INTRODUCTION
A MODERN CREATION MYTH?

"BIG HISTORY": LOOKING AT THE PAST ON ALL TIMESCALES

[T]he way to study history is to view it as a long duration, as what I have called the *longue durée*. It is not the only way, but it is one which by itself can pose all the great problems of social structures, past and present. It is the only language binding history to the present, creating one indivisible whole. Universal history comprehends the past life of mankind, not in its particular relations and trends, but in its fullness and totality.

A Moment's Halt—a momentary taste
Of BEING from the Well amid the Waste—
And Lo!—the phantom Caravan has reached
The NOTHING it set out from—Oh, make haste!

Like merchants in a huge desert caravan, we need to know where we are going, where we have come from, and in whose company we are traveling. Modern science tells us that the caravan is vast and varied, and our fellow travelers include numerous exotic creatures, from quarks to galaxies. We also know a lot about where the journey started and where it is headed. In these ways, modern science can help us answer some of the deepest questions we can ask concerning our own existence, and that of the universe through which we travel. It can help us draw the line we all must draw between the personal and the universal.

"Who am I? Where do I belong? What is the totality of which I am a part?" In some form, all human communities have asked these questions. And in most human societies, educational systems, formal and informal, have tried to answer them. Often, the answers have been embedded in cycles of
creation myths. By offering memorable and authoritative accounts of how everything began—from our own communities, to the animals, plants, and landscapes around us, to the earth, the Moon and skies, and even the universe itself—creation myths provide universal coordinates within which people can imagine their own existence and find a role in the larger scheme of things. Creation myths are powerful because they speak to our deep spiritual, psychic, and social need for a sense of place and a sense of belonging. Because they provide so fundamental a sense of orientation, they are often integrated into religious thinking at the deepest levels, as the Genesis story is within the Judeo-Christian-Islamic tradition. It is one of the many odd features of modern society that despite having access to more hard information than any earlier society, those in modern educational systems do not normally teach such a story. Instead, from schools to universities to research institutes, we teach about origins in disconnected fragments. We seem incapable of offering a unified account of how things came to be the way they are.

I have written this book in the belief that such intellectual modesty is unnecessary and harmful. It is unnecessary because the elements of a modern creation myth are all around us. It is harmful because it contributes to the subtle but pervasive quality of disorientation in modern life that the pioneering French sociologist Émile Durkheim referred to as “anomie”: the sense of not fitting in, which is an inescapable condition of those who have no conception of what it is they are supposed to fit into.

Maps of Time attempts to assemble a coherent and accessible account of origins, a modern creation myth. It began as a series of lectures in an experimental history course taught at Macquarie University in Sydney. The idea of that course was to see if it was possible, even in the modern world, to tell a coherent story about the past on many different scales, beginning, literally, with the origins of the universe and ending in the present day. Each scale, I hoped, would add something new to the total picture and make it easier to understand all the other scales. Given the conventions of the modern history profession, this was an extremely presumptuous idea. But it turned out to be surprisingly doable, and even more interesting than I had originally supposed. Part of the task of my introduction will be to justify this distinctive way of thinking and teaching about the past.

I began teaching “big history” in 1989; two years later I published an essay in which I attempted a formal defense of this approach. Though aware of the oddity of the project, those of us trying to teach big history were soon convinced that these large questions made for interesting classes and encouraged fruitful thinking about the nature of history. Teaching this large
story persuaded us that beneath the awesome diversity and complexity of modern knowledge, there is an underlying unity and coherence, ensuring that different timescales really do have something to say to each other. Taken together, these stories have all the power and richness of a traditional cycle of creation myths. They constitute what indigenous Australians might call a modern “Dreaming”—a coherent account of how we were created and how we fit into the scheme of things.

We found something else that most premodern societies have known: there is an astonishing power to any story that attempts to grasp reality whole. This power is quite independent of the success or failure of any particular attempt; the project itself is powerful, and fulfills deep needs. Trying to look at the whole of the past is, it seems to me, like using a map of the world. No geographer would try to teach exclusively from street maps. Yet most historians teach about the past of particular nations, or even of agrarian civilizations, without ever asking what the whole of the past looks like. So what is the temporal equivalent of the world map? Is there a map of time that embraces the past at all scales?

This is a good moment to raise such questions, because there is a growing sense, across many scholarly disciplines, that we need to move beyond the fragmented account of reality that has dominated scholarship (and served it well) for a century. Scientists have moved fastest in this direction. The success of Stephen Hawking’s *A Brief History of Time* (1988) also shows the great popular interest in trying to understand reality whole. In Hawking’s own field, cosmology, the idea of a “grand unified theory” once seemed ridiculously overambitious. Now it is taken for granted. Biology and geology have also moved toward more unified accounts of their subject matter, with the consolidation, since the 1960s, of modern paradigms of evolution and plate tectonics.²

Scholars at the Santa Fe Institute in the United States have been exploring such interconnections for many years. An associate of the institute, the Nobel Prize–winning physicist Murray Gell-Mann, has eloquently stated the arguments for a more unified account of reality as they appear to a physicist.

We live in an age of increasing specialization, and for good reason. Humanity keeps learning more about each field of study; and as every specialty grows, it tends to split into subspecialties. That process happens over and over again, and it is necessary and desirable. However, there is also a growing need for specialization to be supplemented by integration. The reason is that no complex, nonlinear system can be adequately described by dividing it up into subsystems or into various
aspects, defined beforehand. If those subsystems or those aspects, all in strong interaction with one another, are studied separately, even with great care, the results, when put together, do not give a useful picture of the whole. In that sense, there is profound truth in the old adage, “The whole is more than the sum of its parts.”

People must therefore get away from the idea that serious work is restricted to beating to death a well-defined problem in a narrow discipline, while broadly integrative thinking is relegated to cocktail parties. In academic life, in bureaucracies, and elsewhere, the task of integration is insufficiently respected.

At the Santa Fe Institute, he adds, “People are found who have the courage to take a crude look at the whole in addition to studying the behavior of parts of a system in the traditional way.”

Should historians look for a similar unifying structure, perhaps a “grand unified story” that can summarize the best modern knowledge about origins from a historian’s perspective? The rise of the new subdiscipline of world history is a sign that many historians also feel the need for a more coherent vision of their subject. Big history is a response to this need. In the late 1980s, John Mears, at Southern Methodist University (in Dallas, Texas), began teaching a history course on the largest possible scales at about the same time as I did. And since then, a number of other universities have offered similar courses—in Melbourne, Canberra, and Perth in Australia; in Amsterdam; and also in Santa Cruz in the United States. Fred Spier, from the University of Amsterdam, has gone one step further and written the first book on big history. In it, he offers an ambitious defense of the project of constructing a unified account of the past at all scales.

Meanwhile, there is a growing sense among scholars in many fields that we may be close to a grand unification of knowledge. The biologist E. O. Wilson has argued that we need to start exploring the links between different domains of knowledge, from cosmology to ethics. The world historian William McNeill has written:

Human beings, it appears, do indeed belong in the universe and share its unstable, evolving character. . . . [W]hat happens among human beings and what happens among the stars looks to be part of a grand, evolving story featuring spontaneous emergence of complexity that generates new sorts of behavior at every level of organization from the minutest quarks and leptons to the galaxies, from long carbon chains to living organisms and the biosphere, and from the biosphere to the symbolic universes of meaning within which human beings live and labor, singly and in concert, trying always to get more of what we want and need from the world around us.
I intend this book to contribute to the larger project of constructing a more unified vision of history and of knowledge in general. I am well aware of the difficulties of that project. But I am sure that it is both doable and important, so it is worth attempting in the hope that others may eventually do it better. I am also convinced that a modern creation myth will turn out to be as rich and as beautiful as the creation myths of all earlier communities; it is a story that deserves telling even if the telling is imperfect.

STRUCTURE AND ORGANIZATION

utterly impossible as are all these events they are probably as like those which may have taken place as any others which never took person at all are ever likely to be

If the Eiffel Tower were now representing the world’s age, the skin of paint on the pinnacle-knob at its summit would represent man’s share of that age; and anybody would perceive that that skin was what the tower was built for. I reckon they would, I dunno.

Erwin Schrödinger, one of the pioneers of quantum physics, described the difficulties of constructing a more unified vision of knowledge in the preface to a book he wrote on a biological topic—the origins of life. His preface also offers the best justification I know for presuming to undertake such a project.

We have inherited from our forefathers the keen longing for unified, all-embracing knowledge. The very name given to the highest institutions of learning reminds us, that from antiquity and throughout many centuries the universal aspect has been the only one to be given full credit. But the spread, both in width and depth, of the multifarious branches of knowledge during the last hundred odd years has confronted us with a queer dilemma. We feel clearly that we are only now beginning to acquire reliable material for welding together the sum total of all that is known into a whole; but, on the other hand, it has become next to impossible for a single mind fully to command more than a small specialized portion of it.

I can see no other escape from this dilemma (lest our true aim be lost forever) than that some of us should venture to embark on a synthesis of facts and theories, albeit with second-hand and incomplete knowledge of some of them—and at the risk of making fools of ourselves.

So much for my apology.7

Some of the most daunting problems posed by big history are organizational. What shape will a modern creation myth take? From what standpoint should it be written? What objects will take center stage? What time-scales will dominate?
A modern creation myth will not and cannot hope to be “neutral.” Modern knowledge offers no omniscient “knower,” no neutral observation point from which all objects, from quarks to humans to galaxies, have equal significance. We cannot be everywhere at once. So the very idea of knowledge from no particular point of view is senseless. (Technically, this statement reflects a philosophical position, associated with Nietzsche, known as perspectivism.) In any case, what use could such knowledge have? All knowledge arises from a relationship between a knower and an object of knowledge. And knowers expect to put knowledge to some use.

Creation stories, too, arise from a relationship between particular human communities and the universe as these communities imagine it. They offer answers to universal questions at many different scales, which is why they sometimes appear to have a nested structure similar to a Russian matryoshka doll—or to the Ptolemaic vision of the universe, with its many concentric shells. At the center are those trying to understand. At the outer edge is a totality of some kind: a universe or a deity. In between are entities that exist at different chronological, spatial, and mythic scales. It is thus the questions we ask that dictate the general shape of all creation myths. And because we are humans, humans are guaranteed to occupy more space in a creation myth than they do in the universe as a whole. A creation myth always belongs to someone; and the story recounted in this book is the creation myth of modern human beings, educated in the scientific traditions of the modern world. (Curiously, this means that the narrative structure of the modern creation myth, like all creation myths, may appear pre-Copernican, despite its definitely post-Copernican content.)

Though its scope is vast, Maps of Time aims at not overwhelming the reader with detail. I have tried (without complete success) to stop the book from growing too large, in the hope that the details will not obscure the larger picture. Those with a particular interest in any one part of this story will have no difficulty finding out more, and the brief guides to further reading at the end of each chapter provide some starting points.

The exact balance of topics and themes in this book reflects the fact that this is an attempt at big history from a historian’s perspective, not that of an astronomer, a geologist, or a biologist. (Some alternative approaches to big history are listed at the end of this introduction.) This means that human societies loom larger than they do in, for example, Stephen Hawking’s books, or in Preston Cloud’s Cosmos, Earth, and Man (1978). Nevertheless, the first five chapters cover topics that normally fall within the sciences of cosmology, geology, and biology. They discuss the origins and evolution of
the universe, of galaxies and stars, of the solar system and the earth, and of
life on earth. The rest of the book surveys the history of our own species
and its relationship to the earth and to other species. Chapters 6 and 7 dis-
cuss the origins of human beings and the nature of the earliest human so-
cieties. They attempt to identify what is distinctive about human history,
and what distinguishes humans from other organisms inhabiting this earth.
Chapter 8 examines the earliest agrarian societies, which existed without cities
or states. With the emergence of agriculture, about 10,000 years ago, humans
began for the first time to live in dense communities, in which exchanges of
information and goods became more intensive than ever before. Chapters 9
and 10 describe the emergence and evolution of cities, of states, and of agrar-
ian civilizations. Chapters 11 to 14 try to construct a coherent interpretation
of the modern world and its origins. Finally, chapter 15 looks to the future.
Big history is inevitably concerned with large trends, and these do not stop
suddenly in the present moment. So a large view of the past inevitably raises
questions about the future, and at least some answers are available, both for
the near future (say, the next 100 years), and the remote future (the next
few billion years). Raising such questions should be a vital part of modern
education, for our assessments of the future will affect decisions taken to-
day; these, in turn, may shape the world inhabited by our own children and
grandchildren. They will not thank us if we take such tasks lightly.

A second organizational difficulty is thematic. It may seem there can be
little coherence in a narrative that spans so many different scholarly disci-
plines. But there are phenomena that cross all scales. Above all, it turns out
that the main actors are similar. At every level, we will be interested in or-
dered entities, from molecules to microbes to human societies to large chains
of galaxies. Explaining how such things can exist, how they are born, how
they evolve, and how, eventually, they perish is the stuff of history at all
scales. Of course, each scale also has its own rules—chemical in the case of
molecules, biological in the case of microbes—but the surprise is that some
underlying principles of change may be universal. This is why Fred Spier
has argued that at a fundamental level, big history is about “regimes.” It is
about the fragile ordered patterns that appear at all scales, and the ways in
which they change.8 So a central theme of big history is how the rules of
change vary at different scales, despite some fundamental similarities in the
nature of all change. Human history is different from cosmological history;
but it is not totally different. I discuss some of the general principles of
change in appendix 2, but the book as a whole will explore some of the dif-
ferent rules of change that appear at different scales.
FOR AND AGAINST BIG HISTORY

Specialists in many fields, from geology to archaeology and prehistory, will find it quite natural to look at the past on very large scales. But not everyone will be persuaded that big history is worth doing. Particularly to professional historians, the idea of exploring the past on such huge timescales can seem overambitious and perhaps simply impossible, a diversion from the real tasks of historical scholarship. In the last part of this introduction, I will respond to four main reservations that I have encountered.

The first is common, particularly among professional historians. It is that on large scales, history must thin out. It must lose detail, texture, particularity, and substance. Eventually, it must become vacuous. To be sure, on large scales, themes and problems familiar to professional historians may vanish, just as the details of a familiar landscape may disappear as one looks down from an airplane as it climbs. In a big history course, the French Revolution may get no more than a passing mention. But there are compensations. As the frame through which we view the past widens, features of the historical landscape that were once too large to fit in can be seen whole. We can begin to see the continents and oceans of the past, as well as the villages and roadways of national and regional histories. Frames of any kind exclude more than they reveal. And this is particularly true of the conventional time frames of modern historiography, which normally extend from a few years to a few centuries. Perhaps the most astonishing thing the conventional frames hide is humanity itself. Even on time frames of several thousand years, it is difficult to ask questions about the broader significance of human history within an evolving biosphere. Yet in a world with nuclear weapons and ecological problems that cross all national borders, we desperately need to see humanity as a whole. Accounts of the past that focus primarily on the divisions between nations, religions, and cultures are beginning to look parochial and anachronistic—even dangerous. So, it is not true that history becomes vacuous at large scales. Familiar objects may vanish, but new and important objects and problems come into view. And their presence can only enrich the discipline.

A second possible objection is that to write big history, historians will have to move beyond the boundaries of the discipline. Of course, this is true. Synoptic studies like this book are risky because the author depends on secondary sources and on other synoptic studies. As a result, there will inevitably be blunders and misunderstandings: error is built into the project. Indeed, it is part of the process of learning. To understand your own country, you must travel beyond its borders at least once in your life. You will
not understand everything you see; but you may begin to see your own country in a new light. The same is true of history. To understand what is distinctive about human history, we must have some idea of how a biologist or a geologist might approach the subject. We cannot become biologists or geologists, and our understanding of these fields will have its limits; but we do have to use as skillfully as we can the expertise of specialists in other fields. And we have much to learn from their different perspectives on the past. Excessive respect for disciplinary boundaries has hidden many possibilities for intellectual synergy between disciplines. I will argue, for example, that we need the vision of a biologist to see what is truly distinctive about our type of animal, *Homo sapiens*.

Third, it may be objected that big history proposes to create a new “grand narrative” just when we have learned the futility, even the danger, of grand narratives. Will not a big history metanarrative crowd out alternative histories—of minorities, of regions, of particular nations or ethnic groups? Perhaps a fragmented vision of the past (a “jeweler’s-eye” view, in the phrase used by the anthropologists George Marcus and Michael Fischer) is the only one that can do real justice to the richness of human experience. Natalie Zemon Davis makes the point well:

> The question remains whether a single master narrative is an adequate goal for global history. I think not. Master narratives are especially vulnerable to be taken over by patterns characteristic of the historian’s time and place, however useful they may be for accounting for some of the historical evidence. If a new decentred global history is discovering important alternative historical paths and trajectories, then it might also do well to let its big stories be alternate or multiple. The challenge for global history is to place these narratives creatively within an interactive frame.

Once again, the charge is at least partly true. Narratives of some kind seem unavoidable when looking at the past on large scales, and they will certainly be shaped by contemporary concerns. Nevertheless, it is a mistake for historians to shun these large narratives, however grand they may seem. Like it or not, people will look for, and find, large stories, because they can provide a sense of meaning. As William Cronon has written of environmental history: “When we describe human activities within an ecosystem, we seem always to tell *stories* about them. Like all historians, we configure the events of the past into causal sequences—*stories*—that order and simplify those events to give them new meanings. We do so because narrative is the chief literary form that tries to find meaning in an overwhelmingly crowded and disordered chronological reality.” If paid intel-
lectuals are too finicky to shape these stories, they will flourish all the same; but the intellectuals will be ignored and will eventually disenfranchise themselves. This is an abdication of responsibility, particularly as intellectuals have played such a crucial role in creating many of today’s metanarratives. Metanarratives exist, they are powerful, and they are potent. We may be able to domesticate them; but we will never eradicate them. Besides, while grand narratives are powerful, subliminal grand narratives can be even more powerful. Yet a “modern creation myth” already exists just below the surface of modern knowledge. It exists in the dangerous form of poorly articulated and poorly understood fragments of modern knowledge that have undermined traditional accounts of reality without being integrated into a new vision of reality. Only when a modern creation myth has been teased out into a coherent story will it really be possible to take the next step: of criticizing it, deconstructing it, and perhaps improving it. In history as in building, construction must precede deconstruction. We must see the modern creation myth before we can criticize it. And we must articulate it before we can see it. Ernest Gellner made this point well in the introduction to his attempt at a synoptic view of history, *Plough, Sword, and Book* (1991):

The aim of the present volume is simple. It is to spell out, in the sharpest and perhaps exaggerated outline, a vision of human history which has been assuming shape of late, but which has not yet been properly codified. The attempt to bring it to the surface is not made because the author has any illusions about knowing it to be true: he does not. Definitive and final truth is not granted to theories in general. In particular, it is unlikely to attach to theories covering an infinite diversity of extremely complex facts, well beyond the reach of any one scholar. The vision is formulated in the hope that its clear and forceful statement will make possible its critical examination.13

Besides, a “grand narrative” of the kind offered in this book may prove surprisingly spacious. In the global “truth” market of the twenty-first century, all narratives face stiff competition. The many detailed stories of the past already taught in our schools and universities ensure that a modern creation myth will emerge not as a single monolithic story but rather as a large and ramshackle cycle of stories, each of which can be told in many ways and with many variants. Indeed, it may turn out that the very large narratives create more space for alternative accounts of the past that struggle to survive within existing (and less ample) history syllabi. As Patrick O’Brien has written, “Hopefully as more historians risk writing on a global scale, the field will achieve a reputation and produce competing metanarratives to
which the overwhelming flow of parish, regional and national histories could be reconnected.”

The fourth objection is closely related to the third: is not a narrative on this huge scale bound to make exaggerated truth claims? I have found in teaching big history that students struggle to find a balance between two extreme positions. On the one hand, they are tempted to suppose that a modern, “scientific” account of origins is true, while all earlier accounts were more or less false. On the other hand, faced with some of the uncertainties of modern accounts of the past, they may be tempted to think that this is “just one more story.”

Thinking of a big history narrative as a modern creation myth is a good way of helping students to find the epistemological point of balance between these extremes. For it is a reminder, first, that all accounts of reality are provisional. Many of the stories we tell today will seem quaint and childish in a few centuries, just as many elements of traditional creation myths seem naïve today. But by acknowledging this, we do not commit ourselves to a nihilistic relativism. All knowledge systems, from modern science to those embedded in the most ancient of creation myths, can be thought of as maps of reality. They are never just true or false. Perfect descriptions of reality are unattainable, unnecessary, and too costly for learning organisms, including humans. But workable descriptions are indispensable. So knowledge systems, like maps, are a complex blend of realism, flexibility, usefulness, and inspiration. They must offer a description of reality that conforms in some degree to commonsense experience. But that description must also be useful. It must help solve the problems that need to be solved by each community, whether these be spiritual, psychological, political, or mechanical.

In their day, all creation myths offered workable maps of reality, and that is why they were believed. They made sense of what people knew. They contained much good, empirical knowledge; and their large structures helped people place themselves within a wider reality. But each map had to build on the knowledge and fulfill the needs of a particular society. And that is why they don’t necessarily count as “true” outside their home environments. A modern creation myth need not apologize for being equally parochial. It must start with modern knowledge and modern questions, because it is designed for people who live in the modern world. We need to try to understand our universe even if we can be certain that our attempts can never fully succeed. So, the strongest claim we can make about the truth of a modern creation myth is that it offers a unified account of origins from the perspective of the early twenty-first century.
FURTHER READING ON BIG HISTORY

Listed below are a number of works in English that explore the past on scales larger than those of world history, or try to see human history in its wider context, or provide methodological frameworks for such attempts. This is a wide definition of “big history,” and there are doubtless many other works that could be included under it. The authors come from many different fields, and the books vary greatly in approach and quality, so there is plenty of room for argument as to which do and which do not really count as big history books. This preliminary bibliography is based on a list first compiled by Fred Spier. It excludes books so technical that they cannot possibly be of use to historians or general readers. It also excludes a vast number of books that operate at large scales, and have much to offer historians, but do not try to move across multiple timescales.

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Spier, Fred. The Structure of Big History: From the Big Bang until Today. Amsterdam: Amsterdam University Press, 1996.