

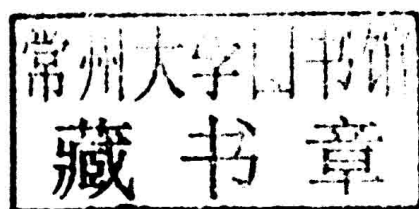
John L. Brooke
Climate Change
and the Course of Global History
A Rough Journey

Climate Change and the Course of Global History

A Rough Journey

JOHN L. BROOKE

Ohio State University



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Climate Change and the Course of Global History

Climate Change and the Course of Global History: A Rough Journey presents the first global study by a historian to fully integrate the earth-system approach of the new climate science with the material history of humanity. Part I argues that geological, environmental, and climatic history explain the pattern and pace of biological and human evolution. Part II explores the environmental circumstances of the rise of agriculture and the state in the Early and Mid-Holocene, and presents an analysis of human health from the Paleolithic through the rise of the state, including the Neolithic Demographic Transition. Part III introduces the problem of economic growth and examines the human condition in the Late Holocene from the Bronze Age through the Black Death, assessing the relationships among human technologies, climatic change, and epidemic disease. Part IV explores the move to modernity, stressing the emerging role of human economic and energy systems as earth-system agents in the Anthropocene. Supported by climatic, demographic, and economic data with forty-nine figures and tables custom made for this book, *Climate Change and the Course of Global History* provides a path-breaking model for historians of the environment, the world, and science, among many others.

John L. Brooke is Humanities Distinguished Professor of History at Ohio State University, where he also directs the Center for Historical Research. His books include *Columbia Rising: Civil Life on the Upper Hudson from the Revolution to the Age of Jackson* (2010), which won the Best Book Prize from the Society of the Historians of the Early American Republic; *The Heart of the Commonwealth: Society and Political Culture in Worcester County Massachusetts, 1713–1861* (Cambridge, 1994), which won the Merle Curti Award for Intellectual History from the Organization of American Historians; and *The Refiner's Fire: The Making of Mormon Cosmology, 1644–1844* (Cambridge, 1989), which won the Bancroft Prize for American History. He has held fellowships from the Guggenheim Foundation, the National Endowment for the Humanities, the American Council of Learned Societies, the American Antiquarian Society, and the Harvard Charles Warren Center.

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For Sara, Matt, and Benjy, and our collective future.

Acknowledgments

This has been a project long in the making, running back to my undergraduate days at Cornell, and to various travels far and wide in the 1960s and 1970s. I want to thank my parents for the example of their adventuring spirit, and my undergraduate mentors at Cornell, particularly Robert Ascher, Stephen Kaplan, and the late Thomas Lynch, for their careful instruction and sage advice. After I had served for many years as an early American historian, the Tufts Environmental Studies Program got me to think again about a global perspective, and with its support in 1993 I began to teach global environmental history. A legion of undergraduates at Tufts and Ohio State have helped me think through ways to describe the long structures of the past, and I thank them for their patience and their enduring interest, and for their feedback on this manuscript as it has evolved.

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I obviously owe a huge debt to these and many other scholars in climate science, geology, and archaeology who have gone into the field to record and then analyze and publish the mute history of the earth and humanity. Their work represents a vast treasure house of information from the sediments of time that comprises the material archive of earth history. Unfortunately I cannot cite their work adequately. Following standard practice in the historical discipline, I follow the Chicago style. For reasons of space, I restrict my footnote citations to a maximum of two authors; works produced by larger teams are cited to the lead author et al. This concession to space does not allow me to give full credit to the arduous work of a host of researchers. The bibliography lists the entire authorship of those articles from which data is used in the figures.

Sara, Matt, Benjy, and an array of old friends have patiently watched with some interest, when they were not busy with other things, as I have slowly constructed this volume. Sara, for a third of a century my love and anchor to windward, lives a life of environmental balance that often puts me to shame. Benjy at a very early age popped his head up from his drawing to articulate a simple truth – people should live their lives without disturbing the natural world. Matt started fighting the fight in the early 1990s, writing an editorial on solar power for the local paper, and – at the age of nine – conducting a heated argument with a dear but misguided relation on the validity of the science of climate change on his way to swimming at Goose Pond. May this book contribute to more such arguments, and move some minds.

Abbreviations

Abbreviations in Texts and Figures

BY	billions of years before present
ENSO	El Niño/Southern Oscillation
K-T boundary	Cretaceous-Tertiary boundary
LBK	Linear-Band-Keramik
LIA	Little Ice Age
MCA	Medieval Climate Anomaly
MIS	Marine Isotope Stage
MSA	African Middle Stone Age
MY	millions of years before present
NAO	North Atlantic Oscillation
PPN	PrePottery Neolithic
ybp	years before present
yma	moving average in years

Abbreviations for Most Frequent Citations

AER	<i>American Economic Review</i>
AHR	<i>American Historical Review</i>
AJHG	<i>American Journal of Human Genetics</i>
AJPA	<i>American Journal of Physical Anthropology</i>
<i>AmAnth</i>	<i>American Anthropologist</i>
<i>AmAntiq</i>	<i>American Antiquity</i>
ARA	<i>Annual Review of Anthropology</i>
CA	<i>Current Anthropology</i>
CArchJ	<i>Cambridge Archaeological Journal</i>
Climate Change 2007: The Physical Science Basis	Susan Solomon et al., eds., <i>Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change</i> (Cambridge and New York, 2007).

<i>ClimCh</i>	<i>Climatic Change</i>
<i>ClimDyn</i>	<i>Climate Dynamics</i>
<i>EcolEcon</i>	<i>Ecological Economics</i>
<i>EconHR</i>	<i>Economic History Review</i>
<i>EmInfDis</i>	<i>Emerging Infectious Diseases</i>
<i>EnvSciTech</i>	<i>Environmental Science and Technology</i>
<i>EPSL</i>	<i>Earth and Planetary Science Letters</i>
<i>EREconH</i>	<i>European Review of Economic History</i>
<i>ExpEconH</i>	<i>Explorations in Economic History</i>
<i>GBC</i>	<i>Global Biogeochemical Cycles</i>
<i>GEC</i>	<i>Global Environmental Change</i>
<i>GPC</i>	<i>Global and Planetary Change</i>
<i>GRL</i>	<i>Geophysical Research Letters</i>
<i>HumEcol</i>	<i>Human Ecology</i>
<i>IJC</i>	<i>International Journal of Climatology</i>
<i>JAfrH</i>	<i>Journal of African History</i>
<i>JAmH</i>	<i>Journal of American History</i>
<i>JAnthArch</i>	<i>Journal of Anthropological Archaeology</i>
<i>JAnthRes</i>	<i>Journal of Anthropological Research</i>
<i>JArchRes</i>	<i>Journal of Archaeological Research</i>
<i>JArchS</i>	<i>Journal of Archaeological Science</i>
<i>JClim</i>	<i>Journal of Climate</i>
<i>JEArch</i>	<i>Journal of European Archaeology</i>
<i>JEconH</i>	<i>Journal of Economic History</i>
<i>JEconL</i>	<i>Journal of Economic Literature</i>
<i>JEconP</i>	<i>Journal of Economic Perspectives</i>
<i>JEEcH</i>	<i>Journal of European Economic History</i>
<i>JFdArch</i>	<i>Journal of Field Archaeology</i>
<i>JGeol</i>	<i>Journal of Geology</i>
<i>JGR</i>	<i>Journal of Geophysical Research</i>
<i>JHumEv</i>	<i>Journal of Human Evolution</i>
<i>JIH</i>	<i>Journal of Interdisciplinary History</i>
<i>JQS</i>	<i>Journal of Quaternary Science</i>
<i>JRA</i>	<i>Journal of Roman Archaeology</i>
<i>JRS</i>	<i>Journal of Roman Studies</i>
<i>JWH</i>	<i>Journal of World History</i>
<i>JWP</i>	<i>Journal of World Prehistory</i>
<i>MBE</i>	<i>Molecular Biology and Evolution</i>
<i>MedHyp</i>	<i>Medical Hypotheses</i>
<i>NatGen</i>	<i>Nature Genetics</i>
<i>NatGeosc</i>	<i>Nature Geoscience</i>
<i>NYT</i>	<i>New York Times</i>
<i>P&P</i>	<i>Past and Present</i>
<i>PBSRom</i>	<i>Papers of the British School at Rome</i>

<i>PNAS</i>	<i>Proceedings of the National Academy of Sciences</i>
<i>PopDevR</i>	<i>Population and Development Review</i>
<i>PopSt</i>	<i>Population Studies</i>
<i>PPP</i>	<i>Palaeogeography, Palaeoclimatology, Palaeoecology</i>
<i>PTRS, LB</i>	<i>Philosophical Transactions of the Royal Society, London B</i>
<i>QSR</i>	<i>Quaternary Science Reviews</i>
<i>QuatInt</i>	<i>Quaternary International</i>
<i>QuatRes</i>	<i>Quaternary Research</i>
<i>SA</i>	<i>Scientific American</i>
<i>SedGeol</i>	<i>Sedimentary Geology</i>
<i>VHAb</i>	<i>Vegetation History and Archaeobotany</i>
<i>WdArch</i>	<i>World Archaeology</i>
<i>WMQ</i>	<i>William and Mary Quarterly</i>
<i>YPA</i>	<i>Yearbook of Physical Anthropology</i>

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