

# Preface

*Big History: Between Nothing and Everything* is the first textbook in the new interdisciplinary field called *big history*.

Big history surveys the past not just of humanity, or even of planet Earth, but of the entire universe. In reading this book instructors and students will retrace a voyage that began 13.8 billion years ago with the big bang and the appearance of the universe. Big history incorporates findings from cosmology, earth and life sciences, and human history, and assembles them into a single, universal historical narrative of our universe and of our place within it.

All societies have constructed universal stories that helped people understand their place in space and time. Only very recently, however, have scientists and scholars throughout the world begun to piece together a universal story that is based on scientific evidence. Some of the bits and pieces of that story—the idea, for example, that the Earth might be many millions of years old, or that modern life-forms might have evolved from earlier life-forms—were already familiar in the nineteenth century. But most of the story’s details have been assembled only within the last century. Those of us lucky enough to be alive today belong to the first generation able to understand scientifically how everything came to be as it is.

## Goals of the Textbook

As students become more familiar with this story, they will start to see how all of its different pieces fit together. They will learn how atoms form the cells that make up our bodies, how atoms themselves were formed either in the big bang or in the interiors of exploding stars, how our Earth was assembled from chunks of orbiting ice and dust, and how life itself first appeared on Earth and then spread and diversified over the entire planet. They will also learn how humans first appeared on the Earth 200,000 years ago, and why we seem to be both so similar to and so different from all the other living organisms with which we share this beautiful planet. Finally, we will ask about the future: Where is the story going? What is the fate of humanity and of our Earth? And what will be the ultimate fate of our universe?

The features we have included in this textbook serve to enhance students’ critical thinking skills to help them see

and assess the many links that hold the historical narrative together.

## Features of This First Edition

In addition to an engaging writing style, *Big History: Between Nothing and Everything* presents a number of features that bring the story of big history to life and that help students learn this exciting story. These include:

*Introduction* The book begins with a chapter-length presentation that defines big history, outlines the concepts of *complexity* and *emergence*, and presents the eight major *thresholds* of big history.

*Seeing the Big Picture* Asking questions is the best preparation for reading new material. Each chapter opens with several questions to pique readers’ curiosity and to provoke them into thinking on the large scales of big history. Examples from Chapter 6 include:

- What is a city? What is a state? What is an agrarian civilization?
- What did people learn that increased agricultural production?
- What technological changes laid the foundation for the emergence of cities?

## Chapter Questions

Just as each chapter begins with a set of questions to inspire reading, each ends with a set of questions to help students integrate and assess what they have read and learned:

- Why did people begin to congregate in cities?
- Where did the first cities appear around the world? How can you explain why they appeared where they did?
- Describe the differences in the evolution of cities and states in the four different world zones.
- Describe the kinds of evidence used to reconstruct early civilizations.
- This chapter focuses on similarities in Early Agrarian civilizations; what were some of the differences?

- What role did religion play in the emergence of cities and states?

*Threshold Summaries* To tell 13.7 billion years of history, the authors have identified eight major breakthroughs

when something entirely new emerged. They call these breakthroughs *thresholds*. Each time the story reaches a new threshold, a summary box appears to provide a quick visual survey of the major components of that threshold. Here are examples from Chapters 1 and 11.

## Threshold 1 Summary

| THRESHOLD                           | INGREDIENTS ▶  | STRUCTURE ▶  | GOLDBLOCKS CONDITIONS =   | EMERGENT PROPERTIES                       |
|-------------------------------------|--|--|---|---|
| <b>BIG BANG: ORIGIN OF UNIVERSE</b> | Energy, matter, space, time (everything in our universe!). | Energy and matter within a rapidly expanding space–time continuum. | Uncertain: Possibly quantum fluctuations within the multiverse. | Potential to create everything around us. |

## Threshold 8 Summary

| THRESHOLD                         | INGREDIENTS ▶  | STRUCTURE ▶  | GOLDBLOCKS CONDITIONS =                               | EMERGENT PROPERTIES   |
|-----------------------------------|--|--|---|---|
| <b>MODERN WORLD/ ANTHROPOCENE</b> | Globalization; rapid acceleration in Collective Learning; innovation; use of fossil fuels. | Globally connected human communities with rapidly accelerating capacity to manipulate the biosphere. | Acceleration in Collective Learning at global scales. | Vast increase in human use of resources → entirely new lifeways, social relationships → first single species in the history of Earth capable of transforming the biosphere. |

### Maps, Photographs, and Line Art

These visuals have been carefully chosen to illuminate the text and to imprint its meaning unforgettably.

### Key Terms and Glossary

Highlighted in bold type, key terms are ideas, people, or places that readers will want to remember. The key terms are listed at the end of each chapter for easy studying. They are collected at the end of the book for ease in finding definitions when the terms show up in later chapters.

## Teaching and Learning Tools

McGraw-Hill offers a rich array of teaching and learning resources to support students and instructors using *Big History: Between Nothing and Everything*.

### Online Learning Center

Instructors have an *Online Learning Center* at [www.mhhe.com/bighistory1e](http://www.mhhe.com/bighistory1e) devoted to their needs that includes the following resources:

- Instructor’s Manual
- Test Bank
- Chapter PowerPoint slides

### Create

Craft your teaching resources to match the way you teach! With McGraw-Hill Create, at [www.mcgrawhillcreate.com](http://www.mcgrawhillcreate.com), you can easily rearrange chapters, combine material from other content sources, and quickly upload content you have written, such as your course syllabus or teaching notes. Find the content you need in Create by searching through thousands of leafing McGraw-Hill textbooks.

Arrange your book to fit your teaching style. Create even allows you to personalize your book's appearance by selecting the cover and adding your name, school, and course information. Order a Create book and you'll receive a complimentary print review copy in 3–5 business days or a complimentary electronic review copy (eComp) via email in about an hour. Go to [www.mcgrawhillcreate.com](http://www.mcgrawhillcreate.com) today and register. Experience how McGraw-Hill Create empowers you to teach *your* students *your* way.

## CourseSmart

This text is available as an eTextbook at [www.CourseSmart.com](http://www.CourseSmart.com). At CourseSmart your students can take advantage of significant savings off the cost of a print textbook, reduce their impact on the environment, and gain access to powerful Web tools for learning. CourseSmart eTextbooks can be viewed online or downloaded to a computer. The eTextbooks allow students to do full text searches, add highlighting and notes, and share notes with classmates. CourseSmart has the largest selection of eTextbooks available anywhere. Visit [www.CourseSmart.com](http://www.CourseSmart.com) to learn more and to try a sample chapter.

## Acknowledgments

Many people have helped us write *Big History: Between Nothing and Everything* whom we would like to thank. First of all, we extend a general thanks to all the many friends and colleagues who have discussed big history with us over the years. They include partners, friends, and colleagues from many different disciplines, but particularly from the large community of world historians and the rapidly growing community of big historians.

William McNeill, one of the great pioneers of world history, has been extraordinarily supportive of the idea of big history, seeing it (as we do) as a natural extension of many of the goals of world history. One friend we particularly want to thank by name is the late Jerry Bentley, founder and editor of the *Journal of World History*. Jerry was another one of the great pioneers of world history. He was extraordinarily generous with his ideas and his support, and was a great supporter of the idea of big history. Indeed, he commissioned one of the earliest articles on big history for his journal. We will all miss Jerry very much.

We have been very lucky with our editors at McGraw-Hill. Jon-David Hague, our initial editor, had enough faith in the idea of big history to commission this, the first text in the field, and his successor, Matthew Busbridge, has seen it through to completion with the efficient editorial support of Arthur Pomponio and Nancy Crochiere, Jean Starr (content project manager), Sharon O'Donnell (copyeditor), and Chet Gottfried (proofreader). Our thanks to all of our editors for their support and advice throughout the long and often complex process of producing a textbook.

In 2010, a preliminary version of our text was made available for use by teachers and students at Dominican

University of California and Grand Valley State University. We would like to thank all involved in the trials for the extremely valuable feedback we received, which has shaped the final version of the text in many ways.

We owe special thanks to the instructors who formally reviewed earlier versions of our text. Hats off to:

Hope Benne, Salem State University

Todd Duncan, Portland State University

Kevin Fernlund, University of Missouri in St. Louis

Ursula Goodenough, Washington University in St. Louis

John Mears, Southern Methodist University

Alexander Mirkovic, Arkansas Tech University

Joel Primack, University of California, Santa Cruz

David Christian would like to thank Macquarie University for its generous support of big history over many years and specifically for supporting trips to the founding meeting of the International Big History Association in 2010 and to its first conference in 2012. He would also like to thank colleagues, friends, and students at San Diego State University, where he taught big history from 2002 to 2008, for their support in this new intellectual enterprise. Students both at Macquarie and San Diego State University have played a much more important role in the evolution of big history than they may have realized, for they always raised the important questions and helped ensure that big history never got lost in the details. He would also like to thank Chardi, Joshua, and Emily for their patience as he buried himself away, once more, to work on one more book. Finally, he wants to thank his first teacher and inspirer, his mother, Carol, who taught him in Nigeria. The excitement of those very early lessons has never quite left him. Working with Cynthia Brown and Craig Benjamin has been pure delight; may all co-authors have such smart, supportive, and collegial colleagues!

Cynthia Stokes Brown would like to thank the students, administration, and highly creative faculty of Dominican University of California, especially Jim Cunningham and Phil Novak, who pioneered teaching big history with her; Dominican president, Mary Marcy, who has fully embraced big history and, most of all, the director of the Big History Program at the university, Mojgan Behmand, who has led an amazing and effective collaboration. In addition, she is grateful to Russ and Cheryl Genet for organizing the Epic of Evolution conference in January 2008, where the three authors were able to discuss their first three chapters in person and meet many other big historians, and to her colleagues in the International Big History Association. Ursula Goodenough, Katherine Berry, and Larry Gonick offered special assistance. Finally, Cynthia wants to thank Jack Robbins and their large family for their constant support.

Craig Benjamin would like to thank the students, faculty, and administration of Grand Valley State University in Michigan for their generous support of big history over the past 10 years, particularly the president and provost of the

university and the dean of the Brooks College of Interdisciplinary Studies for their encouragement and enthusiasm for the field, and for agreeing to house the Global Institute for Big History, the headquarters of the International Big History Association, within the Brooks College. He would also like to thank his children Zoe and Asher (both of whom coincidentally studied big history at Macquarie University in the 1990s); and his wife Pamela for her patience and

unwavering support, and for her many contributions to the field through her role as chair of the IBHA Advisory Council. Craig would also like to thank his co-authors Cynthia and David for being not only such dynamic colleagues, but also dear and close friends.

[Signatures]

# An Author Team That Sees the Big Picture

The three authors of *Big History: Between Nothing and Everything* are pioneers in the field of big history. David Christian, one of the founders of the discipline, coined the term *big history* to describe a course he created in 1989 in Sydney, Australia. Cynthia Brown learned of Christian's work and in 1993 began to offer such a course at the Dominican University of California. Craig Benjamin learned his big history from Christian by serving as his teaching assistant. Today, big history is taught in universities across the United States and around the world.

The authors are keen to encourage a critical reading of this book that questions its assumptions and notes its limitations. The brief biographies that follow will help the reader appreciate the particular types of expertise that each brings to this project.



**DAVID CHRISTIAN** (DPhil, Oxford University) is by training a historian of Russia and the Soviet Union. He has spent most of his career at Macquarie University in Sydney, Australia, apart from an eight-year period teaching at San Diego State Uni-

versity from 2001 to 2008. Christian has published histories of modern Russia and also a study of the role of the trade in vodka in nineteenth-century Russia. In 1998, he published *A History of Russia, Central Asia and Mongolia*, the first volume in the Blackwell History of the World Series. He began teaching courses on big history in 1989 at Macquarie University. He first used the phrase *big history* for such courses in an article published in the *Journal of World History* in 1991 titled "The Case for 'Big History.'" Additional publications include *Maps of Time: An Introduction to Big History* (2004) and *This Fleeting World: A Short History of Humanity* (2007). In the same year (2007), he recorded 48 lectures on big history for the Teaching Company. In 2010, with Bill Gates, he founded the "Big History Project," which is building a free online high school course in big history due for release in late 2013. Christian is a member of the Australian Academy of Humanities and the Royal Holland Society of Sciences and Humanities. He

is the founding president of the International Big History Association.



**CYNTHIA STOKES BROWN**

(PhD, Johns Hopkins University) spent most of her career directing the secondary teaching credential program at Dominican University of California. She taught selected courses in the history department and wrote books about civil rights history and teachers, includ-

ing *Alexander Meiklejohn: Teacher of Freedom* (1981); *Ready From Within: Septima Clark and the Civil Rights Movement* (1986); *Connecting with the Past: History Workshop in Middle and High School* (1994); and *Refusing Racism: White Allies and the Struggle for Civil Rights* (2001). Brown's book *Big History: From the Big Bang to the Present* was published in 2007. Since then her interests have been consulting with the big history program at Dominican, serving on the board of the International Big History Association since its inception, and writing big history essays for high school students through the Big History Project funded by Bill Gates.



**CRAIG BENJAMIN** (PhD, Macquarie

University) is an associate professor of history in the Meijer Honors College at Grand Valley State University in Michigan. Like both his co-authors, Benjamin is a frequent presenter of lectures at conferences worldwide, and the author of numerous publications including books,

chapters, and essays on ancient Central Asian history, big history, and world history. In addition, Benjamin has recorded lectures for the History Channel, The Teaching Company, and the Big History Project. He is currently a member of both the Advanced Placement and SAT World History Test Development Committees, vice president (president elect) of the World History Association, and has been treasurer of the International Big History Association since its inception in January 2011.