg-Karlovsky, K. 2002. Archaeology and Language: The Indo-Iranians. *Current Anthropology* 43(1): 63–88.
- Levine, M., Y. Rassamakin, A. Kislenko, and N. Tatarintseva (eds.). 1999. *Late Prehistoric Exploitation of the Eurasian Steppe*. Cambridge: McDonald Institute.
- Levine, M., C. Renfrew, and K. Boyle (eds.). 2003. *Prehistoric Steppe Adaptation and the Horse*. Cambridge: McDonald Institute.
- Mair, V. H. (ed.). 1998. The Bronze and Early Iron Age Peoples of Eastern Central Asia. Washington, DC: Institute for the Study of Man.
- Mei, J. 2000. Copper and Bronze Metallurgy in Late Prehistoric Xinjiang. BAR International Series 865. Oxford: Archaeopress.



#### XX | COLIN RENFREW

Parzinger, H. 2006. *Die Frühen Völker Eurasiens*. Munich: Verlag C. H. Beck. Peake, H., and H. J. Fleure. 1928. *The Steppe and the Sown*. New Haven: Yale University Press.

Renfrew, C. 1998. All the King's Horses: Assessing Cognitive Maps in Later European Prehistory. In S. Mithen (ed.), *Creativity in Human Evolution and Prehistory*. London: Routledge, pp. 260–284.