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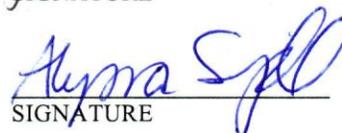
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The Biggest Story Ever Told:
A Comprehensive Analysis of the Historiographic Origins
of Big History,
500 BCE to 2010 CE

For my Mom and Dad

Table of Contents

Introduction

The History of Everything5-23

Chapter One

Universal History and Big History, 500 BCE to 1920 CE.....24-57

Chapter Two

Modern Historiography and Big History, 1920 to 2000.....58-93

Chapter Three

The Modern Scientific Meta-Narratives, Paradigms, and Big History,

1859 to 2010.....94-122

Conclusion

The Past, Present, and Future of Big History.....123-128

Bibliography.....129-133

Introduction

*“That’s it, that’s what I need to do—tie all of history together.”*¹

The History of Everything

Big History represents a twenty-first century attempt to build a complete system of knowledge. It does so by tying together a range of academic disciplines from the sciences to the humanities through the use of chronology.² The important themes and implications of Big History demand a large-scale synthesis hitherto only partially undertaken by scholars. This thesis is the first comprehensive analysis of the historiographic and intellectual origins of Big History. Untangling these varied roots is the focus of this thesis. I will demonstrate that the themes, patterns, and concerns in Big History are mirrored in previous attempts to write macrohistory of human, biological, planetary, and cosmic phenomena.

Additionally, this thesis will demonstrate how intellectually complex Big History is by rigorously analyzing the works that make up its intellectual background. In so doing I will show how the origins of Big History are far from settled—and in fact, they are still being contested. Simply put, different individuals have emphasized the importance of different traditions. This thesis brings together the existing literature on Big History’s origins into a coherent framework for the first time. I will argue for an all-inclusive historiography of Big History.

I will first turn to the amorphous historical tradition known as universal history, a series of intellectual projects dating from antiquity to the early twentieth-century. In the

¹ Charlie Kaufman’s answer to his writer’s block from the film *Adaptation*. (2002).

² Big History is capitalized through by the suggestion of Barry Rodrigue. Rodrigue believes capitalization helps the field appear more serious than the name implies. All quotations will appear as originally written.

second chapter I will examine intellectual ties to more recent works. These include the macrohistories of Oswald Spengler, Arnold Toynbee, William McNeill and the development of world history; Fernand Braudel and the *Annales School*; Immanuel Wallerstein and world systems theory; and finally modern environmental histories. Chapter Three will explore Big History's relationship to the modern scientific paradigms of Big Bang cosmology in physics, the theory of natural selection in biology, and the scientific meta-narratives which blossomed in the 1970s and continue today. The chapter will also analyze the thematic issues of science, human agency, and complexity in Big History.

The structure of this thesis will be chronological. Universal history preceded the bifurcation of history and science in the nineteenth century. Thereafter the modern historiography presented in chapter two and the modern scientific paradigms in chapter three followed divergent trajectories. By this I mean to show that universal history represents the original macrohistorical thesis, while world history, environmental history, and particularly those scientific paradigms represent an antithesis. Big History is therefore the resulting synthesis which intellectually and thematically reunites these diverse frameworks. I will suggest thematic commonalities and difference between these groupings and refer to the literature on Big History's origins to provide context. As Marnie Hughes-Warrington put it "concepts like 'big history' are not characterized by a list of criteria that all works and practitioners must satisfy, but rather by a network of overlapping similarities or 'family resemblances.'"³

Big historians and critics alike have observed that at the scales of Big History

³ Marnie Hughes-Warrington, "Big History," *Social Evolution & History*, Vol. 4 No. 1 (March 2005): 13.

individuals and individual human agency disappear.⁴ Marnie Hughes-Warrington has written “Such a view of humanity appears to clash with the conventional historiographical desire to seek out the individual, to seek out agency.”⁵ Anthony Grafton, for example, noted this concern in his review of *Maps of Time*. The picture of humanity in Big History, according to Grafton, is more about the collective agency of various human institutions.⁶ The place of individuals in Big History is an issue that will be more fully explored in my third chapter. But this thesis *explicitly* places individuals in the forefront of history. My analysis in the chapters that follow proceeds from the perspective that history is constructed by individuals motivated by multiple objectives: academic, philosophical, personal, and political. Thus, individual historical works must be seen in the circumstance of the period they were created and in the context of the lives of the people who created them. In this sense my work follows the tradition of modern historiographical scholarship—works such as Peter Novick’s magnum opus of twentieth-century American historiography, *That Noble Dream* (1988). It aspires to Novick’s aim “to provoke... fellow historians to greater self-consciousness about the nature of our work.”⁷ It also follows in the historiographical tradition of R.G. Collingwood that history’s deepest level is the story of human consciousness.⁸ As we shall see this claim presents complex and multiple meanings in the construction of Big History.

The connection of Big History to universal history is nothing profoundly original or groundbreaking. It has already been established by both those in the field and those

⁴ Craig Benjamin, “Forum on Big History,” *World History Connected*, Vol. 6, No. 3 <http://worldhistoryconnected.press.illinois.edu/6.3/benjamin.html>. See also David Christian *Maps of Time* (Los Angeles: University of California Press, 2004), 8-11.

⁵ Hughes-Warrington, “Big History,” 17.

⁶ Anthony Grafton, “Life of the Universe - *Maps of Time*,” *American Scientist*, Vol. 93 (July-Aug, 2004): 379-80.

⁷ Peter Novak, *That Noble Dream: The “Objectivity Question” and the American Historical Profession* (New York: Cambridge University Press, 1988), 17.

⁸ R.G. Collingwood, *The Idea of History* (New York: Oxford University Press, Second Printing, 1957), 1.

outside it. Craig Benjamin has referred to Big History as “a continuation of the great historiographical tradition of universal history.”⁹ John Mears believes universal histories represent pre-scientific incarnations of Big History.¹⁰ Andre Gunder Frank even referred to it in the title of his review of *Maps of Time*, calling it “Universal History: Sizing Up Humanity in Big History.”¹¹ David Christian has written an article on Big History called “The Return of Universal History.”¹² Christian compares it to the Cheshire cat of *Alice and Wonderland*-fame, disappearing and reappearing, but historiographically omnipresent. The purpose of Christian’s use of this metaphor is to provide a frame for Big History not as some new field, but rather a return to the form of history that dominated the discipline until the nineteenth century.¹³ My purpose is not to restate already established connections, but to demonstrate this link in greater depth than previously attempted. In so doing, I will show that while universal history has a diverse intellectual and historiographical tradition, nevertheless it does represent a pre-modern (read: pre-twentieth century) attempt at Big History. I will also question whether continued reference to universal histories fulfills more of a psychological need for connections to humanity’s intellectual past than out of their historicity.

The relevant works we will survey from the ancient world are the Hebrew Bible and *The Histories* of Herodotus; from the medieval period Augustine’s *City of God* and Ibn Khaldun’s *The Muqaddimah*; from the Early Modern era Vico’s *New Science* (1725); from the Enlightenment Diderot’s *Encyclopédie*, and the historical writings of Voltaire,

⁹ Craig Benjamin, “Forum on Big History,” 2009.

¹⁰ John Mears, “New Directions in Big History Research Panel,” *World History Association Annual Conference* (June 25, 2010).

¹¹ Andre Gunder Frank, “Universal History: Sizing Up Humanity in Big History,” *Journal of World History*, Vol. 16, No. 1 (March 2005): 83-97.

¹² David Christian, “The Return of Universal History,” *History and Theory*, Iss. 49 (December 2010): 6-27.

¹³ *Ibid*, 8-10.

Kant, and Hegel; from the nineteenth-century Marx and Ranke; and from the early twentieth-century H.G. Wells *Outline of History* (1920). I will also rely heavily on secondary criticism by scholars from those areas and relevant commentary by the Big historians themselves. My goal is to show that a range of thematic and intellectual unity is evident between these works and modern Big History.

Chapter Two will move the narrative to an exploration of large scale histories in the twentieth century. First I will look at Oswald Spengler's *The Decline of the West* (published in two volumes in 1918 and 1922, respectively) and Arnold Toynbee's *On History* (published in twelve volumes between 1934 and 1961); then the development of world history will be considered as it manifested in the writings of William McNeill, with particular attention to *The Rise of the West* (1963); the parallel growth of the *Annales School* and the writings of Fernand Braudel; the birth of world systems theory under Immanuel Wallerstein; and finally environmental history as a diverse field, with special reference to the contributions of William Cronon, Clive Ponting, Alfred Crosby, Jared Diamond, and John R. McNeill. The argument is that the literature on Big History's origins definitively illustrates that following the collapse of universal history these works and fields helped to build a foundation upon which an academic Big History could be structured.

Chapter Three takes into account several meta-scientific narratives, including Preston Cloud's *Cosmos, Earth, and Man* (1978), *The Universe Story* (1992), and Eric Chaisson's *Epic of Evolution* (2005). This chapter also tackles thematic elements in Big History such as the role of human agency in history and distinctions between history and science. It will also explore the development of two important paradigms in Big History:

big bang cosmology and the role of punctuated equilibrium in natural selection. Finally I will elaborate on the development of complexity theory as it is utilized in Big History. My argument in this chapter is that the literature on Big History's origins shows that the scientific meta-narratives and that the addition of complexity theory provides Big History with a paradigm all its own.

What these traditions share are common themes of totality and directionality—that is, the notion of chronicling, cataloging, and comprehending the full range of human knowledge on a linear timescale and/or through a defined framework. In this way, macrohistories represent both the most important knowledge and most important themes within the worldview of the culture that produces it. The author or authors then projects these conceptions to formulate laws of history which work to predict the fate of a society. In the early universal histories these predictions (or projections) fall into three types of trajectories. Historical change can go downward, upward, or move cyclically. The works I will look at in chapter two and three add more nuance, but maintain the same trends toward large-scale historical change. What is important to remember is that the histories in these writings have a defined momentum explaining historical change on a grand scale. The great intellectual achievement of Big History has been to transcend these lines of directionality through the development of complexity theory

My sources are almost uniformly Eurocentric. Ibn Khaldun's work is the only author who approaches anything outside the Western tradition that runs from The Bible and Greek historiography to the early twenty-first century.¹⁴ This thesis is not meant to

¹⁴ Stephen Frederic Dale, "Ibn Khaldun: The Last Greek and the First Annalist Historian," *International Journal of Middle Eastern Studies*, Vol. 38 (2006), 431–451. Khaldun has been called historian of the Greek tradition, so the assertion that he's non-Western is really quite shaky.

deny the important work of non-Western historians, such as the Chinese chronicler Sima Quan (135 BCE to 86 BCE), but to admit that their influence in modern historiography is unfortunately negligible. The transformation of a global culture in the twenty-first century will very likely fundamentally alter the historiographical canon. But it is for future historians to re-address the important authors of the past. My thesis takes the view that modern historiography is so dominated by Western influences the two are virtually indistinguishable.

Macrohistories, Metanarratives, and Grand Syntheses

Before delving into universal history, a brief discussion of the dimensions of macrohistory or grand syntheses is required. Intellectual historian Wolf Schafer has described it as a hodgepodge of categories: global history, universal history, macrohistory, deep history, ecumenical history, and writes “All these terms are functionally equivalent despite their semantic nuances and different conceptual histories.”¹⁵ The commonality between them is the attempt to make a systematic study that encompasses all of reality. Raymond Grew has expressed this as intellectual tendency that has existed throughout human history. He writes

the urge to see the world as one... has long been part of the interest in history and central to the belief that it could be written. Historians have written the global history of God’s plan, the global history of evolutionary progress, and the global history of spreading (and declining) power.¹⁶

Here Grew lays out the basic historical changing forces defining the various shapes large-scale history has taken: God (in the monotheistic traditions), Progress (both ecclesiastical

¹⁵ Wolf Schafer, “Global History: Historiographical Feasibility and Environmental Reality,” in *Conceptualizing Global History*, Bruce Mazlish and Ralph Buutjens, ed. (Boulder, CO: Westview Press, Inc.: 1993), 50.

¹⁶ Raymond Grew, “On the Prospect of Global History,” in *Conceptualizing Global History*, 244.

and humanistic), and Power (referring to the growth of human institutions, natural structures, and complex adaptive systems). I will show how these frameworks set-up in terms of the directionalities of universal history, followed by the patterns of world history, environmental history, and the scientific metanarratives.

Johan Galtung's study in *Macrohistory and Macrohistorians* is particularly important in continuing this definition. According to Galtung,

Macrohistory is the study of the histories of social systems, along separate trajectories, in search of patterns. Macrohistory is ambitious, focused on the stages of history and the causes of change through time (*diachronic*). Macrohistory is not the study of some little region in space at the same point time (*synchronic*).¹⁷

The patterns Big History concentrates on are the use of gravity (real and metaphorical) as an organizing principle, collective learning as the cause of human history (superseding evolution), and most crucially complexity in adaptive systems. Galtung goes on to state

macrohistory is still history, but stretches history in time to get the real long run, *la longue durée*. Macrohistory then adds vast space to vast time for comparative purposes and uses this to arrive at general (i.e. nomothetic) perspectives, principles, and even laws of history.¹⁸

Other thematic issues involve the scale and scope of a particular approach to history and the historian's objective view point. Marnie Hughes-Warrington writes

Universal historians offer surveys of the history of a people, a country or even the world. Two problems trouble them. First, they find it hard to justify the limitation of the scope of their works. That is, what grounds do historians

¹⁷ Johan Galtung, "Macrohistory and Macrohistorians: A Theoretical Framework" in *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*, ed. Johan Galtung and Sohail Inayatullah, ed al. (Westport, Conn: Praeger, 1997), 1. Galtung here makes reference to the ideas of Fernand Braudel. As we shall see Braudel's concept of history as a series of waves would have had an immense impact on the Big History formulation of scales.

¹⁸ *Ibid*, 2.

have to justify limiting their accounts to a particular time, people or second? Second, they are troubled by the problem of doing justice to points of view other than their own. Are they capturing the spirit of other ages or merely using historical data to express their own views?¹⁹

Here we will see central issues both universal history and Big History. Both offer a survey not merely of the history of the universe but also of contemporary knowledge (and to some extent mores) but in a way that suggests a broad kind of consensus from within the intellectual culture from which it emerges. On a pragmatic level, Don Johnson has referred to the acceptance of grand syntheses as true in so far as they can be useful.²⁰ This issue of consensus and objectivity will be revisited throughout the subsequent chapters.

Galtung believes this macrohistorical model is something that astronomers and cosmologists do “at a basic level.” For Galtung, the macrohistorian is “to the historian what Einstein or Hawking is for the run-of-the-mill physicist; in search of the totality of space and time, social or physical.”²¹ The comparison between scientists and macrohistorians is striking and works to highlight the direct connections between the scientific narratives and Big History in chapter three. Furthermore Galtung notes macrohistorians usually do not work from primary source data, but rather engage in “secondary or tertiary analysis.”²² In other words, the macrohistorian takes the work of the researcher, or draws sources from other disciplines, and interprets the data to fit into his or her larger analysis. This raises a key issue in Big History: the problem of conducting original research versus the reliance on a general pedagogical approach. In this way the macrohistorian is like “a guide in social space-time. Like all guides he has

¹⁹ Marnie Hughes-Warrington, *Fifty Key Thinkers on History* (New York: Routledge, 2008), 137.

²⁰ Don Johnson, (Feb. 14, 2005) “Authors Forum on *Maps of Time*,” *H-world*, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=Z6qDBfgyC1db/RBMAj9gdQ&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=Z6qDBfgyC1db/RBMAj9gdQ&user=&pw=)

²¹ Galtung, 8.

²² *Ibid.*, 4.

favorites, emphasizing some points at the expense of others in the landscape.” This use of the metaphor of landscape is notably similar to David Christian’s use of the map as a guide in his work.²³

Barry Rodrigue has taken this line of thinking even further by suggesting these grand syntheses are examples of the manifestation of Global Historical Consciousness at a variety of spatial and temporal scales.²⁴ The result in Rodrigue’s schema is a metahistory as zen-like zeitgeist which represents humankind’s desire for unity or oneness. Universal historians also exhibit a dark side to Rodrigue’s more hopeful cosmopolitanism and several of the works explored below were composed in periods of perceived decline when the author’s historical point-of-view is often non-ecumenical. The cosmopolitan aspect to large-scale histories will be explored in the chapters to come.

Big History: Toward a Working Definition

Before delving into the body of my thesis it is appropriate to provide a basic understanding for what Big History is and how it operates on several intellectual levels. Modern Big History originated in 1989 under the guise of two unrelated undergraduate courses: one was a colloquium organized by David Christian, with lectures from a variety of academics, at Macquarie University in Sydney Australia; the other was taught exclusively by John Mears at Southern Methodist University in Dallas, Texas. The goal of these courses (and the courses that have followed) was to present “the past on the largest scale possible, literally from the origins of the Universe to the present day.”²⁵

²³ Ibid, 4; John Lewis Gaddis uses similar language in his historiography *The Landscape of History* (2003).

²⁴ Barry Rodrigue and Daniel Stasko, “Changing the Future with the Past: Global Enlightenment through Big History,” *The Journal of Globalization Studies*, Vol. 1, No. 2 (Winter 2011), 30.

²⁵ David Christian, “The Longest Durée: A History of the Last 15 Billion Years,” *Australian Historical Association Bulletin*, Vol. 59-60 (August-November 1989): 27.

Christian and Mears were also in some ways pushing back from incursions made by scientific meta-narratives in the preceding decades.²⁶ The main thrust of these courses was to move students beyond the prevailing notion that only the human past can be considered history. In this way they sought to historicize the whole of the past. In doing so Big History sails over much of “traditional” history to consider what is important from the cosmic perspective.²⁷

The whole of this past began some 13.7 billion years before the present with the Big Bang. In the first three minutes of history the basic paradigms governing physics were established and the universe began to expand outward in every direction. Some three hundred-thousand years after that, the universe began to cool and became electrically neutral. This facilitated the fusing of electrons and protons to form the first atoms. Within the next billion years gravity (a force which appeared in the first three minutes) began to pull together hydrogen and helium atoms to form the first stars. Chemistry was born as the heavier elements of the periodic table emerged within these stars and their subsequent supernovas. This is the cosmic scale of Big History.

4.6 billion years ago these elements formed the solar system to create the sun, the earth, and other planets. Gravity caused heavier elements to accumulate in the earth’s core and lighter ones to station in what would become the atmosphere. Geology began as the earth’s tectonic plates allowed the continental plates to shift about the earth’s surface,

²⁶ Christian, *Maps of Time*, 6. Christian refers to his work as “an attempt at Big History from a historian’s perspective...”

²⁷ Christian references the lens on a camera as the metaphor for zooming in and out of history. The most powerful visual representation of the scales of Big History is the famous cut from the bone to the space satellite in Stanley Kubrick’s *2001: A Space Odyssey* (1968). In one edit the film tells us that what really matters in human history is technology (an idea n vogue among anthropologists in the 1960s). What makes humankind a distinct species is the use of technology (the animal bone) and how that technology advances over time, culminating in the satellite. The original script for the film gave this a darker edge: the satellite is really an orbiting nuclear platform. The film thus depicts the evolution from the simplest weapon in humanity’s arsenal to the most complex as the central phenomena of human history at the largest scale.

while fault lines between plates allowed heavier elements to appear on the surface. Tectonic plates also made the surface a dynamic place where geography was in a state of constant transformation. This is the planetary scale of Big History.

Biology began 3.5 billions years ago when chemical reactions (possibly close to volcanic vents in the earth's oceans) led to the first life forms. These simple, single celled organisms reproduced through a mechanism called DNA. The organisms excreted a byproduct: an element called oxygen which changed the earth's atmosphere over the next two billion years. 1.5 billion years ago the first multi-cellular organisms appeared and began to reproduce sexually. This process allowed natural selection to take place and initiated the evolution of life on earth. Life forms eventually adapted to the oxygen in the atmosphere and evolved mechanisms which allowed life to expand from oceans to the land. One multi cellular organism appeared seven million years ago in what would become Eastern Africa: *hominids*. These organisms were distinguished by their bipedalism and unusually large brains (per body mass). A descendant species appeared 250,000 years ago called *homo sapiens*. This is the biological scale of Big History.

Human history initiated when anatomically modern humanity utilizing a new kind of skill called collective learning which transcended mammalian instinct.²⁸ This technique is characterized by the ability of humans to communicate to large groups over wide distances and across multiple generations. Collective groups of humans are characterized by their use of language, technology, development of religious practices, consumption of psycho-active substances, and fire control. Humans practiced a hunter-

²⁸ Culture here is defined as a catch-all that includes anthropology, sociology, economics, political science, and all the humanities.

gather, kin-based lifestyle and migrated to every continent (excluding Antarctica) and most island chains between 60,000 and 5,000 years ago. The appearance of humans in new regions coincided with mega-faunal extinctions and led to one of the sharpest periods of species eradication. Some human groups learned to domesticate plants and animals to increase food supplies and power sources. Domestication increased some human populations to such a degree that hierarchies of organization emerged. Elite groups of humans held power over cities and states in order to manage control over resources, interactions with other groups (trade and warfare), religious practices, and construction of monumental buildings. Some of these groups developed a new system of communication called writing to deal with the bureaucratic structure of states, economic interactions, and later for the purposes of storytelling and entertainment. For most of human history knowledge of writing and education was monopolized by the elite. Most humans continued to live as hunter-gatherers or nomadic pastoralists, or work as agrarian laborers within states. Over time interactions among groups of humans led to four distinct world zones in Afro-Eurasia, America, Australia, and the Pacific. Five hundred years ago one part of the Afro-Eurasian world zone (Western Europe) gained a technological and economic edge (with an assist from disease vectors) which allowed several states to gain economic and military dominance over the other world zones. Two hundred years ago this dominance allowed Europeans to create a new innovation in collective learning called the Industrial Revolution. This event was characterized by the ability of humans to manipulate steam and fossil fuels, and harvest an abundance of inexpensive energy to generate new technologies. Starting one hundred years ago humans were increasingly able to live in urban environments and engage in specialized activities. Technology and

capitalist economic structures allowed widespread access to education among many human groups. This is the human scale of Big History.²⁹

One thing that should be clear from the previous four paragraphs is that as time goes by each new scale includes greater thresholds of complexity. One reason for this is the closer the Big History narrative comes to the present the more information there is to process. It is also due to the fact that each scale builds upon the one that came before. In this way, the human scale is inherently more complex than the cosmic scale. The human scale is also impossible without the other scales. But the Big History narrative does not terminate in the present. It projects itself forward to consider the future of all these scales. While the immediate destiny of humanity is unclear, ninety-nine percent of all other species have thus far gone extinct. The odds of a long-term survival are not in humankind's favor. On the cosmic scale, the sun will eventually consume the earth. Entropy will increase, stars will die out, and "The universe will decay into a state of featureless equilibrium."³⁰ The system of the universe and of history will close.

At another level Big History attempts to provide a modern creation myth (or scientific story). David Christian has referred to Big History as "coherent and accessible account of origins, a modern creation myth under the aegis of unifying contemporary knowledge about the origin of the universe, the earth, life, and humankind."³¹ On this aspect Cynthia Brown has written "History is now part of the scientific undertaking, and there is no sound reason why the uncovered story should be cut into two segments, one

²⁹ See Christian's *Maps of Time*, 500-2, for a succinct timeline of these events.

³⁰ Ibid, 502.

³¹ David Christian, "What's the Use of 'Big History,'" *World History Connected*, Vol. 3, No. 1 (Oct 2005).
<http://worldhistoryconnected.press.illinois.edu/3.1/christian.html>.

labeled “science” and the other “history.”³² This search for intellectual and academic coherence is something John Lewis Gaddis has connected to macrohistorical efforts—“great histories, zooming in and out between macroscopic and microscopic perspectives: what links these together is a kind of self-similarity across scale.”³³ Big History is thus a creation myth which seeks to fulfill the human desire for universal knowledge, while at the same time striving for scientific objectivity.

The mythic aspect of Big History proposes an understanding of how people can approach the modern world. As Christian has written, the Big History story is “the creation myth of modern human beings, educated in the scientific traditions of the modern world.”³⁴ Fred Spier further specifies “Big history is the product of early 21st century intellectual urbanites who experience globalization as well as a hitherto unknown access to information of all sorts.”³⁵ Big History is thus an effort to answer both age old and very contemporary calls for a unity of all knowledge. “All tangible phenomena, from the birth of stars to the workings of social institutions, are based on material processes that are ultimately reducible...” writes Edward O. Wilson in his book *Consilience* (1998).³⁶ The idea of information being expressed in consilient terms, i.e. connections made across multiple disciplines, is one paramount theme. But while Big History seeks to unite knowledge, it does not offer historical laws set in stone and is also open to revision by future generations based on new sources of knowledge. As Christian concludes in his introduction to *Maps of Time*, Big History “offers a unified account of origins from the

³² Cynthia Stokes Brown, *Big History: From the Big Bang to the Present* (New York, New Press, 2007), xi.

³³ John Lewis Gaddis. *The Landscape of History: How Historians Maps the Past* (Oxford: Oxford University Press, 2002), 83.

³⁴ Christian, *Maps of Time*, 6.

³⁵ Fred Spier, (Feb 15, 2005) “Authors Forum on *Maps of Time*,” *H-World*, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=21dr6as%2b088UNN7hnQALOA&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=21dr6as%2b088UNN7hnQALOA&user=&pw=)

³⁶ Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Alfred K. Knopf, 1998), 297.

perspective of the early twenty-first century.”³⁷ There is thus a tension between malleability and certainness in Big History.

At the simplest level, writes Fred Spier, “Big History is about the rise and demise of complexity at every possible scale.”³⁸ The contribution of complexity theory has helped to sharpen the coherence of the Big History approach. Part of my argument is that the central story of the first twenty years is the integration of complexity theory into the Big History framework. Complexity through measurement of energy flows provides the paradigm necessary to make the connections between the different scales of Big History. Many previous macrohistories and meta-narratives have attempted to provide the mechanism that drives historical change. That is what complexity bestows to Big History.

Big History’s Origins: The Literature

This thesis represents the first significant analysis of the literature regarding Big History’s origins. I believe the Big historians themselves are influenced by traditions which have closest connections to their own academic backgrounds or to which they share an ideological affiliation. For example, David Christian’s work on Russian history is most closely aligned to the *Annales* School and the legacy of Fernand Braudel. Christian’s concept of Inner Eurasia also owes its inspiration to William McNeill’s vision of ecumenical history and Wallerstein’s world systems theory. This thesis will demonstrate how these fields played key roles in the intellectual development of Big History.

³⁷ Christian, *Maps of Time*, 11.

³⁸ Fred Spier, *Big History and the Future of Humanity* (Malden, MA: Wiley-Blackwell, 2010), 19.

Big History and its critics give a great deal of weight to the older universal history traditions and to recent scientific narratives as the most direct antecedents. My argument is that there is an ambiguity within these competing claims. Critics charge that by implication big historians are simply piggy-backing on the work of the scientists. Therefore Big History is perceived as an effort by historians to play catch-up with existing macro-scientific works. Critics and reviewers also cite universal history as a way to show Big History either following in the wake of a disfavored paradigm or as the modern version of a longstanding historical tradition. The ambiguity presented by Big History's relationship to universal history and scientific narratives has not yet been fully explored.

Structurally, the thesis will explore the historical dimensions of each Big History precursor. In so doing I will touch on the literature of origins as they are historically and thematically applicable. The primary sources emanate from the Big Historians themselves in the form of books, journal articles, and internet discussion forums from 1989 to the present. The historians in question are the aforementioned Christian and Mears.³⁹ Mears background is as a historian of agriculture, warfare, and Central Europe in the early modern period. I shall also refer to the writings of the Dutch Big historian Fred Spier, whose background is in biochemistry and anthropology; Cynthia Brown, an American historian of pedagogy; Craig Benjamin, an Australian world historian who studied under David Christian; Barry Rodrigue, an American historian with degrees in archaeology and geography; Marnie Hughes-Warrington, an Australian historian who inherited Christian's original Big History course at Macquarie University in 2001;

³⁹ Mears first outlined a program for Big History in "Evolutionary Process: An Organizing Principal for General Education" *JGE: The Journal of General Education* Vol. 37, No. 4, (1986):113–125; Christian made the case for a similar program in "The Longest Durée" (1989).

Jonathon Markely, a former graduate student under Hughes-Warrington with a PhD in Chinese historiography; and Kevin Ferlund, a historian of the American West. Christian, Brown, and Spier have each written books outlining the Big History narrative (Spier, in fact, has two). Christian, Brown, and Benjamin have a Big History textbook which is to be published by McGraw-Hill in 2012. The others have authored journal articles or have made comments available through digital media or at academic conferences.

Reactions by critics and reviewers are similarly culled from journals, book reviews, and web postings. Many of them were written in response to Christian's *Maps of Time*. Some, notably Graeme Snooks and Akop Nazaretyan, address how Big History compares to their own macrohistorical systems. It should be noted that these critics tend to be world historians. This presents something of a problem in analyzing Big History's origins in the sense that the literature is biased toward areas historians are familiar with. Unfortunately Big History remains, if not unknown to many in the scientific community, at least significantly unreviewed.

Chapter 1
“A History of Cuckoos”⁴⁰
Universal History and Big History
500 BCE to 1920 CE

This chapter explores the histories of the pre-Big Histories—an intellectual phenomena referred to in the Western tradition as universal histories. The important themes worth highlighting are historical directionality and mechanisms of historical change. Of equal importance are the notions of cosmopolitanism, environmentalism, and the search for intellectual totality within the individual works (or collective writings of the authors). I will take a measured survey of the relevant works as they relate to the development of Big History with reference to the literature on Big History’s origins. A complete history of these traditions is both immensely relevant and simply beyond the scope of this thesis.

Universal history has a contested and controversial historiography, depending on the definitional usage one applies to it. Bruce Mazlish refers to it as “the effort to encompass all of history, not just the recent past, in one sweeping account.”⁴¹ R.G. Collingwood further specifies “the symbol of universalism is the adoption of a single chronological framework for all historical events.”⁴² In his study of the subject, Oron K. Ghosh has written that universal history cannot work if it does not have one over-arching theme or principle. He writes that “without such a theory the facts become unmanageable in their complexity and enormous volume; no sort of intellectual comprehension is

⁴⁰ Marnie Hughes-Warrington, (Feb 13, 2005), “Authors Forum for *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=DLsNw11VUMBoiJFc7zMZoA&user=&pw=>.

⁴¹ Mazlish, 3.

⁴² Collingwood, 51.

possible.”⁴³ Taking these three frameworks together, I will specify that Universal History is the synthesis of all macro-historical events compiled together through a (mostly) linear timeline to encompass all knowledge relevant to a culture at the time of composition (though with the caveat that several examples below are exceptions that prove the rule). At the same time there is a sense that universal history represents all preeminent historical writing prior to the modern era.

With regard to the existing literature on Big History’s origins, universal histories possess a controversial legacy. On the one hand Big historians like to lay claim to the tradition of universal history, while on the other they seem slightly embarrassed by it. Critics meanwhile tend to point out these histories are no longer considered academically relevant because they were based on flawed information and outdated modes of thought. My own approach is to take both sides of this issue and argue that in many respects each group is talking past the other: universal history is intellectually important in the development of Big History, but at the same time critics are correct in pointing to its anachronistic nature. In this respect there is an intellectual and psychological need seemingly at odds with modern historicity.

Creation Myths as Universal History

Universal history has its earliest intellectual origins in part within the religious creation mythology derived from pre-Axial Age traditions. Barry Rodrigue has written

these histories have been couched in quasi-religious epics like the Sumerian *Eridu Genesis* or the Mayan *Popul Vuh*. Although they purport to tell the story of all existence, they

⁴³ Oron K. Ghosh, “Some Theories of Universal History,” *Comparative Studies in Society and History*, Vol. 7, No. 1, (Oct. 1964): 2.

are in fact stories of a particular ethnic group and their geographic hearth.⁴⁴

The larger point, however, is that these cosmologies sought to comprehend the entire world as it was known to the group that produced it. *The Epic of Gilgamesh* is the oldest surviving story and can also be considered both a creation myth and a work of history.⁴⁵

The concerns of the story are, generally speaking, the acceptance of one's social status and mortality in Sumerian society. These ideas are explored historically through the exploits of Gilgamesh and the text can be read as an affirmation of the prevailing social order. The most salient point, though, is that the story offers an explanation as to why that order existed, why all humans will perish, and that these cycles could never be broken.

Scholars such as Ooron Ghosh have expressed marked skepticism concerning whether these myths can be regarded as anything like history.⁴⁶ In Richard Elliot Friedman's analysis a society with a cyclically-based religion, patterned after the seasons of the year, cannot produce a truly historical because it lacks a fundamental understanding of change over time.⁴⁷ In this way a cyclically-based world view can be seen as static. But the cyclical worldview would come back time and again in universal history. The key intellectual debate is, indeed, whether such a view can be considered historical.

David Christian writes Big History "leads us back to the sort of questions that

⁴⁴ Rodrigue, 31

⁴⁵ The story was compiled in Babylonian between 1300 and 1000 BCE, but based on earlier writings and stories, dating back several millennia. For a concise history see *The Epic of Gilgamesh, Norton Critical Edition* (New York: W. W. Norton & Company, 1st edition), 2001.

⁴⁶ Ghosh, 2.

⁴⁷ Richard Elliot Friedman, *The Disappearance of God: A Divine Mystery* (New York: Little, Brown and Company, 1995), 88.

have been answered in many societies by creation myths.”⁴⁸ Christian has actually referred to these efforts as quintessentially empiricist in that they comprised the best knowledge available knowledge at the time.⁴⁹ This view acts something of a defense for traditional societies. While they lacked modern scientific testing, these societies were also doing the best they could under such circumstances to understand the world. Modern people who reject the findings of modern scientific knowledge are by implication the true “primitives.”

On another level it serves as a rhetorical device to persuade contemporary readers and students Big History is not attempting anything particularly new. Indeed, it is the critics rejecting the inherent need for myth who are out of the ordinary. For Anthony Grafton this mythic aspect in Big History is historically universal—“the form taken here is new, but the genre is ancient.”⁵⁰ Christian also identifies another underlying rationale for framing Big History as a creation myth in that it tends to focus on humankind’s relationship to nature.⁵¹ This thread can be connected to Big History’s environmental approach outlined in chapter two and the encouragement of modern people to reconnect with the earth in order to deal with modern concerns.

Marnie Hughes Warrington writes the use of Big History as a creation myth is “bound to make many world history scholars and students uncomfortable.”⁵² This is reflected in R.J. Barendse’s criticism of Big History. Barendse writes “with a myth... you

⁴⁸ David Christian, “The Case for Big History,” *Journal of World History*, Vol. 2, No. 2 (1991): 227.

⁴⁹ Christian, “The Return of Universal History,” 8.

⁵⁰ Grafton, “Life, the Universe, and Everything,” 380.

⁵¹ David Christian, “Creation Myths,” in *Berkshire Encyclopedia of World History*, William McNeill, ed. (Great Barrington, MA: Berkshire, 2005): 452.

⁵² Marnie Hughes-Warrington, (Feb 9, 2005), “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=NvudzeveZXonScxA87Jx2w&user=&pw=>.

either believe it or you don't—it is impervious to proof.”⁵³ Jack Betterly points out the difficulty, even in today's world, of possessing a myth which is in print form, and hundreds of pages long. He suggests oral myths may still be the most accessible. The implication is the strongest vessel for Big History may not be the text, but rather oracular nature of the university lecture hall.⁵⁴

With the Axial Age (roughly 1000 BCE to the first century CE) came the appearance of what historian Arnold Toynbee called universal churches, such as Zoroastrianism, Buddhism, post-Captivity Judaism, and its later offshoots Christianity and Islam.⁵⁵ What made these religious traditions different was their capacity to spread beyond the cultures where they were conceived. Indeed their ability to adapt and co-opt customs of other groups gave these religions a kind of elasticity which could act as a bridge from one culture to another. William McNeill has pointed out this phenomena was in the context of cultural diffusions such as long distance trade, wars/conquest, and migrations. As diverse populations were thrust together Axial Age religions had the effect of producing dynamic change within the civilizations of the Eurasian world. McNeill has called this development part of the global ecumene.⁵⁶ Although it was distinctly different from the highly integrated globalized world of the early twenty-first century, there are nevertheless striking parallels that demonstrate Big History is a more achievable project within the context of greater societal integration. In other words, what the Axial Age produced were more cosmopolitan religious traditions that would generate

⁵³ R. J. Barendse, (Feb 12, 2005), “Authors Forum on *Maps of Time*,” *H-World*, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=T5qz8Tj914dhz447hBT/yg&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=T5qz8Tj914dhz447hBT/yg&user=&pw=)

⁵⁴ Jack Betterly, (Feb 14, 2005), “Authors Forum on *Maps of Time*,” *H-World*, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=FGPq1ByjxXOGuHVsiE8afA&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=FGPq1ByjxXOGuHVsiE8afA&user=&pw=)

⁵⁵ Arnold Toynbee, *A Study of History: Abridgement of Vol. I-VI* (New York: Oxford University Press, 1947), 12-13.

⁵⁶ William McNeill, *The Rise of the West: A History of the Human Community*. (Chicago: University of Chicago Press, 1963, 1991), 316-9.

great influence over the universal histories which followed in their wake. Christian even compares Big History to the Axial Age. He writes “Since the scales our of understanding of the world have expanded, Big History does what Axial Age religions... once did at their own scales.”⁵⁷

The Hebrew Bible and the Beginning of History

According to the Biblical historian Richard Elliot Friedman the idea of a linear model for history begins with the Hebrew Bible. What made the Bible different from other Near Eastern religious texts was that it showed “God was known through His acts in history.” Over a continuous timeline “His relationship with humans” was manifested through various interactions with humankind.⁵⁸ These interactions—a variety of convents—may be considered the mechanisms by which the dynamics of historical change occurs.

In his work *Understanding Genesis*, Nahum M. Sarna has written, “The first eleven chapters of the Book of Genesis constitute a kind of universal history of mankind...”⁵⁹ David Christian has concurred in this, writing “The Christian *Old Testament* is both a history of human beings, and a history of the Hebrew people.”⁶⁰ This universal history then dissolves into to a quasi-national epic of the Patriarchs—but because the Bible maintains the theme of God’s interactions with humanity, this meant the story of the Israelites was the only one with any relevance. This idea is intellectually

⁵⁷ David Christian, (Feb 16, 2005), “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=vPvFcb3ps72NjsEhuMJ%2bsQ&user=&pw=>.

⁵⁸ Friedman, 88.

⁵⁹ Nahum M. Sarna, *Understanding Genesis: The World of the Bible in the Light of History* (New York: Schocken Books, 1966), 67-8.

⁶⁰ David Christian, “Global Histories for a Global World,” in Donald H. McMillen, ed., *Globalisation and Regional Communities: Geoeconomic, Sociocultural and Security Implications for Australia* (Toowoomba, AU: USQ Press, Toowoomba, 1997), 287.

analogous to the scales of Big History shifting from the universe to humanity.

Paul Costello further asserts the importance of the Bible as a form of universal history and its intellectual influence on the Western tradition. He writes

The Bible comprises the first world history in the West... From the Bible arose a belief in a linear movement of time that is the essential prerequisite for any progressive ideology and thus a primary source of the modern Western world view.⁶¹

Historical change thus met the notion of historical progress for the first time and the idea that history was producing something different (and perhaps “better”). Costello further states the “Judeo-Christian tradition emphasizes becoming and historical irreversibility.”⁶² This is the origin of the idea that time is like an arrow and in only one direction. The idea of God’s purpose being revealed to humanity through the course of time exists in the modern world—through its Enlightenment transmutation—that progressive change is simply embedded in history.

The later addition of the Christian New Testament shows history reaching a crescendo with the Incarnation. For the purposes of the Big History project the important supplement is that the New Testament projects historical change into the future. Although the Hebrew Bible did contain prophecy, *The Book of Revelation* (written sometime in the second half of the first century CE) portrays an end to time. This is a development that suggests two further key concepts in Big History: the first is presentism; the second futurology.

The Greek Historiography as Universal History

⁶¹ Paul Costello. *World Historians and Their Goals: Twentieth-Century Answers to Modernism* (DeKalb, Ill: Northern Illinois University Press, 1993), 9.

⁶² *Ibid*, 217.

Other historians have pointed to Greek historiography as the origin for the universal history framework. Bruce Mazlish cites the period of the Ionian Enlightenment and the broadening of Greek interactions with the greater Near East as the catalyst. According to Mazlish, “This genre... emerged around the fifth century B.C., at the beginning of Greek historiography, in the effort to encompass the notable happenings of all the poleis and their neighbors.”⁶³ In this way Greek constructions of universal history are similar in their spatial frameworks to the religious traditions outlined by Rodrigue. However, Rodrigue himself notes the larger importance of the Greek historical project is secularism. He writes that “the first known attempts to develop semi-secular and universal accounts of the world date from Classical antiquity.”⁶⁴ The importance of secularism and the idea of historical change without appeal to a deity would later be subsumed in the Christian universal histories, before reemerging to reverberate in the Enlightenment. Toward this end Collingwood identifies Herodotus (484 BCE to 425 BCE) as the historian chiefly responsible for the identification that history “reveals man as a rational agent.”⁶⁵ We thus have two competing notions of what drives historical change: the God of the Hebrew Bible and the poleis in Greek historiography. The identification of groups of people as collective units is important in subsequent macrohistorical works.

Herodotus’ work also represents universal history in that it brought together a massive amount of information encompassing the totality of contemporary knowledge. Marnie Hughes-Warrington has written, “It is only recently that scholars have begun to

⁶³ Mazlish, 3. This period is also favored by the authors of *The Discovery of Time* (1965) as the origin of linear-cyclical conceptions of history.

⁶⁴ Rodrigue, 33.

⁶⁵ Collingwood, 19.

appreciate fully his remarkable fusion of chronology, ethnology, geography and poetry into a work.”⁶⁶ Benjamin has further stated “Although the principle aim of Herodotus was to write a history of the Greeks, he significantly expanded his scope to include as much of the world that surround Greece as possible.”⁶⁷ Herodotus therefore evinces the same type of concerns as the macrohistorian in that he sought to frame contemporary Greek society in the context of the known world. In reviewing *Maps of Time*, Patrick O’Brien specifically compares Christian to Herodotus.⁶⁸

The deficiency of Herodotus as a universal historian is marked by the Greek-centricity of his writing. Collingwood, for example, notes that Herodotus’ interest in the Persians is more of a storytelling device whereby they serve the role of convenient historical foils for Greeks. Because of this “the idea of oecumenical history, world history, was still non-existent.”⁶⁹ Oswald Spengler elaborated an even greater critique of Greek historiography. While agreeing on the breadth of Greek inquiry over a vast geographic region, Spengler pointed to limitations in the Greek sense of deep time. Spengler believed the histories of the Greeks lacked “the power of surveying the history of centuries.”⁷⁰ In this view the Greek historians are more akin to investigative journalists covering contemporary events than to authors of meta-narratives striving to understanding the profound origin of their society.

The Greek ascendancy in the Mediterranean basin that followed the conquests of Alexander the Great might have facilitated a more cosmopolitan sense of the world.

⁶⁶ Hughes-Warrington, *Fifty Key Thinkers on History*, 156.

⁶⁷ Craig Benjamin, “Beginnings and Endings” in *Palgrave Advances in World Histories*, ed. Marnie Hughes-Warrington (New York: Palgrave Macmillan, 2005), 91.

⁶⁸ Patrick O’Brien, “Methods and Theory,” *American Historical Review*, Vol. 110, No. 3 (June 2005): 752.

⁶⁹ Collingwood, 31.

⁷⁰ Oswald Spengler, *The Decline of the West: Volume One - Form and Actuality* (New York: A Knopf: 1926), 11.

Benjamin points to the Greek historian Diodorus Siculus of Sicily (60 BCE to 30 BCE) as an example of one writer who advocated “recounting the ‘common affairs of the inhabited world’ in a single, coherent, unified narrative.”⁷¹ The fact that Diodorus never completed his *Bibliotheca Historica*—and subsequent Grecco-Roman historians did not follow the approach—speaks to the difficulty inherent in approaching universal history within the limits of the Greek worldview.

Augustine and Christian Universal Histories

The Christian universal histories of the middle ages were in many respects a combination of the Biblical and Greek historiographical traditions. In the aftermath of the adoption of Christianity as the religion of the Roman state, these histories attempted to fuse the “sacred” history of the Bible with the “secular” history of the Mediterranean world. Collingwood identified Eusebius of Caesarea’s (263 CE to 339 CE) *Chronicle* as a history “where all events were brought within a single chronological framework.”⁷² Eusebius wrote two books: the first a timetable of non-Christian sources, and the second a chronology depicting Biblical history. Anthony Grafton notes that early authors, such as Jerome (347 CE to 420 CE), were “troubled” by the apparent chronological contradictions between Biblical events and the Babylonian and Egyptian sources.⁷³

These histories also had clear endpoints—a historical innovation lifted from the Bible. Craig Benjamin writes

⁷¹ Benjamin, “Forum on Big History,” 2009.

⁷² Collingwood, 51.

⁷³ Anthony Grafton, “Dating History: The Renaissance & the Reformation of Chronology,” *Daedalus*, Vol. 132, No. 2 (Spring 2003): 82; Grafton notes Eusebius’ two book structure “paradoxically... laid down the dynamite that would, some centuries later, destroy his creation.” The first book was not initially translated from Latin and had no impact on Christian historiography in the Middle Ages. However, its translation during the Renaissance coupled with the European voyages of exploration, revealed ancient traditions which predated Biblical events, such as Noah’s Flood.

The religiously focused universal histories... were also two-directional, suggesting that human history was not random or chaotic, but headed in a clear direction from a specific beginning of purposeful, directional history had a powerful impact on the question of where such histories should begin and end.⁷⁴

The end of time, like the beginning of time, is another crucial element in Big History. The directionality of history moving toward a singular event in the present or near future would come to influence the historians of the Enlightenment, as well as the systems devised by Marx, Wells, and Spengler. In Big History the singular moment is the discovery of Big History itself in the late twentieth-century and the various implications thereof.

Augustine of Hippo's (354 CE to 430 CE) *City of God* is the outstanding example of these Christian universal histories.⁷⁵ In Brian Shetler's estimation Augustine's breakthrough was to understand time as a closed system. Augustine divided his history into eight periods, of which the fourth century CE was the seventh—to be followed shortly by the Christ's return and a grand finale to human history. Shetler goes on to write that "Augustine's "true" history is distinctly linear" with ejection from paradise at one end, and judgment and return at the other.⁷⁶ This way of thinking about history acts to bookend the creation story found in *Genesis*. It is a view of history that Shetler has compared to a river, writing

The river may then seem endlessly full of repetitions, but that appearance is deceptive. Soon enough we will round the last bend of what seemed an age of an age and enter,

⁷⁴ Benjamin, "Beginnings and Endings," 92.

⁷⁵ Augustine, *City of God*, in *The Great Books* (Chicago: University of Chicago, 1952): 385-618; *City of God* was written between 413 and 426 CE.

⁷⁶ Brian Shetler, "Augustine: The River to Eternity" in *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*, ed. Johan Galtung and Sohail Inayatullah, et al. (Westport, CT: Praeger, 1997), 21-2.

instead of another age, a boundless ocean of eternity.⁷⁷

From an intellectual standpoint it is a concept that parallels the Big Bang/Entropy theory of cosmic evolution.

Several other points in Shetler's study are crucial for the concept of Big History. "For Augustine," writes Shetler "history as cyclical events is only an appearance created by our confined existence."⁷⁸ Shelter believes Augustine expanded the human comprehension of the historical timescale. In other words, the briefness of the average human lifespan—more acute in Augustine's day than the early twenty-first century—creates a natural impression that history operates on the scale of decades or perhaps a century. But true history—history on God's "timescale"—is measured in millennia. This is an earlier intellectual incarnation of Braudel's concept of the *longue durée*. Thus Augustine added to the Greek notion of scale across geographic space with scale across time.

A new macrohistorical theme is also evident in Augustine. Historical periods of perceived decline are fertile terrain for universal historians. Augustine was writing at a time of chaos and deterioration in the Roman state, and scholars believe this atmosphere may have driven his desire to look beyond the terrors of the present to the paradise toward which history inexorably led, just beyond the horizon.⁷⁹ Medieval historians continued to follow in the tradition of Augustine and put forward universal histories which "proved" the historical truth of Christian theology. Augustine's connection of time and eschatology remains a potent intellectual force in macrohistories.

⁷⁷ Ibid, 22.

⁷⁸ Ibid, 22.

⁷⁹ Leo C. Ferrari, "Background to Augustine's *City of God*," *The Classical Journal*, Vol. 67, No. 3, (1972): 206-208.

Ibn Khaldun and Universal Sociology

A millennium after Augustine, Ibn Khaldun (1332 to 1406 CE) produced his *Muqaddimah*.⁸⁰ Khaldun was writing in the same part of the world as Augustine (North Africa) and under similar geo-politically crumbling circumstances. He was born in Tunis to an upper class family with ties to Islamic Spain. In his teenage years, Khaldun's immediate family perished in an epidemic that was likely bubonic plague and the event affected his view of urban life ways. Following a classical Islamic education, which included studying Greek historiography, Khaldun worked for a variety for government postings throughout North Africa and in Granada. His familiarity with municipal corruption and inefficiencies would also come to influence the history he formulated.⁸¹

Khaldun's work was meant to address the rise and fall of Islamic dynasties in the midst of political disintegrations in the fourteenth century. A decidedly non-linear presentation of history, *The Muqaddimah* is instead a compendium of knowledge presented as a kind of proto-sociology. Hughes-Warrington has written that it

went further than his predecessors in showing, through appeal to the ideas of economics, geography, demography, military strategy and tactics, why many historical accounts were inadequate.⁸²

Khaldun's work certainly qualifies him as a macrohistorian and also represents a critique of the failures of prevailing Islamic scholarship to offer a unified framework of historical knowledge. This same displeasure with the limits of existing scholarly frameworks is echoed in many subsequent macrohistories. These works are often jeremiads against the

⁸⁰ *The Muqaddimah* was finished in approximately 1377 CE.

⁸¹ Dale, 433-5.

⁸² Hughes-Warrington, *Fifty Key Thinkers on History*, 173.

intellectual elite.

The Muqaddimah describes the structures of human society, focusing on patterns of rural and urban life. Khaldun analyzed cycles of growth and decay using the family (dynasty) as a unit of historical study. The stages he identified were “primitivism, civilization, kingship and absolute power, leisure and functional economic relations, disintegration, and primitivism again.”⁸³ In addition, Khaldun also examined the impact of climate and geography on human social organization and practices. Among other things, Khaldun hypothesized that the phenomenon of urbanization spread disease more virulently than among rural populations. According to Craig Benjamin, in this way Khaldun “looked to the natural world and its relationship with human origins” more deeply than previous universal historians.⁸⁴ Khaldun thus added an element of naturalism to historiography not seen since the Greeks.

Khaldun was ultimately a pessimist regarding the notion that economic and social development represented any kind of progressive step for humanity—though it is important to note that unlike the Greeks he did not believe history was decaying from some long past golden age.⁸⁵ His work was unknown to Europe until it was introduced in the nineteenth-century.⁸⁶ Subsequent translations would influence a number of historians and sociologists, most notably Arnold Toynbee.⁸⁷

⁸³ Sohail Inayatullah, “Ibn Khaldun: The Strengthening and Weakening of Asabiya,” in *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*, ed. Johan Galtung and Sohail Inayatullah, ed al. (Westport, Conn: Praeger, 1997), 26-9.

⁸⁴ Benjamin, “Beginnings and Endings,” 94.

⁸⁵ Inayatullah, 25.

⁸⁶ Dale, 441-6. Khaldun’s impact on the *Annales* is expanded in greater depth—notwithstanding the fact that much of Khaldun’s work seemed to prefigure nineteenth-century European intellectual thought regarding sociology and economics.

⁸⁷ Toynbee, 172. In *A Study of History* Toynbee refers to Khaldun as “great” and expands on his notion of dynastic cycles to explain the growth and decay of civilizations.

Early Modern Universal Histories

The European voyages of exploration of the sixteenth-century had a profound effect on the trajectory of European historical thinking. European intellectuals saw the material changes in European life after 1500, as well as Europe's changing geopolitical influence—in contrast to the much more static pace of life during the middle ages—and concluded history was surely changing for the better. David Christian has written that in the period of European exploration and colonization—and the formation of what Immanuel Wallerstein came to call the modern-world system—Europe became a kind of “clearing house” for all the products of the world, both material and intellectual.⁸⁸ Rodrigue insists that “What made this Western worldview more comprehensive, and therefore more effective, was that it incorporated a wider range of materials, as a result of imperial expansion.”⁸⁹ These products included new ideas and observations of the world that challenged previously held conceptions. This was at the same time Copernicus and Newton were likewise challenging the long-held Greek worldviews regarding the place of the earth in the cosmos and the laws which governed the natural world.

The European encounters with peoples and phenomena outside the experience of Biblical or Greek historiography therefore presented a challenge to the medieval Christian conception of the universe.⁹⁰ For many intellectuals the Augustinian paradigm of history unfolding according to Christian eschatology became untenable. One example of a new kind of universal history was Jean Bodin's *Method for the Easy Comprehension*

⁸⁸ Christian, *Maps of Time*, 364.

⁸⁹ Rodrigue, 36. One notable exception was Jacques-Benigne Bossuet's *Discourse on Universal History* (1681) which reaffirmed a basic framework for history that could still be derived from the Biblical narrative when paired with secular history.

⁹⁰ For precise examples see Grafton's “Dating History.”

of History (1566). Patrick Manning writes “Bodin’s vision of the past challenged the common belief of medieval writers that humankind was degenerating from its earlier golden era.”⁹¹ Bodin’s history depicted a humanity (that is Europe) on the ascent and showed continuous progress in both spiritual and material development. This was no attempt to escape the wheel of history.

At the same time Giambattista Vico was composing his *Scienza Nuova* (1752). Vico’s treatise “attempted to establish a method of encompassing natural and human sciences.”⁹² Marnie Hughes-Warrington has noted Vico’s book illustrates the Big History belief that “if students were educated in all forms of knowledge” they would in some sense have lived “the whole of the past.” In this way Vico believed by absorbing information about the past, individuals could in some sense escape its long-term trends. The underlying rationale is very much the same as Khaldun’s attempt to merge various schools of thought in order to gain the requisite amount of knowledge required to make decisions concerning the future. This stress on the importance an individual mastering the breadth of available knowledge resonates in one of the underlying rationale for Big History. This consilient belief in the breadth of knowledge goes back to John Mears 1986 proposal for an “evolutionary approach” to education.

The structure of Vico’s history is also quite similar to Khaldun’s cyclical schema. He periodized both Greek and contemporary eighteenth-century history into three ages: *poetic*, *heroic*, and *human*. In the final stage, people become “rational,” cease to believe in their religion. They fall into the “barbarism of reflection” in which “people seek to

⁹¹ Patrick Manning, *Navigating World History: Historians Create a Global Past* (New York: Palgrave Macmillan, 2003), 19-21.

⁹² *Ibid.*, 21.

recapture belief through mythic consciousness.”⁹³ This assertion is an uncanny reflection of the Big History emphasis on creation myths as a means to compete with the perceived threat of religious fundamentalism and/or general disillusionment in the early twenty first century. Collingwood stresses that in Vico’s view “the cyclical law does not permit us to forecast the future” because each new age brings with it different properties—such as paganism in the Greek world and Christianity in the medieval/early modern period. But Christianity elevated European society over the Greek.⁹⁴ Vico’s historical directionality was thus progressive, but with a darker edge, proffering a warning for people of his own age about their likely decline.

The Enlightenment and Philosophy of History

The trajectory of universal history continued to change during the Enlightenment. Collingwood writes that the historiography of the Enlightenment “took over the conception of historical research which had been devised by the Church historians” and dislodged it from Christian theology.⁹⁵ For the first time since the Greeks the historical model became secular. “For Enlightenment historians,” writes Craig Benjamin, “like Voltaire and Condorcet, the universal narrative was progressive and culminated in the triumph of civilization and reason” in their own time period.⁹⁶ In the view of Enlightenment historians the direction of history moved in a completely linear fashion, but instead of being propelled by the interactions between God and humanity, history was now the story of humanity’s unfolding enlightenment. In reflecting on Big History, Jack

⁹³ Hughes-Warrington, *Fifty Key Thinkers on History*, 339-40.

⁹⁴ Collingwood, 68.

⁹⁵ *Ibid.*, 81.

⁹⁶ Benjamin, “Forum on Big History,” 2009.

Betterly specifically compared it to secularized Enlightenment accounts.⁹⁷

Since this enlightenment was a continuing process, the natural conclusion for intellectuals and historians was that the eighteenth century must be an inherently special age. This way of thinking reflected a kind of secular teleological belief in the preeminence of the present. The significance of Christ's incarnation as the fulcrum of history was replaced with the incarnation of humankind's knowledge of itself. This is an intellectual tradition that the present age (whenever that age may be) is typified by humankind's sudden discovery of how the universe actually works and has carried over into the scientific meta-narratives and into Big History.

One of the primary examples of universal history in the Enlightenment is the work of Voltaire (1694 to 1778). Patrick Manning notes that much of Voltaire's writing, from his *The Age of Louis XIV* to *Candide*, is concerned with building a system of knowledge in order to combat the militarism of Louis XIV. In this way Enlightenment historian Peter Gay writes "history became not past, but present politics."⁹⁸ Here we can see how a presentist concern—war and peace—can influence a historian's interpretation of history. Gay concludes Enlightenment historians "looked into the past as into a mirror and extracted from their history the past they could use."⁹⁹ In this regard Voltaire's modern successor as a cosmopolitan historian is H.G. Wells and modern Big History.

A parallel example of an Enlightenment attempt at the unity of knowledge is Denis Diderot's (1713 to 1784) *Encyclopédie*. In his biography of Diderot, F.N. Furbank explains the project was designed to be a system of organization based upon memory,

⁹⁷ Betterly, "Authors Forum on *Maps of Time*," 2005.

⁹⁸ Peter Gay, *The Enlightenment: An Interpretation – The Rise of Modern Paganism* (New York: Alfred Knopf, 1966), 31.

⁹⁹ *Ibid*, 32.

reason, and imagination which corresponded with “three great branches of knowledge, History, Philosophy, and Poetry.”¹⁰⁰ A number of intellectuals were invited to contribute to the book’s content, including Rousseau and Voltaire. The end result, writes Furbank, was to “be an engine of research and a stimulus to invention. By its up-to-date account of the state of knowledge in all its various departments, it should prevent scientists and scholars from wasting their time...” No longer would a researcher needlessly study a subject when an entry in the *Encyclopédie* could easily explain it.

There is also a distinctive cosmopolitan ethos in Enlightenment histories. Barry Rodrigue stresses the Enlightenment project as the genesis of human rights, concluding “the discussion of universal processes had let the genie out of the bottle and a popular discussion of wider human rights ensued.”¹⁰¹ This theme of universal human rights is a reflection of the transnational point-of-view which typifies modern world history and Big History. This is also the beginning of the Copernican-like effort to decenter Europe from history (through a thoroughly European model).

Immanuel Kant’s contribution to the philosophy of history is also critical.¹⁰² According to Collingwood, the appeal of Kant’s ideas lay in the promotion of a kind of non-religious eschatology, one which looked “forward to a time when man shall become rational.”¹⁰³ Kant believed there are two types of historians: empirical historians who, to quote Marnie Hughes-Warrington, “draw their conclusions from the evidence they have found” and rational historians who “try to find an intelligible pattern in the apparently

¹⁰⁰ P.N. Furbank, *Diderot: A Critical Biography* (New York: Alfred Knopf, 1992), 36-7.

¹⁰¹ Rodrigue, 37.

¹⁰² Immanuel Kant, “Idea for a Universal History with a Cosmopolitan Purpose” in *The Great Books of the Western World, Vol. 42 – Kant*, Robert Hutchins, ed. (Chicago: University of Chicago Press, 1952), 242-55.

¹⁰³ Collingwood, 102.

chaotic human past.”¹⁰⁴ This is another example of the ideal macrohistorian and Kant placed himself within the later group. Toward this end Fred Spier writes “Kant promoted the idea of universal history... solely based on natural explanations, although with a teleological slant.”¹⁰⁵ The patterns of history reveal not the will of God, but rather the rational human mind exploring the natural world. This view is echoed in Christian’s assertion that humanity in Big History represents “the eyes and ears of the universe.”¹⁰⁶

Hegel took the theme of advancement even further in his conception that “a universal history of mankind... will exhibit a progress from primitive times to the civilization of to-day. The plot of this story is the development of freedom.” Hegel’s new framework for understanding change revolved around a periodization demonstrating increasing levels of human freedom. This idea of ever expanding liberty is one of the cornerstones of progressive histories of West and directly influenced the Western Civilization framework in the twentieth-century. However, Hegel also insisted “nature and history are different things” because “nature has no history. The processes of nature are cyclical.”¹⁰⁷ The separation of nature (and science) from history—in contrast to Vico’s earlier work—would prove to have a profound effect on historiography in the nineteenth-century. So would the predictive power of history, because for both Kant and Hegel history terminated in the present. Collingwood summarizes this view by explaining “the historian has no knowledge of the future; what documents, what evidence, has he from which to ascertain facts that have not yet happened?”¹⁰⁸ Though Kant and Hegel

¹⁰⁴ Hughes-Warrington, *Fifty Key Thinkers on History*, 180.

¹⁰⁵ Spier, *Big History and the Future of Humanity*, 13.

¹⁰⁶ David Christian, “Lecture 48: Big History—Humans in the Cosmos,” recorded in *Big History: The Big Bang, Life on Earth, and the Rise of Humanity*. Chantilly, VA: Teaching Co., (2008).

¹⁰⁷ Hughes-Warrington, *Fifty Key Thinkers on History*, 114.

¹⁰⁸ Collingwood, 273.

both advocated universal history, they worked to curtail both the spatial and temporal scope of history, as well as the nature of the sources that can be applied to its study.

In terms of scale Craig Benjamin takes this point even further, writing that both Kant and Hegel were “restrictive, showing an interest in human activities only when rationality began to emerge... they saw rationality as an exclusively Western activity.”¹⁰⁹ The Enlightenment historians thus limited the historical timescale to “civilized” Europeans. Those outside this sphere Hegel labeled “peoples without history.” This way of thinking simultaneously paved the way for naturalist inquiries *and* nationalist political movements. But it also worked to limit the scope of historical inquiry and laid the foundations for the collapse of the universal history project as the nineteenth-century unfolded.

Marx, Ranke, and the Nineteenth-Century

Historical inquiry would change radically in the nineteenth century, leading to a thorough bifurcation of the discipline in the twentieth. Universal history as the preeminent model for historical inquiry began to disintegrate. A notable attempt to continue the universal history project, and wed it to contemporary science—Bodin *redux*—can be found in Gustavus George Zerffi’s speech to the Royal Society in 1874. Zerffi describes the objective of the universal model. In it the historian “traces the combination of all human knowledge... subject to God’s eternal laws, in order to bring about a perfect balance between our moral and intellectual nature.”¹¹⁰ Such a framework became rapidly unworkable, however, under the mass of new information and torrent of

¹⁰⁹ Benjamin, “Beginnings and Endings,” 98.

¹¹⁰ Gustavus George Zerffi, “On the Possibility of a Strictly Scientific Treatment of Universal History,” *Transactions of the Royal Society*, Vol. 3 (1874): 394.

change that typified the nineteenth century. It was as though the steady trickle of knowledge in the early modern period had become an avalanche of information.

Karl Marx was responsible for the most systematic and prominent historical model of the century. Eric Wolf specifies Marx “was neither a universal historian nor a historian of events, but a historian of configurations or syndromes of material relationships.”¹¹¹ Patrick Manning continues “The strength of his work was its emphasis on tracing long-term change and then anticipating its direction.” In other words, Marx was a macrohistorian looking at patterns in human history on a grand scale in order that he might project the future trajectory of historical development. As such, Marx was similar to Ibn Khaldun as an interpreter of the factors that led to the contemporary world, though lacking in Khaldun’s naturalism. Marx view of history is both linear and cyclical, depicting historical change through various periods of economic interactions between societal hierarchies of elites and non-elites. The change in European society wrought by industrialization influenced Marx to view his era as the most important in history—just as Enlightenment historians elevated their own time period.¹¹² But it would herald a definitive economic eschatology—similar to Augustine’s end time—that would conclude historical change.

In commenting on *Maps of Time*, Boris Stremelin also notes this aspect in secular universal histories. Stremelin points out what he sees as the contradiction of “writers who proclaimed their work as ‘scientific’” like Marx, but “incorporated teleology into their vision of history...”¹¹³ Critics have pointed to Christian’s version of Big History as to

¹¹¹ Eric Wolf, *Europe and the People Without History* (Berkeley, CA: University of California Press, 1982), 21.

¹¹² Collingwood, 123. He criticizes Marx for the economic determinism in his history.

¹¹³ Boris Stremelin, (Feb. 15, 2005), “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi->

reliant on Marx. In its review of *Maps of Time*, the San Francisco Chronicle criticized the “overuse” of Marxist terminology.¹¹⁴ Meanwhile Spier’s *The Structure of Big History* (1996) was also compared to Marx’s work by Jon Turney. Turney wrote that *Structure* makes “Marx look like a miniaturist” in comparison.¹¹⁵

The celebrated German historian Leopold von Ranke made an equally important contribution by professionalizing historical methods. While Marx was busy systematizing the relationship between labor and capital—and predicting what he saw as the inevitable historical dialectic—Ranke developed a system of historical inquiry built around the nation state as a unit of research. Manning writes that Ranke’s work “was not a science of the past, but an effort to recover the essence of each past time through meticulous analysis of available documents.”¹¹⁶ For the first time in historiography sources became crucial in the crafting of histories. However this paradigm of history based a rigorous textual analysis would also help to kill off grand scale speculation. In *That Noble Dream*, Peter Novick elaborates on the importance of Ranke’s model.

Ranke’s reputation as an unphilosophical empiricist underwrote an already existing American predisposition to disparage philosophical speculation about history; and this, in turn, served to perpetuate the reputation. “Philosophy of history,” until well into the twentieth century, almost always meant grand speculative interpretative schemes rather than the analysis of historical epistemology. The repudiation of “philosophy of history” in this contemporary usage was inseparable from the establishment of the new historical scholarship, in the United States as in Europe. But American hostility to “speculative” philosophy of history quickly extended to any philosophical questioning

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¹¹⁴ Ian Garrick Mason, “Review of *Maps of Time*” in the *San Francisco Chronicle* (Feb. 1, 2004).

<http://www3.sympatico.ca/ian.g.mason/DavidChristian.htm>.

¹¹⁵ Jon Turney, “A Brief History of History,” *New Scientist* (Oct. 1997).

<http://www.newscientist.com/article/mg15621026.300-review--a-brief-history-of-history.html>.

¹¹⁶ Manning, 25.

of the self-evident dogmas of empiricism; indeed, to what one can hardly avoid terming “logophobia.”¹¹⁷

This passage works to highlight difference between European and American cultures of historicism. It is a prime example of why universal history never really developed in the United States to that point. Yet half a century later world history and Big History owe their birth in large part to American scholarship.¹¹⁸

Ranke’s insistence on empirical and archival research had the effect of limiting the scope of history to humans. This view of history has its apotheosis in Collingwood’s declaration that “there is no history except the history of... rational life, the life of thinking beings.”¹¹⁹ Archival sources also validated Hegel’s presumption that only those societies with writing could possess true history. The beginning of history therefore began not with an act of God or man in a state of nature, but with the appearance of writing. This view that history coincides with the appearance of cuneiform writing in Sumeria remains embedded in the framework of world history.¹²⁰

Neither Marx’s materialism nor Ranke’s textualism could be synthesized into a new universal history model. Rodrigue notes

German historians Leopold von Ranke and Karl Marx both modernized historical studies and sought to develop global paradigms in the mid-19th century, but their interpretations fell on either side of this political divide. Ranke’s work supported Christian and European imperial regimes, while

¹¹⁷ Novick, 30.

¹¹⁸ The question as to why this change took place is complex and somewhat beyond the scope of this thesis. Let me suggest that changing geo-political status of the United States and the influx of diverse immigrants in the course of the twentieth century had much to do with the changing outlook of American academics.

¹¹⁹ Collingwood, 115.

¹²⁰ Dan Smail, “In the Grip of Sacred History” *American Historical Review*, Vo. 110, No. 5 (Dec. 2005), 1338. Ironically, the historian Dan Smail noted that the replacement of the Biblical Eden with historical Sumer is not a coincidence. Smail writes “the narrative of Western Civilization... has not fully escaped the chronological and geographical grip of sacred history.”

Marx's work engaged secular reformers.¹²¹

The division between the Marxians and Rankians illustrates one reason why the universal history project finally fell apart in the nineteenth century as academic disciplines began to divide. But the seepage of contemporary political ideology into history remains a salient point into the twenty-first century.

Fred Spier goes even further, noting that the second half of the nineteenth-century was when

The academic world was busy splitting up into clearly demarcated disciplines, while historians were oblivious to any attempts to place humans within a wider terrestrial or cosmic context, focused as they were on constructing patriotic histories and civilization trajectories.¹²²

In other words, the diversity of new ideas in the Western world had created a diversity of new disciplines. As such the singular historical philosophy presented in universal histories was no longer tenable. Rodrigue notes that

by the century's end, specialization had developed. Those subjects that had been united under the broad category of "philosophy" bifurcated into natural science and humanities, which in turn subdivided into disciplines like physics and literature. History, anthropology and other new "social sciences" developed.¹²³

In this sense the universal history project faded in the nineteenth-century because it was no longer possible to advance a coherent worldview in the face of so much accelerated change and freshly accumulated knowledge. The post-Rankean emphasis on research has lost, in Christian's words, any sense of larger meaning of history in "the details."¹²⁴ The

¹²¹ Rodrigue, 37.

¹²² Spier, *Big History and the Future of Humanity*, 13.

¹²³ Rodrigue, 38.

¹²⁴ Christian, "The Case for 'Big History'," 238.

sheer amount of information a single individual needed to master became (and remains) a chief obstacle in Big History. This issue of consilience will be revisited in the conclusion. But the salient point for Big History, both as a historical and intellectual movement, is that it does represent one an attempt by a twenty-first century society to process and make coherent the torrent of new information that overwhelmed historians in the nineteenth century.

Well's *Outline* and the Pursuit of Peace

H.G. Wells' (1866 to 1946) *Outline of History* (1920) takes on the historiographical dimensions of a whale beached on the shores of the twentieth-century.¹²⁵ It represents the last gasp of the universal history model with an obvious teleological slant, in this case an evolutionary approach which emphasized human history as the narrative of increasing global unification. Wells is most famous today for his science fiction and many of Wells works of fiction were thinly veiled metaphors for issues in contemporary European society. *The War of the Worlds* (1898), for example, is a parable for European imperialism; *The Time Machine* (1895) references capitalism and the struggle between workers (the Morlocks) and the bourgeois (the Eloi).¹²⁶ It may therefore surprise readers to learn that in his own time *The Outline of History* was his most widely known and best selling book.¹²⁷

¹²⁵ There were numerous printings of *Outline* between 1920 and 1971. They contained small revisions by Wells and his collaborators. My thesis refers to the 1949 printing. See William T. Ross, *H.G. Wells World Reborn: The Outline of History and Its Companions* (London: Associated University Presses, 2002), 16-17.

¹²⁶ There is a striking parallel to Big History in the brief scene where the Time Traveler goes further into the future. He arrives in a period when humanity has gone extinct and the sun appears ready to engulf the earth. This framing allows Wells to demonstrate the issues of the present (and future) human world will not matter in the greater scheme of history. Wells readapts this scene to form his historical endpoint in *Outline*. Wells, in fact, points out early in his book that the Second Law of Thermodynamics seals mankind's fate with the entropy of the cosmos. In this regard Wells' conclusion bears a rough similarity to the heat death of the universe as conceived by modern cosmologists and adopted by Big History.

¹²⁷ *Ibid*, 13.

Wells had a working class background, but was able to attend the Normal School of Science in London and was consequently influenced by the lectures of T.H Huxley. He flirted with the Fabian socialist movement early in his career, but later became a critic of their practices. Although socialism remained an influential aspect of his approach to internationalism, Wells never devoted himself to one political order and concentrated on his own self-promotion to gain political sway.

According to Paul Costello, the directionality of Wells' *Outline* depicted the growth of civilization through a "Freudian" childhood, followed by the Greco-Hebrew breakthrough of "self-knowledge and the community as a rational inquiry into right living."¹²⁸ In this sense, the dimensions of Wells' historical framework emerged from Kant and Hegel, elevating the Western Tradition above all others. This aspect of the book is revealed in the introduction where Wells mentions he had originally "contemplated a general review of European unity" but abandoned it because he could find no real beginning for such a history.¹²⁹ He does, however, make an explicit attempt to incorporate the histories of non-Europeans into his work—even as he considers those histories of lesser importance to the modern world than the history of the West.¹³⁰ This made *Outline* an incrementally more international effort at world history than the Enlightenment histories.

Outline was rushed into publication immediately following the end of the First World War as part of Wells' effort to place himself at the forefront in building the

¹²⁸ Costello, 36-7.

¹²⁹ Arnold Toynbee attempts a similar exercise in *A Study of History*. He struggles to frame a history of Great Britain without reference to the rest of Europe. Failing to do so, he concludes any history of Britain must also be a history of Western civilization. David Christian likewise repeats this in his article "The Case for 'Big History'" but on a larger scale.

¹³⁰ H.G. Wells, *The Outline of History: Being a Plain History of Life and Mankind* (Garden City, NY: Garden City Books, 1922, Reprinted in 1949), 3-4.

League of Nations and organizing international conferences on disarmament. In his introduction, Wells writes of the “many reasons to move a writer to attempt a World History in 1918. It was the last, the weariest, most disillusioned year of the Great War.”¹³¹ This disillusionment with the prevailing and seemingly deteriorating political order led Wells to conclude that the only solution to lasting peace lay in the pursuit of what Paul Costello has called “the present evolutionary task of world unification.”¹³² Wells’ history of humanity demonstrates time and again unification is thwarted by failed leaders (Alexander and Napoleon) or anecdotal quirks (the assassination of Caesar). William T. Ross identifies Wells writing style as drowning in “historical detail” but unable to adequately reinforce his thesis. “At times the world is ready for unity, but always there is something fundamentally wrong that keeps unity from occurring.” Wells’ book, Ross believes, fails to demonstrate global unification through history and the objective remains merely a political ideal.¹³³ This relates to Don Johnson’s comments on Big History’s proposed cosmopolitanism. Johnson writes “We must also ask if the urge to see humanity as a single whole is a state more to be hope for than an actual explanation of the great diversity of groups around the world.”¹³⁴

Toward this present goal, Wells held hopes his universal history would become something of a modern-day Bible for the whole of humanity. This is ambition many of the scientific meta-narratives in chapter three express without making the cause so overtly explicit. The self-regard with which Wells greeted the commercial success of *Outline* is also illuminating. On reader’s reaction to the book, Wells wrote that “a great

¹³¹ Ibid, 1.

¹³² Costello, 24.

¹³³ Ross, 51-6.

¹³⁴ Don Johnson, (Feb 14, 2005), “Author’s Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=Z6qDBfgyC1db/RBMAj9gdQ&user=&pw=>.

and yet disorganized multitude capable of a modern ideology and needing only to be drawn together by a common system of knowledge and understanding” was transformed by the influence of *Outline* “to become a dominating influence in the reconstruction in human affairs.”¹³⁵ Wells estimation of the overall worth and influence of his work was great indeed!

Costello infers from Wells’ other writings that he had much the same view as Enlightenment historians in terms of locating the apex of historical development in his own era. Thematically, Costello believes *Outline* is roughly similar to Wells’ previous apocalyptic efforts in science fiction, stating that narrative leads to “the cataclysm” which “when surpassed, leads to a utopian denouement.”¹³⁶ In other words, Wells forced down the basic messages contained in his novels onto his history. He was clinging to the belief that the First World War was merely the catastrophic catalyst necessary to initiate the coming age of global unity, in the same way Karl Marx saw industrialization as heralding the coming historical dialect.¹³⁷ This contemporary political agenda is roughly analogous to the relationship between Big History and the cosmopolitan ideal of transnationalism as it relates to a global environmental movement in early twenty-first century.

One of the most fascinating aspects of Wells’ work comes in the introduction, “The Story and Aim of the Outline of History.” Here Wells sketches the underlying rationale for his universal history, which anticipates many of the same arguments made by the Big Historians nearly a century later. Besides the cosmopolitan outlook he tries to push, Wells also criticizes the nationalist histories that prevailed before the war, blaming

¹³⁵ Wells, 12.

¹³⁶ Costello, 34.

¹³⁷ Or for a more recent example, Francis Fukuyama’s assertion that the end of Cold War meant the historical triumph of liberal democratic governments and capitalist economies.

“nationalist blinkers” for contributing to both the outbreak of the conflict and its escalation. Wells’ book is also an overall critique of the existing system of education, which he finds both limiting and forgettable, particularly in the face of the enormous amount of new scientific information available in the early twentieth-century.¹³⁸ He thus suggests his work is also an effort to unify new found knowledge.

Wells even tries to preempt his critics by declaring himself to be an amateur and “sufficiently superficial” in his approach. Wells considered this declaration enough to inoculate him from professional critics. In a post on the H-World forum discussing *Maps of Time*, David Christian echoes Wells assertion, declaring the big questions in Big History are indeed “naïve” and that this is a scholarly innocence worth embracing.¹³⁹ Additionally Wells adds “The *Outline* is a book of to-day—with no pretension to immortality.”¹⁴⁰ This admission that his history was merely a contemporary work and may someday be superseded is something new to universal histories. Wells history is not laid down in stone, unlike Augustine or Marx (or as we shall see Spengler and Toynbee).

Wells was also operating under the Rankean tradition of proposed objectivity, and wrote that he “was not even obliged to pretend to original discoveries or original points of view” and “has added nothing to history.”¹⁴¹ All Wells believed he was really doing different was arranging established facts in a chronological order.¹⁴² Once this was done, Wells believed the pacifistic, cosmopolitan history illustrated in his book would be objectively evident. After all, he was merely writing history of what had happened. This

¹³⁸ Wells, 2.

¹³⁹ David Christian (Feb. 18 2005) “Authors forum on *Maps of Time*” *H-World*, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=13t11LUHSmkxVMynPHnPIA&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=13t11LUHSmkxVMynPHnPIA&user=&pw=)

¹⁴⁰ Wells, 6.

¹⁴¹ *Ibid*, 5.

¹⁴² Ross, 43; In fact the 1920 edition of *Outline* contained footnotes by Wells’ contributors directly challenging some of his points. These were deleted in subsequent printings.

is also similar to the consensus motif of the Christian universal histories and the modern scientific narratives based on established paradigms.

An important divergence between *Outline* and Big History is in Wells' concept of humanity's relationship to nature. Wells believed humankind should seek to dominate and exploit natural resources under the efficient management of a world government. Although this is the polar opposite view of the modern environmental historiography, Wells maintains the same solution. In his view, dominance over nature was central to the long term survival of the human race. *Outline* is also surprising in the way the narrative starts, not with the beginning of time as one might expect. Rather it opens with the discovery of time, as he acknowledges the crucial scientific discoveries that made his work possible. Wells writes "In the last few hundred years there has been an extraordinary enlargement of men's ideas about the visible universe."¹⁴³ Later Wells even critiques the professional reliance on written sources when he declares rocks to be the "first historical documents."¹⁴⁴

Fred Spier points out a specific conceptual problem many scholars had with Wells book was the fact that he gave time a beginning. Wells writes "Two hundred years ago the imagination of our race had a background of six thousand years. Now that curtain has risen... and men look back to a past of scores and hundreds of millions of years."¹⁴⁵ At the time Wells wrote his *Outline* most scholars considered the universe to have existed forever and this is the reason his history focuses so heavily on the Earth and humanity.¹⁴⁶ Many reviewers thus had difficulty coupling Wells' historicization of prehistory. Indeed,

¹⁴³ Ibid, 15.

¹⁴⁴ Ibid, 26.

¹⁴⁵ Ibid, 18.

¹⁴⁶ Spier, *Big History and the Future of Humanity*, 14-15.

William T. Ross writes “it does not follow—and is certainly not established in the text—that all this prehistory or natural history is pertinent to the history of human associations.” Wells’ narrative failed to make the connections necessary across historical scales. But it is important to realize that Wells also identified that history does possess scales and he began the process of historicizing time before civilizations (written documents), but the coherence of this effort is open to question. Intellectually, Wells recaptured the Augustinian notion of beginnings and wedded it to post-Enlightenment sensibilities.

There are many more striking parallels between Wells efforts and those that followed. Costello has identified similarities between *Outline* and William McNeill’s *The Rise of the West*. He writes that both offer a progressive development of whole of humankind, human and environmental ecology, cultural diffusion, “rapid development of technology, a change in economic scale, and a corresponding growth of governmental organization in response.”¹⁴⁷ Wells wrote of human institutions, “they are changing now more rapidly that they have ever done before” and in this sense he seems to anticipate complexity theory in Big History.¹⁴⁸ These are themes that dominate McNeill’s work, in particular his *The Pursuit of Power* (1984). McNeill, however, has not acknowledged the contribution of Wells in any of his works, so the parallels may be purely coincidental—an intellectual co-evolution.

As a popular historical work *Outline* has rarely been exceeded. It sold a million copies by 1931 and another million to the end of the twentieth-century. Costello has called to it as the most popular work of history in the first half of the twentieth century.¹⁴⁹

¹⁴⁷ Costello, 44.

¹⁴⁸ Wells, 6.

¹⁴⁹ Costello 44.

Outline led to several commercial knock-offs: notable examples were Clement Wood's *The Outline of Man's Knowledge* (1927), *The New Universe* (1926) by Baker Brownell, and Wells' own follow-ups, *The Work, Wealth, and Happiness of Mankind* (1931) and *The Science of Life* (1934). Most of these works were simple overviews of knowledge containing no central organizing principles. *Outline*, meanwhile, found a chilly reception among professional historians. Here Wells' effort at a grand synthesis was seen as an amateurish affront to document-based history.

John Mears claims the seeds for his "interest in big history" came from reading *Outline* during his teenage years. "When I made a commitment to the discipline... I immediately read H.G. Well's *Outline of History* cover to cover and was enthralled by the sweep of Wells' vision."¹⁵⁰ Spier Cites Wells *Outline* as the first Big History to attempt a fusion of scientific information on origins with human history.¹⁵¹ Jonathon Markley has pointed to both *Outline* and Well's science-fiction as influencing him to become a Big historian. "In this sense, a background in science-fiction is probably more helpful than traditional historical training, because it helps the scholar step away from the anthropocentric arrogance that dominates our puny view of the universe."¹⁵²

Conclusions

Several key issues were explored in this chapter, foremost among them directionality in history. First was the cyclical concept of historical change as represented in Near Eastern religious practices, the historio-sociology of Ibn Khaldun, and to some

¹⁵⁰ John Mears, "Connections and Continuities: Integrating World History into Large Analytical Framework," *Historically Speaking*, Vol. VI, Iss. 5 (May-June 2005): 34.

¹⁵¹ Fred Spier, "The Ghost of Big History is Roaming the Earth!" *History and Theory*, Vol. 44, (May 2005): 254.

¹⁵² Jonathon Markley, "'A child said, 'What is the grass?'" Reflections on the Big History of the *Poaceae*." *World History Connected*, Vo. 6, No. 3 (October 2009), <http://worldhistoryconnected.press.illinois.edu/6.3/markley.html>.

extent Vico. These traditions had their origins in the context of patterns in nature, such as the seasons, and depicted a semi-static view of historical change. Next were the linear and progressive historical frameworks, with defined beginnings and endings; the Hebrew and Christian Bibles, the medieval universal histories, and later the Enlightenment histories. The mechanism for historical change passed from the divine to the rational (or the spirit of humanity) and finally to the economic determinism of Marx's history. But the end result was the same vision of history ending with a singular event. Finally there was the understanding of history driven by humankind itself. The origins of this humanistic history had roots Greek historiography, found new expression in the early modern period, and again in the Enlightenment (before being subsumed in the narrative of freedom), and finally in Wells' *Outline*. Therein contemporary humankind became responsible historical agents in the quest for global cosmopolitanism.

The literature on Big History's origins shows its associations with universal history are mostly thematic. Both the Big historians and the critics reference universal history to prove opposing points about the relevance of totality in history. Boris Stremelin points to a common accusation within historiography that older or newer fields are not really history, writing "Each new idea of history has always been accompanied by charges that older (or other) variants are not history at all."¹⁵³ In this respect Jonathon Markley has noted "The chief difference between Big History and previous attempts to write universal histories... is the acknowledgement that humans are not the center of the story."¹⁵⁴

¹⁵³ Stremelin, 2005.

¹⁵⁴ Markley, 2009.

The appeal of universal history among Big historians may also reside in its contrarian nature. Marnie Hughes-Warrington writes “To most historians, universal history was like a rogue relative that no one wants to talk about.”¹⁵⁵ David Christian has likewise called them “mavericks.”¹⁵⁶ I think the essential point here is that historians attempting universal models, both in the past and today, were demonstrating the dynamic nature of historical inquiry. The history of universal history shows continuous changes in the universal framework to revise the very nature of history in order to keep it vibrant. This idea is recalled by Patrick O’Brien in reviewing *Maps of Time*. O’Brien writes “a history department without a universal historian is a like hospital without a cardiologist.”¹⁵⁷ Both universal history and Big History therefore provides a perspective from the mountaintop that can inspire historians to reach for the stars.

¹⁵⁵ Hughes-Warrington, “Big History*” 15.

¹⁵⁶ Christian, “Global Histories for a Global World,” 286.

¹⁵⁷ O’Brien, “Methods and Theory,” 752.

Chapter Two

*“...doing big history is dead easy... most of the stories are already out there.”*¹⁵⁸

Modern Historiography and Big History,

1920 to 2000

In place of the disfavored framework of universal history a variety of more manageable historical endeavors emerged. The goal of this chapter will be to examine these modern historical fields and explore in what ways they have most directly influenced the shape of Big History. The frame of analysis will be the same as the one outlined in Chapter One. The themes and connections I examine are directionality, cosmopolitanism, and unities of knowledge. This chapter also adds contemporary political concerns such as environmentalism that most directly impact the rationale for Big History. The literature on Big History’s origins indicates the field emerged in its most tangible form from these modern areas. I will thus analyze which areas yielded the greatest influence and answer whether they have all been intellectually subsumed within the Big History framework.

My analysis begins with a consideration of the emergence of world history, placing it within its initial early twentieth century context by exploring the writings of Oswald Spengler and Arnold Toynbee. Spengler and Toynbee are both unconventional historians yet each produced historical works which can be viewed as historiographical bridges from universal to world history. Each adapted themes from the former and in the process generated new issues for the latter. The Western Civilization approach to large-scale history will then be explored as an offshoot of Spengler and Toynbee’s work. Then the focus will be shifted to the writings of William McNeill and the development of

¹⁵⁸ Fred Spier, “Authors Forum on *Maps of Time*,” Feb 15, 2005.

modern world history. Understanding world history is particularly crucial when considering whether Big History emerged directly out of this field. Spengler, Toynbee, and initially McNeill all share the commonality of using civilizations as historical units to chart large-scale change.

I will also analyze three related areas, each of which developed in parallel and often in collaboration with world history. The first is the methods and themes of the French *Annales* School. Here the focus is on the works of Fernand Braudel and importance of historical scales. This will be followed by an analysis of Immanuel Wallerstein's world systems theory as it connects to Big History's framework for globalization and modernization. Finally, I explore the background to environmental history. What sets environmental history apart is its decentering of humanity from history and its agility in demonstrating how humanity is shaped by its place in the biosphere. The relevant academic works are those of Alfred Crosby, Clive Ponting, and Jared Diamond, and the theoretical writings of William Cronon, Donald Worster, and Mart Stewart.

Spengler and Toynbee: The Bridge from Universal to World History

Like H.G. Wells, both Oswald Spengler and Arnold Toynbee produced their historical works in the aftermath of World War I. Although they were writing from different sides (Spengler was a German, Toynbee British) each was influenced by the pessimism of the post-war period. Their works were driven by the very presentist concern that something vital in European society had broken down—or in Toynbee's case was on the verge of breaking down. Both demonstrated a command of history which recalled the old universal histories while also channeling them into new directions.

Oswald Spengler was born in Imperial Germany in 1880. His educational background was as a historian of ancient Greece with a Ph.D. from the University of Berlin on the philosophical works of Heraclitus. According to John Farrenkopf's intellectual biography, Spengler began work on *The Decline of the West* in 1912.¹⁵⁹ What would become a mammoth macrohistorical study began innocently enough as an examination of European foreign policy in reaction to the First Moroccan Crisis of 1911. Spengler saw this episode as a humiliation for Germany and sought to explain how European politics had descended to such a level. The advent of the First World War profoundly changed the scope of Spengler's work. What had been a history of modern Europe became instead an exploration of the rise and demise of world cultures.¹⁶⁰ Spengler's need to reach back to find the deeper origins of modernity is not dissimilar to Wells' own experience of European history morphing into a universal history.

Both volumes represent what John Farrenkopf has referred to as "Spengler's thirst for universal knowledge."¹⁶¹ In his introduction, Spengler announces his intention of building a large-scale historical framework. Rhetorically he asks "Does world-history present to the seeing eye certain grand traits... with sufficient constancy to justify certain conclusions?" The basic unit of analysis Spengler chose to study was culture and he conceived history as the story of various world cultures.¹⁶² In this way Spengler's work is

¹⁵⁹ *Decline* was originally published in German in 1918 and 1922, respectively. The English translations I refer to were published in 1926 and 1928.

¹⁶⁰ Klaus Fischer, *History and Prophecy: Oswald Spengler and the Decline of the West* (Durham, NC: Moore Publishing Company, 1977), 47. In his biography of Spengler, Klaus Fischer suggests Spengler's inherent pessimism with contemporary European society was also born out of his own isolation and probable clinical depression.

¹⁶¹ John Farrenkopf, "The Transformation of Spengler's Philosophy of World History," *Journal of the History of Ideas*, Vol. 52, No. 3, (Jul. - Sep., 1991): 466.

¹⁶² Spengler's *Kultur* is never clearly defined. It seems to consist of a orientation in contrast with societies which Spengler considers irrelevant (such as tribal societies). The second change of cultural development is *civilization*—most notably in Spengler's history the *Apollonians* represented Hellenic culture followed by Roman civilization. The decline of Roman dominance in the Mediterranean in the fifth through seventh centuries of the Common Era meant a cultural demise. Spengler considered medieval Byzantium to be a static society and also ahistorical.

roughly similar to Khaldun's dynastic framework and Vico's periodization of historical eras. Spengler identified eight cultures since 3500 BCE—the point he reckoned the first true cultures began—with the majority either dead or in advanced decay.¹⁶³ According to Spengler each culture existed as though it were a separate organism with its own valid experiences and lifecycle. For each one Spengler identified “a series of stages which must be traversed... For everything organic the notions of birth, death, youth, age, lifetime are fundamentals—” The history of culture then follows in four stages of development analogous to the seasons of the year.¹⁶⁴ Here Spengler's work recalled the cyclical world-views of pre-Biblical pagan traditions. This four-stage periodization of history recurs (though in a different way) in the scientific narratives and in Big History.

For Spengler a culture existed as if in a hermetically sealed container. In her study of Spengler's work, Sohail Inayatullah summarizes his belief that “each culture then exists in its own cosmology.”¹⁶⁵ The history of one culture could not be applied or adapted to another, and therefore in Spengler's model the notion of comparative world history was moot. In this way Spengler's perception of history was decidedly cyclical and broke from the Augustinian notion of linear history which culminated in Wells' *Outline*. But Spengler went even further into historical relativism, arguing that there was virtually no such thing as progress in history. Cultures were born, lived, and died—but the fundamentals of history did not change. Hughes-Warrington notes historiographically “Spengler had shattered the prevalent linear model of history and opened a discourse on

¹⁶³ Spengler's two volumes only explore three cultures in depth: *Apollonian* (Greece-Roman), *Magian* (Middle Eastern-Islamic society), and *Faustian* (Medieval and modern Europe).

¹⁶⁴ Spengler, 3.

¹⁶⁵ Sohail Inayatullah, “Oswald Spengler: The Maturation and Decay of Cultures,” in *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*, Galtung, Johan and Sohail Inayatullah, eds. (Westport, CT: Praeger, 1997), 101.

the ‘lives’ of world cultures.”¹⁶⁶ Interest in individual cultures (or civilization) would become a foundational influence in the shape of the western civilization model and the world history developed by William McNeill.

But most crucial in the intellectual development of Big History was Spengler’s decentering of the West in history. To Spengler the West was important only in that it was the most recently developed. In this way Inayatullah notes “Spengler was a cultural relativist at a time when the West was unquestionably supreme.”¹⁶⁷ But the political context of his work was also fairly anti-cosmopolitan. According to Inayatullah, “What Spengler perhaps did not see was the possibility of cultural synthesis in the next century in the development of a global human culture.”¹⁶⁸ Another powerful anti-Western and anti-modern theme identified by Costello is Spengler’s general concept that the process of industrialization was killing both Western culture and the natural world.¹⁶⁹ Furthermore in Spengler’s large-scale framework there is no sense of human agency in history. This has been identified by Fischer in part as a reaction to Germany’s defeat in World War I. However, the cycles he identified were not necessarily unending. According to Hughes-Warrington an awareness of these stages and their significance would allow future historians to make predictions on future cultures.¹⁷⁰ As with the Enlightenment and modern scientific meta-narratives, Spengler believed in the essentialness of the present. He believed once these cycles were understood humankind would be able to escape them and gain true agency as historical actors.

¹⁶⁶ Hughes-Warrington, *Fifty Key Thinkers on History*, 287.

¹⁶⁷ Inayatullah, “Oswald Spengler: The Maturation and Decay of Cultures,” 98.

¹⁶⁸ *Ibid*, 104.

¹⁶⁹ Costello, 61-2.

¹⁷⁰ Hughes-Warrington, *Fifty Key Thinkers on History*, 286.

Arnold Toynbee's historical framework follows a similar path as Spengler, though with a greater amount of historicism. Paul Costello has called him the master of twentieth century metahistory.¹⁷¹ In marked contrast with Wells' *Outline*, Toynbee's monumental multi-volume opus *A Study of History* was a project that gestated over a three decade period.¹⁷² But like Wells' work, *Study* had a similar transnational intent. Toynbee was born in 1889 and like Spengler his background was as a historian of classical Greece. After his involvement as member of British delegation at the post-war peace conference with Turkey, Toynbee embarked on a series of works outlining history and foreign policy. This ambition grew into the conception of a large-scale framework. In his biography of Toynbee, William McNeill writes "Toynbee... cast himself as successor to Herodotus" and that he strove to explain modern Europe in the same way Herodotus had analyzed Greece.¹⁷³

Toynbee's historical unit of study was civilization (analogous to culture in Spengler's work). His analysis found that there had been twenty-six civilizations in human history and he created a ten point plan for their lifecycles. Costello summarizes Toynbee's belief that "civilizations live through four main periods: birth or genesis; growth; breakdown; and disintegration, corresponding to Spengler's spring, summer, fall, and winter analogy." Toynbee, however, differed from Spengler in adding criteria for contingency and human agency within his historical patterns of change. This idea revolved around the concept of *challenge and response*. Civilizations existed under a multitude of circumstances (geography, climate, competitors) but it was how they

¹⁷¹ Costello, 70.

¹⁷² The first three volumes were published in 1934; volumes four through six in 1939; volumes through ten in 1954; volume eleven in 1959; and the last in 1961. My references to it here come from the remarkable abridgment of all twelve volumes.

¹⁷³ William McNeill, *Arnold Toynbee: A Life* (New York: Oxford University Press, 1989), 92.

responded which determined if they would continue to develop. For most civilizations these challenges proved too great and they either perished or atrophied. At the time Toynbee was writing he believed all had either succumbed or broken-down—all except the West.

Study depicts social change occurring through the guise of “creative minorities” or “mystically inspired personalities,” who provide, as Costello terms it, “leadership in the transformation of the macrocosm of culture through the recreation in themselves of the internal image of man.”¹⁷⁴ Toynbee demonstrated this pattern by illustrating how Hellenic civilization had given way to a universal state (the Roman Empire) which failed to meet the challenge of an internal proletariat (Christianity) and external proletariat (Germanic invaders) and consequently broke down. But Hellenic civilization left behind a universal church (Christianity) which in turn led to the birth of two new civilizations: The West (Western Europe) and Eastern Orthodoxy (Russia).¹⁷⁵ This is also the basic outline for the Western civilization model of history. Despite Toynbee’s emphasis on civilizations his history demonstrates that he also valued the role individuals could play in changing the course of history. Although every civilization followed this basic rhythm, the demise of a civilization was not set in stone as it was in Spengler’s work. Civilizations were dynamic entities that could perish or flourish based upon choices by groups of individuals.

Toynbee’s history contained a distinctly presentist concern in his determination that only the West had not yet completely broken down. He believed there were three steps which could save it. First, he advocated a federated cooperative government of the

¹⁷⁴ Toynbee, 41; Costello, 82.

¹⁷⁵ Toynbee, 4-11.

world; second, a socialist-capitalist compromise; and third fashioning secular supranational religions.¹⁷⁶ His political orientation was toward the Labor Party, but the main thrust of his history was in the direction of mystically-inspired pacifism. Conceptually Craig Benjamin believes Toynbee “seemed to be arguing, there had never been a ‘beginning’ (although there might ultimately prove to be a cataclysmic end) to human history.”¹⁷⁷ Indeed, in the arc of his history Toynbee’s presentist concerns had passed from the post-World War I sense of European decline to the post-World War II fear of nuclear warfare. Once again a cosmopolitan ideal, strikingly similar to the one advocated by Wells and currently by Big History, is evident as a solution. In the post-Cold War era the fear of war has largely morphed into an overriding concern for the human impact on the environment.

Contemporary critics are dismissive of Spengler and Toynbee. Paul Costello has written “It is unlikely that Toynbee’s *Study* will be judged seriously as an empirical history in the future any more than Augustine’s *The City of God* is today, but the *Study* remains an intellectual monument and an unsurpassed challenge to a holistic world history.”¹⁷⁸ Costello further links Toynbee’s and Spengler’s work to Augustine because each represents an avenue of escape from the perilous present through the writing of history. They proffer the idea that from “a twilight period of civilization... a renewed civilization will rise from the ashes.”¹⁷⁹ This was a message and framework largely ignored by mid-twentieth century scholarship. David Christian has referred to Spengler and Toynbee’s absence in academia as punctuated only by “spooky appearances, perhaps

¹⁷⁶ Costello, 91.

¹⁷⁷ Benjamin, “Beginnings and Endings,” 99.

¹⁷⁸ Costello, 91.

¹⁷⁹ *Ibid*, 218.

in undergraduate survey courses on historiography” usually accompanied by “derisive remarks” about the shortcomings of their historical systems.¹⁸⁰ Eric Wolf has criticized Spengler and Toynbee because their histories make what he sees as the mistake of thinking “each society is... moving in response to an inner clockwork.”¹⁸¹ Alfred Crosby notes the lack of environmental awareness in the works of Spengler and Toynbee as a serious determinant to their writings because they “explained human behavior with only peripheral references to environmental factors.”¹⁸² Rodrigue has pointed to the limitations of both Spengler and Toynbee, because they both “emphasized the imperative of Western Civilization.”¹⁸³ Craig Benjamin notes their work “was seen as too vague and generalized to be of much use to the smaller scale, more specialized historians who now dominated the discipline.”¹⁸⁴ This criticism of vague generalities also resonates deeply in the literature of Big History criticism.¹⁸⁵

McNeill’s debt Toynbee is immense is immense. In fact, McNeill has written “Those volumes of Toynbee’s *A Study of History* effected a second conversion, for they showed me how parochial my studies had hitherto been.”¹⁸⁶ While Toynbee inspired McNeill to formulate large-scale historical frameworks, McNeill would come to see the limitations of Toynbee’s cyclical history. Toynbee’s influence on Big History is then

¹⁸⁰ Christian, “The Return of Universal History,” 9.

¹⁸¹ Wolf, 9.

¹⁸² Alfred W. Crosby, “The Past and Present of Environmental History,” *The American Historical Review* Vol. 100, No. 4, (Oct., 1995): 1181.

¹⁸³ Rodrigue 35.

¹⁸⁴ Craig Benjamin, “Forum on Big History,” 2009.

¹⁸⁵ Grafton, Grafton, “Life of the Universe - *Maps of Time*,” 379.

¹⁸⁶ William McNeill, “Leaving Western Civ Behind” *Liberal Education*, Vol. 97, No. 3 (2009).

<<http://www.aacu.org/liberaleducation/le-sufal1/mcneill.cfm>>; Also William McNeill, *The Pursuit of Truth: A Historian’s Memoir* (Lexington, KY: University of Kentucky Press, 2005), 37-40.

somewhat oblique and tangential.¹⁸⁷ Spengler's and Toynbee's work however kept the flame of universal history burning (though at a reduced level) and left future historians to contemplate frameworks for large-scale history. In this way, Craig Benjamin has praised modern historians who exhibit a "Toynbee-like ability to join... various parcels of tiny knowledge into a coherent whole."¹⁸⁸

William McNeill, *The Rise of the West*, and the Advent of Modern World History¹⁸⁹

In the United States the western civilization model was the dominant large-scale historical framework following the First World War. "Western Civ" emphasized the roots of modernity as a synthesis of the Biblical and Grecco-Roman traditions merging in the middle ages to produce a "Western" civilization. Thereafter the narrative followed the story of European (and later American) expansion and development through the twentieth-century. The western civilization framework was originally developed by James Harvey Robinson in 1919, and was both heavily teleological and extremely Eurocentric.¹⁹⁰ It was also influenced by Toynbee's thesis of rise, fall, and rise from Hellenic to Western civilization. Peter Novick has also noted there was also a political dimension to the Western civilization framework because it elevated the experience of the NATO countries within the context of the Cold War. The teleological implication was the U.S. had a "manifest destiny" to hold the torch of liberty which it had directly

¹⁸⁷ McNeill's biography of Toynbee is highly critical of the man's personal character and academic work. In one particularly revelatory passage McNeill explains Toynbee changed his own view on the cyclical nature of history, but continued to work from his decades-old notes as if nothing changed.

¹⁸⁸ Benjamin, "Forum on Big History," 2009.

¹⁸⁹ William McNeill is by no means the only "modern" world history. The important work of Leften Stavrianos, Philip Curtin, Marshall Hodgson, Patrick Manning, and others should not be shortchanged. My analysis of McNeill is meant show how his work has the most direct connection to Big History.

¹⁹⁰ Manning, 48.

inherited from the Greeks and supported by the Judeo-Christian God of the Bible.¹⁹¹

Into this field stepped William McNeill. Born in Canada in 1917, McNeill immigrated to Chicago with his family. According to his autobiography he was interested in large-scale history from a young age. This was an interest he also inherited from the Biblical education he received his Presbyterian upbringing (though he would lose his religious faith in his teenage years). Before being drafted into the U.S. Army in World War II, McNeill earned a degree at the University of Chicago and Cornell. In addition to Toynbee's work on the cyclical nature of history, McNeill was influenced by anthropologist Robert Redfield's thesis of cultural diffusion among American Indians.¹⁹² Because of his familiarity with the Greek language, McNeill was deployed to Greece near the end of the war. The experience led to several works on foreign policy issues relating to Greece and Greek history. After the war, McNeill finished a Ph.D. at Cornell and returned to the University of Chicago where he helped organize and teach courses on Western civilization.¹⁹³

The publication of McNeill's *The Rise of the West* (1963) made a clear break with the Western civilization model, as it sought to comprehend the whole history of the human community. In a retrospective on this work, McNeill has written "*The Rise of the West* assumes that separate civilizations form real and important human groupings and their interactions constitute the main theme of world history."¹⁹⁴ McNeill's model therefore emphasizes encounters by different civilizations as the factor that propels

¹⁹¹ Novick, 311.

¹⁹² Redfield (1897 to 1958) argued various native technologies were spread through interactions. Over several generations these practices lost their "foreignness" and became a way of life for the culture that adopted them. He later made the claim that European technology and domesticates spread through native populations in the same manner.

¹⁹³ McNeill, *The Pursuit of Truth*, 59.

¹⁹⁴ William H. McNeill, "The Rise of the West after Twenty-Five Years," *Journal of World History*, Vol. 1, No. 1 (Spring, 1990): 2.

historical change. This diffusionist perspective would come to have a direct influence on world systems theory and Big History's picture of human development.¹⁹⁵

Costello emphasizes the tough-minded nature of McNeill's writings. His work is "the most scientific in his use of models, the most detached, clinical, and dispassionate." Costello further highlights McNeill's "perspective on historical patterns of epidemiology, technology transfer, the history of ideas, and religious development emphasizes a basic Darwinian analysis..."¹⁹⁶ McNeill does away with the hard historical laws that had characterized the previous macrohistories, replacing them with a more nuanced and detailed analytical framework. One example, as described by Costello, is how "McNeill applies a natural history perspective to the Fall of Han China and of Rome in place of a biological metaphor of life cycles" which were so key to the models developed by Toynbee and Spengler.¹⁹⁷ Instead McNeill describes population declines eroding the bureaucracy of the state and destroying the amount of human capital required to operate imperial institutions.

Patrick Manning points to the historiographic impact of *Rise*, noting that it "set the stage, enabling academic discussion of world history."¹⁹⁸ For the first time since the Rankean historical revolution, large-scale historical narratives encompassing a global perspective began to regain ground in academia. McNeill also restored linear chronology to macrohistorical studies. Costello writes "Not until the work of William McNeill did the central trend in the writing of world history revert to a strictly linear and progressive

¹⁹⁵ Mark Welter, Feb. 14 2005, Authors Forum on *Maps of Time, H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=MvFTYE75nV/vTLVQO/8qRg&user=&pw=>. Welter referred Christian's use of collective learning as a natural extension of McNeill's theme.

¹⁹⁶ Costello, 185-6.

¹⁹⁷ Ibid, 201.

¹⁹⁸ Manning, 55.

view of time and human development.”¹⁹⁹ Manning further specifies that McNeill’s two most important innovations were his “use of a chronological rather than thematic framework (in contrast to Spengler and Toynbee) and his linking of his analysis to academic debates (in contrast to Wells).”²⁰⁰ Thus we can see the restoration of the Augustinian chronological framework, with an Enlightenment-progressive slant, and a Rankean sense of historicism leading in the direction of Big History.

McNeill also grapples with the theme of human agency in history. In *Rise*, McNeill’s use of individuals is limited to their roles within society. Therefore the conquests of Alexander the Great or Genghis Khan are shown as manifestations of the dynamic forces already at work within Hellenism and steppe pastoralism, unused energy finally being tapped.²⁰¹ Costello writes “In the end McNeill’s work begs the question: Can an ecological view in world history preserve a central role for the free will and action of the individual?”²⁰² Costello goes on to refer to “a Cartesian duality is apparent in McNeill’s work; he emphasizes the systematic forces propelling human history in each of his works even as he continually affirms the importance of the individual and the role of belief in the outcome of events.”²⁰³ McNeill thus furthers the historical dynamic established by Toynbee of individual agency in the larger patterns of history. This is an ambiguity macrohistory has never sufficiently resolved.

McNeill does not consider his work on *Rise* to have been definitive. In subsequent years he published *Plagues and Peoples* (1976), *The Pursuit of Power* (1982), and *The*

¹⁹⁹ Costello, 8.

²⁰⁰ Manning, 55.

²⁰¹ William McNeill, *The Rise of the West: A History of the Human Community* (Chicago: University of Chicago Press, 1963, Reprinted 1991), 277-86; 524-31.

²⁰² Costello, 186.

²⁰³ Costello, 209.

Human Web (2003)—the latter co-written in collaboration with his son, the environmental historian John McNeill. These books further explored themes first developed in *Rise* and also worked as revisions based upon new evidence. McNeill has written they “were designed to repair some of those defects, and I consider them as extended footnotes to *The Rise of the West*.”²⁰⁴ McNeill’s thesis of encounters was extended to incorporate aspects of the natural world, such as the effect of disease pools in human societies. Alfred Crosby this aspect made *Plagues* the first examination of “humanity in an ecological context.”²⁰⁵

There are other objectives McNeill had in writing history. From a historiographical angle he first sought to revise Toynbee’s framework by showing that civilizations were much more amorphous entities and historical change was in fact typified by their interactions. But there is also a cosmopolitan vision embedded in McNeill’s work. In his retrospective account “*The Rise of the West after 25 Years*,” he admits that although *Rise* “should be seen as an expression of the postwar imperial mood in the United States” nevertheless the diffusionist thesis he makes should be viewed as an historical argument in favor of greater cooperation on an international level in the management of human encounters.²⁰⁶ This dovetails into McNeill’s effort to fuse the writing of history with the symbolic nature of myth. Toward this end, McNeill writes “our historiographical myth making and myth breaking is bound to cumulate across time, propagating myth histories that fit experience better and allow human survival more

²⁰⁴ McNeill, “Leaving Western Civ Behind.”

²⁰⁵ Crosby, 1995, 1188.

²⁰⁶ McNeill, “*The Rise of the West After Twenty-Five Years*,” 1-2.

often...”²⁰⁷ The McNeill’s views on the necessary nature of mythic history provided the underlying rationale for Big History’s embrace of the term.

Regarding his own work McNeill has been very forward. On *Rise* he has written “a book that attempts to deal with so large a subject as the history of the world invites misunderstandings on an unusually massive scale.” However, McNeill finishes his retrospective with a flourish on the possibility of a new universal history framework

with a precision, richness, and accuracy beyond anything previously possible, simply because historical scholarship has explored the whole of the globe as never before, while the evolution of historical concepts has arrived at a level of sophistication that makes older efforts at world history, even one as recent as mine, seem fundamentally outmoded and obviously in need of replacement.²⁰⁸

McNeill thus makes the case in 1990—at approximately the same time Christian and Mears were launching their Big History courses—that there are no real barriers against which renewed attempts at truly consilient universal histories can be made.

Big historians tend to see their work as the more scientific and expansive version of world history—just as the works of Spengler and Toynbee were more rigorous extensions of the universal history framework. As Craig Benjamin has written “big history also takes the natural trend of world history towards interdisciplinarity...”²⁰⁹ David Christian has further emphasized this concept of consilience in his 2003 article “World History in Context.” In it Christian conceives world history “as a natural bridge between the history discipline and other discipline’s that study changes in time, from

²⁰⁷ William H. McNeill, “Mythistory, or Truth, Myth, History, and Historians Author,” *The American Historical Review*, Vol. 91, No. 1, (Feb., 1986), 9.

²⁰⁸ McNeill, “*The Rise of the West After Twenty-Five Years*,” 20-1.

²⁰⁹ Benjamin, “Forum on Big History,” 2009.

biology to cosmology.”²¹⁰ Johnathan P. Roth concurred with this sentiment in his review, calling Christian’s approach “the logical extension of world history.”²¹¹ It is also worth noting that early Big History courses were initiated under the guise of world history. Cynthia Brown has referred to this as the “guerilla style” of teaching Big History.²¹²

World historians who have reviewed Big History have tended to criticize those aspects which seem lacking with regard to their specialized field. As a historian of Africa, for example, Patrick Manning took issue with the attention not given to that continent in *Maps of Time* and the figures provided for the estimated share of African population at certain points in history.²¹³ Indeed, Robert O’Hara wrote of *Maps of Time* in 2006, “Specialists in any of the particular fields covered by the volume may find rough spots in the treatment of topics they know well.”²¹⁴ This does, however, bring up the large question of whether or not the Big History narrative remains coherent when viewed at smaller scales.

McNeill’s influence on Big History has extended directly to the first generation of Big historians themselves. John Mears was one of McNeill’s graduate students at the University of Chicago when *Rise* was published. Mears belief in the ability of historians to construct large-scale historical narratives was “reinforced by exposure to William H. McNeill in graduate school.”²¹⁵ Christian as referred to McNeill as one of the few historians who built “the sophisticated theoretical tools necessary for large-scale

²¹⁰ David Christian, “World History in Context” *Journal of World History*, Vol. 14, No. 4, (Dec., 2003): 438.

²¹¹ Jonathan Roth, Review of *Maps of Time*, (Heldref Publications, Summer, 2004), 131.

²¹² Cynthia Stokes Brown, “New Directions in the Pedagogy of Big History Panel” (*World History Association* Conference, San Diego, CA, June 26, 2010).

²¹³ Manning, “Authors Forum on *Maps of Time*,” Feb 9, 2005.

²¹⁴ Robert O’Hara, “Reviews,” *International Studies in the Philosophy of Science*, Vol. 20, No. 1 (March 2006): 119.

²¹⁵ Mears, “Connections and Continuities,” 34.

synthesis.”²¹⁶

McNeill has also become a leading champion in the cause of Big History; in fact, he wrote the introduction to Christian’s *Maps of Time*. McNeill’s enthusiasm is evident in the first paragraph, when he compares Big History to both the Newtonian and Darwinian Revolutions. McNeill writes

Maps of Time unites universal history and human history in a single grand intelligible narrative. This is a great achievement, analogous to the way in which Isaac Newton... united the heavens and the earth, under uniform laws of motion; it is more closely comparable to Darwin’s nineteenth-century achievement of uniting the human species and other forms of life within a single evolutionary process.²¹⁷

McNeill outdid even this praise in his 2009 retrospective “Leaving Western Civ Beyond.” On the difference between his own *The Human Web* and *Maps*, McNeill writes “I have likened our work to that of John the Baptist, preparing the way for the larger views and grander synthesis David Christian achieved.”²¹⁸ The comparison of Christian first to Newton and Darwin, but later to Christ, makes for a fascinating juxtaposition in regard to the nature of myth and science. Clearly for McNeill such distinctions are blurred. McNeill’s praise recalls the sentiments expressed in previous histories that finally the Truth has arrived with a capital T.²¹⁹ In his 2010 work *Big History and the Future of Humanity* Fred Spier further acknowledged Big History’s debt to McNeill with a dedication.

²¹⁶ Christian, “Global Histories for a Global World,” 288.

²¹⁷ William McNeill, Foreword to *Maps of Time: An Introduction to Big History*, auth. David Christian (Berkeley, CA: University of California Press, 2004), xvi.

²¹⁸ McNeill, “Leaving Western Civ Behind.”

²¹⁹ The religious aspect of his language can be viewed merely as metaphoric—but when one considers Wells’ hope that *Outline* would be come to replace the Bible other conclusions may be drawn.

The *Annales* School, Fernand Braudel, and *The Longue Durée*

First developed following World War I, the *Annales* School has also had a deep impact on the development of Big History. In his forward to *The Annales School: An Intellectual History*, Timothy Tackett has referred to it as

an approach to the past that emphasized interdisciplinary, a “grand alliance” with the other social sciences; that placed a premium on problem-driven history over a history of events and of great men; that was disposed to the use of “serial” and quantitative methodologies to analyze those problems; but what was also attentive to the issues of collective psychology and “mentalities”... the injunction to explore one’s chosen microcosm from as many perspectives and through as many different kinds of sources as possible.²²⁰

In *French Historical Method: the Annales Paradigm*, Traian Stoianovich writes “no other group of twentieth-century scholars in any country has made a more valuable contribution to historiography and historical methods.”²²¹ Due in part to the disillusionment with political history following the war, figures such as Lucien Febvre and Marc Bloc emphasized research into the history of non-elites. Additionally the *Annales* broke new ground undertaking large-scale research projects under the auspices of generous government grants. Although the *Annales* School of history focused on regional social dynamics, Rodrigue notes it was because of their emphasis on ““total” history and large perspective” that came increasingly “to influence studies in globalization.”²²²

²²⁰ Timothy Tackett, Preface to *The Annales School: An Intellectual History*, auth. André Burguière (Ithaca, NY: Cornell University Press, 2009), ix.

²²¹ Traian Stoianovich, *French Historical Method: the Annales Paradigm* (Ithaca, NY: Cornell University Press, 1976), 235.

²²² Rodrigue, 33.

For the purposes of Big History, the most relevant historian is Fernand Braudel (1902 to 1985) and his concept of history as a *longue durée* (great duration). Marnie Hughes-Warrington has written Braudel's "plural vision of time and the 'decentering' of humanity that it entails... sets him apart from the *Annales* milieu."²²³ Braudel's most important publications with respect to macrohistory are his *The Mediterranean in the Age of Philip II* (1949) and a collection of essays on his approach to historiography called *On History* (1980). At the time of Braudel's death in 1985, William McNeill referred to him as "the world's most influential academic historian."²²⁴

Braudel envisioned a history unfolding in three waves, representing three different historical scales: First was traditional history, "the history of events: a surface disturbance, the waves stirred up by the powerful movements." Then "there is a history of gentle rhythms... one might call social history... [of] economies and states, societies and civilizations." On the largest scale is "a history that is almost changeless... a history which unfolds slowly and is slow to alter, often repeating itself and working out in cycles which are endlessly renewed."²²⁵ It is this last kind of history—history at the widest scale possible—which Braudel found most important.

Braudel thus introduced something new to history, the concept of scales working on multiple levels. Braudel wanted to emphasize "those great underlying currents which so often run silently, and whose true significance emerges only if one can observe their workings over great spans of time."²²⁶ To this end Braudel described the three historical waves in his *The Mediterranean in the Age of Philip II*. Braudel penned the first draft

²²³ Hughes-Warrington, 22.

²²⁴ William McNeill, "Fernand Braudel, Historian," *The Journal of Modern History*, Vol. 73, No. 1, (March 2001), 134.

²²⁵ Fernand Braudel, *On History*, trans. Sarah Matthews (Chicago: University of Chicago Press, 1980), 3-4.

²²⁶ *Ibid*, 4.

from memory while a POW during the Second World War. McNeill suggests “separation from the tangled mass of his notes” actually had the effect of liberating Braudel to contemplate the subject on a massive scale. McNeill also makes an explicit link between Braudel’s idyllic childhood summers spent in rural France as a contrast to his bleak imprisonment on the Baltic. While Braudel’s eyes were fixed on those gray northern skies his mind escaped south to the sun baked Mediterranean. Like other macrohistorians, Braudel was able to find refuge in history through an analysis of what he saw to be the great and almost changeless rhythms of the deep past.²²⁷ In this way Braudel could envision the hellish events of World War II as mere ripples in the great sea of time.

In his preface to the first edition of *Mediterranean*, Braudel notes the work began as a diplomatic history of Philip II.²²⁸ However, Braudel began to ask himself “whether the Mediterranean did not possess... a history and destiny of its own, a powerful vitality...” On this epiphany, Braudel writes about “succumbing to the temptation” of an “immense subject.”²²⁹ The first part of Braudel’s *Mediterranean* is a description of the geographic contours of the Mediterranean basin and its environs.²³⁰ As with works of Big History, humanity does not appear for hundreds of pages. In a sense, Big History takes Braudel’s geographic unit of analysis and replaces it with the whole of the universe. Both thus take the time to establish the stage upon which humankind will finally play its part.

Another aspect of Braudel’s work which separates it from the other *Annales* historians (and historians in general) was his focus on the pre-modern era. This was possible because the *Annales* methods deemphasized written sources and literate

²²⁷ McNeill, “Fernand Braudel, Historian,” 134-5, 138-9.

²²⁸ Yet another example of an inquiry into foreign policy leading to a macrohistory.

²²⁹ Fernand Braudel, *The Mediterranean in the Age of Philip II* (New York: Harper & Row, Publishers, 1966), 19-20.

²³⁰ Braudel specifies a “Greater Mediterranean” which includes parts of the Atlantic, Indian Ocean, and Russia.

individuals. In this way they effectively historicized anthropological and quantitative analysis to frame a history that marginalized the state as a historical unit. At the same time, Braudel also added a Marxist stress on material processes over human agency. Patrick Manning notes that Braudel “chose to ignore the putative boundaries of nations, cultures, and civilizations” and shifted his focus to the “environmental structures underlying human societies.”²³¹ In this way Braudel helped to undermine national historical narratives as well as the idea of individual agency in history. In Braudel’s framework the individual person resembles a pawn on the ecological chessboard of history, much like the works of Khaldun and Spengler did.

The *Annales*’ emphasis on the historicization of science is also crucial in understanding how Big History works. Braudel believed history to be “the least structured of all the sciences... open to all the lessons learned by its many neighbors, and is then at pains to reflect them back again.”²³² Braudel notes the problem of structuring history was due to the fact that it was actually the most complex science in that it has the potential to incorporate all other fields into one paradigm. “Science, technology, political institutions, conceptual changes, civilizations... all have their own rhythms of life and growth, and the new history of conjunctures will be complete only when it has made up a whole orchestra of them all.”²³³ Braudel’s thesis makes the case that history is the only discipline that can properly unify all the others into one edifice.

As with McNeill, Braudel has made a direct influence on the Big historians. David Christian’s early work on Russian social history such as his *Living Water: Vodka*

²³¹ Manning, 50.

²³² Braudel, *On History*, 16.

²³³ *Ibid*, 30.

and *Russian Society on the Eve of Emancipation* (1990) is primarily Braudelian in nature. In fact the title of Christian's initial article on Big History, "The Longest *Durée*" (1989) pays homage to Braudel. Jonathon Markley's work on the history of grass is also an *Annale*-like effort to comprehend the total history of a single structure.²³⁴ In "The Return of Universal History" Christian refers to Big History as an effort "extending far beyond Braudel's *longue durée*" in terms of deep historical time.²³⁵ Big History utilizes Braudel's concept of historical waves to analyze history at four levels: cosmic, planetary, biological, and human. David Christian has referred to this as zooming in and out of history as a "play of scales," a phrase once again adapted from French historiography.²³⁶

Wallerstein, Modernization and World-Systems Theory

Immanuel Wallerstein was born in 1930 and earned a Ph.D. in sociology at Columbia University in 1959. His early work concerned independence movements in post-colonial Africa. Wallerstein's intellectual approach was heavily influenced by the experience of economic inequalities between the West and newly independent colonial states which he first witnessed in the 1950s. For Wallerstein these inequalities explain the "great watershed" that is the modern world.²³⁷ Beginning in the 1970s Wallerstein began a series of that sought to explain global modernity through what he called world systems theory. Big History utilizes the world system paradigm to explain the development of human societies.

The world system framework was adapted by Wallerstein from his study of

²³⁴ Markley, 2009.

²³⁵ Christian, "The Return of Universal History," 9.

²³⁶ ²³⁶ David Christian, "Macrohistory: The Play of Scales" *Social Evolution & History*, Vol. 4 No. 1 (March 2005): 22.

²³⁷ Immanuel Wallerstein, *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (San Diego, CA: Academic Press, Inc., 1974), 3.

astronomy, with the economically dominant West acting as the sun (the core) around which the rest of the world (periphery) revolved as economic satellites. Wallerstein writes the system that appeared at the beginning of the sixteenth century “is a “world” system not because it encompasses the whole world, but because it is larger than any juridically-defined political unit.” He goes on to explain the “basic linkage” between societies within the system is at base economic.²³⁸ Robert S. DuPlessis describes a world system as “bounded and substantially self-contained, it consists of a unified economy founded on a well-developed division of labor yet incorporating a multiplicity of cultures.”²³⁹ The early twentieth-century concepts of culture and civilization as the largest units of historical inquiry were thus supplanted by the scale of economic interactions.

Manning writes that world systems theory offers “a focus on long cycles and hegemonic shifts, and... the interplay among social science theories...”²⁴⁰ Craig Lockard describes the ideal world systems theory as “an undogmatic form” which encourages students to “understand that the world consists of interdependent units of uneven influence and power.” This perspective “gives them insights into the nature of international interaction and the structure of international relations and the world economic system.”²⁴¹ World systems thus advance William McNeill’s thesis of encounters and welds it to a Marxian emphasis on economic determinism.

The consilient nature of Wallerstein’s work is extremely broad. According to Manning, Wallerstein’s

²³⁸ Ibid, 15.

²³⁹ Robert S. DuPlessis, “Wallerstein, World Systems Analysis, and Early Modern European History” *The History Teacher*, Vol. 21, No. 2 (Feb. 1988), 222.

²⁴⁰ Manning, 64.

²⁴¹ Lockard, 508.

reasoning adopted a center-periphery terminology and encompassed a Marxian focus on evolution and transformation in the system, a Weberian focus on trade and bureaucracy, and a Braudelian emphasis on multidisciplinary analysis.²⁴²

Here once again is a macrohistorical framework that attempts to encompass a diverse number of historical antecedents and contemporary subfields. Moreover, world systems theory is viewed as a direct result of the complexity inherent in modernity itself. Christian writes that “particularly in the modern era, it was necessary to analyze not just particular nations or civilizations, but rather the larger networks of power and commerce in which they were entangled...”²⁴³ In *Big History*, Cynthia Brown devotes an entire chapter to Wallerstein’s framework, writing “By 1750 to 1800 a worldwide system of exchange and trade was in place, using the seas that connected continents.”²⁴⁴ Rodrigue cites world systems theory for developing the structure necessary to study modern human society as a whole.²⁴⁵

However, Wallerstein’s system has also been adopted by other scholars to explain human development since the beginning the Neolithic Period.²⁴⁶ Craig Benjamin has catalogued the various world systems, with Wallerstein’s “starting point around 1450 CE, Abu-Lughod for the thirteenth century, Andre Gunder Frank and Barry Gills for 3000 BCE, and Christopher Chase-Dunn and Thomas Hall for 7000 BCE.”²⁴⁷ *Big History* hedges its bets and makes use of each one of these frameworks. What really matters in the modern world system is, according to Spier, the ability of the West to harvest energy

²⁴² Manning, 62.

²⁴³ Christian, *Maps of Time*, 289.

²⁴⁴ Brown, 207

²⁴⁵ Rodrigue, 135.

²⁴⁶ Manning, 92.

²⁴⁷ Benjamin, “Beginnings and Endings,” 99.

through a dominant economic structure.²⁴⁸

Wallerstein's concern in creating this system was distinctly political. He points out that world systems theory was part of a political movement meant to focus attention on post-colonial underdevelopment. In this way Wallerstein believes world-systems analysts see themselves in engaging in a "fundamental protest against the ways in which we have thought that we know the world." The framework is thus a "reflection of... the deep inequalities of the world-system that are so politically central to our current times."²⁴⁹ World systems theory thus inject the politics of global class structures into Big History.

Eric Wolf's work *Europe and The Peoples Without History* (1982) continued to develop this model.²⁵⁰ The thesis of Wolf's book is that "we can no longer think of societies as isolated and self-maintaining systems. Nor can we imagine cultures as integrated totalities in which each part contributes to the maintenance of an organized, autonomous, and enduring whole."²⁵¹ Christian adopted Wolf's three stage classification for human groups: kin-based (tribal) groups, tribute-taking states, and capitalist societies to catalogue human populations.²⁵² As a result Patrick Manning writes "the modern world-system opened a major front in the struggle to surmount the national framework for historical interpretation."²⁵³ In place of McNeill's earlier Toynbeesque belief in more or less autonomous civilizations, his later work essentially adopted Wallerstein's concept

²⁴⁸ Spier, *Big History and the Future of Humanity*, 170-3.

²⁴⁹ Immanuel Wallerstein, *World Systems Analysis: An Introduction* (Durham, N.C.: Duke University Press, 2004), xi.

²⁵⁰ Wolf, 390. The title was meant as a direct refutation of the Eurocentric historical framework of Hegel.

²⁵¹ *Ibid*, 390.

²⁵² Christian, "The Longest Durée," 29.

²⁵³ Manning, 64.

of a world systems model.²⁵⁴

Reviews of *Maps of Time* point to world systems theory as key to understanding the origins of Big History. J.W. Drukker's 2006 commentary on *Maps of Time* placed Big History within the tradition established by both Braudel and Wallerstein.²⁵⁵ Johnathan Roth actually found a way to criticize Big History for being too Eurocentric in its use of world systems theory. According to Roth it implies that modernization is teleological imperative, and therefore the center of Big History's narrative of human society uses the West as a historic mean from which to judge other societies.²⁵⁶ I do not believe this is a sustainable conclusion, at least based on Big History's adoption of Eric Wolf's topology of human societies. In this case Roth seems to confuse complexity with teleology.

Environmental Historiography

From the 1960s onward environmental history has also developed in parallel with world history. Indeed, it shares many of the same methods, themes and individual historians. Environmental history importantly precedes the Big History project in expanding the nature of historical study beyond humanity or human institutions as the principle unit of history. As such environmental history is crucial in decentering humanity from history, just as world history was in part an effort to decenter Europe from the historical centrality of Western Civilization. When Big History is viewed in the context of environmental history it is first and foremost a kind of natural history at different scales.

Before delving into the relationship between environmental history and Big

²⁵⁴ McNeill, "*The Rise of the West After Twenty-Five Years*," 9.

²⁵⁵ J.W. Drukker, "Review of *Maps of Time*" *EH.NET* (Jan. 2006). <http://eh.net/bookreviews/library/1036>.

²⁵⁶ Roth, Review of *Maps of Time*, 131.

History, a working definition of environmental history is required. J. Donald Hughes writes in his *An Environmental History of the World*, “Environmental historians recognize the ways in which the living and non-living systems of the Earth have influenced the course of human affairs.”²⁵⁷ These sentiments are echoed by Mart A. Stewart, who has written that “environmental history is the history of the role and place of nature in human life, the history of all the interactions that societies have had with the nonhuman past, in their environs.”²⁵⁸ In *The Ends of the Earth*, Donald Worster, broadens the definition, writing environmental history

speaks to our present and future situations. Surely the most significant issue facing the human species in the late twentieth century, and beyond into the twenty-first, is our logical predicament: How can we survive as a species without undermining or degrading the planet Earth and its fabric of life, the very means of our survival?²⁵⁹

This statement highlights one of the principle implications of Big History, which is the view that at the planetary scale it is the human impact on the environment (and vice versa) is the most historically significant aspect of humanity. This is an implication on par with the cosmopolitan vision developed out of universal and world history, and provides the underlying rationale, in the tradition of Wells’ cosmopolitan pacifism, for global solidarity in order to address environmental challenges.

Mart Stewart lays out the basic structure of environmental history. He believes

environmental history can be arranged according to the following taxonomy, into three crude categories. The discovery of the physical attributes of past environments, the changing distribution of plants and animals, of

²⁵⁷ J. Donald Hughes. *An Environmental History of the World: Humankind’s Changing Role in the Community of Life* (New York: Routledge, 2001), 4.

²⁵⁸ Mart A. Stewart, “Environmental History: Profile of a Developing Field” *The History Teacher*, Vol. 31, No. 3 (May 1998): 352.

²⁵⁹ Donald Worster, in introduction to *The Ends of the Earth: Perspectives on Modern Environmental History*, ed. Donald Worster, et al. (Cambridge: Cambridge University Press, 1988), vii.

landforms and climate, and the study of changes in past environments makes up one variety of environmental history.²⁶⁰

Hughes writes that “historians must look to evidence from the deep past to find out how nature operated without humankind, and use that as a baseline or control against which to judge the changes brought about since the beginning of human history.”²⁶¹ Thus we see once again the scale of historical understanding and tools necessary to understand it expanding outward. The world without is thus used as a mean to explain the world with humans. As early as 1991 David Christian described environmental history as needing to be viewed at large scales because the picture is not clear close up.²⁶²

According to William Cronon there are three articles of “faith” for environmental historians. Cronon’s most important contribution to the field is *Changes in the Land: Indians, Colonists, and the Ecology of New England* (1983) in which his thesis is that the basic trademark of human societies is to alter their ecosystems in ways which are irreversible. On environmental history, Cronon writes

in studying environmental change, it is best to assume that most human activities have environmental consequences, and that change in natural systems (whether induced by humans or by nature itself almost inevitably affects human beings). As a corollary, most environmental historians would add that human beings are not the only actors who make history.²⁶³

Cronon then attacks the notion of equilibrium in nature. He writes “Descriptions of historical eras in which human populations were supposedly in eternal equilibrium with

²⁶⁰ Stewart, 354

²⁶¹ Hughes, 12

²⁶² Christian, “The Case for ‘Big History,’” 226. See Patricia A. McAnany and Norman Yoffee, eds., *Questioning Collapse: Human Resilience, Ecological Vulnerability, and the Aftermath of Empire* (New York: Cambridge University Press, 2010) for counter argument regarding the scales of environmental history.

²⁶³ William Cronon, “The Uses of Environmental History” *Environmental History Review*, Vol. 17, No. 3 (Autumn, 1993): 17.

equally stable natural systems are almost surely golden-age myths.” Cronon continues to emphasize that environmental approaches are culture bound, writing “beliefs have clear historical roots and that people in other times and other places and other cultures have held very different views.” Finally, instead of using the data to make predictions Cronon proposes making projections: “Rather than make predictions about what will happen, we offer parables about how to interpret what may happen.”²⁶⁴ Cronon’s essential point about modern environmental interpretations being culture bound and not universally accepted is important to consider in light of an early twenty-first century “global” environmental movement.

The roots of environmental history precede the modern era. Fred Spier credits naturalist Alexander von Humboldt (1769-1859) as first true Big Historian and his unfinished *Kosmos* the first real attempt at Big History.²⁶⁵ Von Humboldt was completely naturalistic in approach and refused to look for supernatural answers in his analysis of the physical world. Spier traces the origin of environmental history to Robert Chambers’ *Vestiges of the Natural History of Creation* (1844). Chambers’ argued civilization “emerged as a result of specific ecological and social constraints.” He goes on to note Chambers’ work influenced Darwin and Wallace.²⁶⁶ Spier’s background in science, as opposed to history, may contribute to weight he gives these nineteenth-century naturalists.

Alfred Crosby further highlights the importance of premodern theorists for environmental historiography. “Their guiding principles are not those of the boosters,

²⁶⁴ Cronon 17.

²⁶⁵ Spier is somewhat odd with other Big History in backdating the field only to the nineteenth-century, rather than antiquity.

²⁶⁶ Spier, *Big History and the Future of Humanity*, 10-3.

Adam Smith and Karl Marx, but those of the worriers, Thomas Malthus and George Perkins Marsh.²⁶⁷ Malthus' *An Essay on the Principle of Population* in particular influences the shape David Christian gives to human societies before the modern era.²⁶⁸

In the period of agrarian societies and tribute-taking empires Christian writes

neither technology nor managerial know-how was sufficient to support growth indefinitely. Innovation was sufficient in all these cases to initiate growth, but no to sustain or avoid overextension and ecological collapse.²⁶⁹

Thus the Modern Revolution is not merely a product of a global economic system, it is also the result of humanity escaping the Malthusian trap (so far).

Alfred Crosby's article addresses reasons why historians may have resisted undertaking environmental histories. Part of Crosby's technique is to demonstrate the vast ecological changes that occurred during the nineteenth and early-twentieth centuries, and to show how they were systemically ignored by the professional historians of the American History Association. Crosby concludes "American historians were fully, almost painfully, conscious of immense and accelerating change but did not yet think of it ecologically." Crosby further notes Frederick Jackson Turner's thesis of the closing of the frontier is at its core a reaction to the encroachment of industrialization and rising populations on the American character. But that Turner's work was consequently diluted in a political direction, in keeping with the influence of Rankean historiography.²⁷⁰

Crosby points to historical events for also spurring the growth of environmental histories, particularly the atomic bomb in World War II and the 1969 moon landing. Crosby writes "The moon shot had the paradoxical effect of converting many to earth

²⁶⁷ Crosby, "The Past and Present of Environmental History," 1189.

²⁶⁸ Thomas Malthus, *An Essay on the Principle of Population* published in six editions between 1798 and 1826.

²⁶⁹ Christian, *Maps of Time*, 312.

²⁷⁰ Crosby, "The Past and Present of Environmental History," 1179.

worship.”²⁷¹ These events also helped to shape the outlook of the first generation of Big historians. Fred Spier explains in the introduction to *Big History* that his “environmental preoccupation... came as a direct result of the Apollo moon flights during the late 1960s and early 1970s.”²⁷² The image of the whole of the Earth from space also impacted Spier’s belief that the history of the Earth could be made comprehensive. At the same time concerns over the still massive stockpiles of nuclear weapons held by the United States and the Russian federation—as well as the potential acquisition of nuclear weapons by small states and/or transnational terrorist groups—animate much of the chapter titled “Futures” in *Maps of Time*.²⁷³

Ultimately Crosby considers “The environmentalist movement of the 1960s and after” as the “engine that drove environmental history” and even refers to Rachel Carson as the Harriet Beecher Stowe of environmentalism.²⁷⁴ Daniel Worster also makes clear that environmental history is to some degree a scholarly outgrowth of the environmental movement as a whole.²⁷⁵ Cynthia Brown’s interest in Big History in particular is driven out of her commitment to the environmental movement. The “underlying theme” of the “impact of human activities on the planet, as well as the planet’s impact on people” is what inspires her approach to Big History.²⁷⁶ This illustrates a contemporary political agenda at the heart of Big History’s adoption of an environmental approach to human history.

Big History’s depiction of the twentieth century owes its general form to John

²⁷¹ Ibid, 1185-6.

²⁷² Spier, *Big History and the Future of Humanity*, ix; Christian has also cited the importance of the Apollo program. See Christian, “World History in Context,” 458.

²⁷³ Christian, *Maps of Time*, 481.

²⁷⁴ Crosby, “The Past and Present of Environmental History,” 1186.

²⁷⁵ Worster, 290.

²⁷⁶ Cynthia Stokes Brown, *Big History*, xii.

McNeill's *Something New Under the Sun* (2000).²⁷⁷ David Christian writes that

McNeill's thesis implies that the conventional historiography of the twentieth century has missed something rather important. According to McNeill, future historians of the twentieth century will notice above all else the environmental changes.²⁷⁸

In this alternate view of the twentieth century it is humankind's interaction with the environment which in the long run will be more lasting than the two world wars or the Cold War. Braudel's ripples in time, indeed.

Alfred Crosby's *Ecological Imperialism* (1986) is one of the outstanding examples of environmental history and has been retroactively described by Crosby as an earlier incarnation of Big History.²⁷⁹ Crosby's book attempts to answer a simple question: how did Europeans and their descendants come to be spread out around the world? The answer he proposes is that the more aggressive biota of Eurasia (with humanity in the driver's seat) had an advantage over their American and Australian competitors when the world zones came into contact from the sixteenth-century on.²⁸⁰ The modern world was thus the result of biological and geological circumstances which were hundreds of millions of years in the making. In 2002 interview with the *New York Times*, Christian cited *Ecological Imperialism* as "one of the best illustrations of big history."²⁸¹

Jared Diamond's subsequent *Guns, Germs, and Steel* (1997) took Crosby's basic framework—although he would shorten the time frame to a mere 15,000 years and diluted Crosby's hard naturalism by personalizing the narrative. In Diamond's view

²⁷⁷ John r. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (New York: W. W. Norton & Company, 2000).

²⁷⁸ David Christian, "Review of *Something New Under the Sun*," *Journal of World History*, Vol. 12, No. 2 (Fall 2001), 516.

²⁷⁹ Alfred W. Crosby, "Merchants of Stupefaction: The Global Trade in Opium" Panel, (*World History Association Conference*, Salem, Mass. June 27, 2009).

²⁸⁰ Alfred Crosby, *Ecological Imperials: The Biological Expansion of Europe, 900-1900*. (New York: Cambridge University Press, 1986), 269-93.

²⁸¹ Emily Eakin, "For Big History, the Past Begins at the Beginning," *New York Times* (Jan. 12, 2002).

European global hegemony ultimately was a product of European geographic features (mountains, rivers, harbors) creating more internal competition among states and leading to greater innovation, in contrast to China's more homogenous geography.²⁸² Big History takes both Crosby's and Diamond's frameworks to trace the development of the modern world in the *longue durée* while at the same time embracing Wallerstein's world systems to explain the short term. Taken together these environmental works represent a biological and planetary scale of history and world systems are commensurate with the human scale.

Clive Ponting's *A Green History of the World* (1991) was another breakthrough book which welded environmental and world history together. In fact, Cynthia Brown used it as a text for her initial Big History course at Dominican University.²⁸³ Among other things Ponting helped shape the aspects of Big History's delineation of human complexity. He has pointed out humankind is an aberration in the food chain, writing "The higher an animal is in the food chain, the rarer it will be."²⁸⁴ The fact that humans have come to comprise an estimated ten percent of the planetary biomass holds the implication that dense human populations may behave more like ants than apes. Because of this biologist Russell Genet believes it is to the insect kingdom that a greater understanding of modern societies can be discerned.²⁸⁵

The interdisciplinary nature of environmental history is also crucial. In regard to Big History's emergence, J.R. McNeill makes the case environmental historians can be

²⁸² Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies*. (New York: W.W. Norton & Company, Inc., 1997), 409-417.

²⁸³ Brown, xiii.

²⁸⁴ Clive Ponting, *A Green History of the World: The Environment and the Collapse of Great Civilizations* (New York: St. Martin's Press, 1991), 12.

²⁸⁵ Russell Merle Genet. *The Chimpanzees Who Would Be Ants: The Evolutionary Epic of Humanity* (Commack, New York: Nova Science Publications, 1997), ix-xii. The main argument of the book is the large human populations are an aberration among animal species.

the champions in the effort to make history the queen of the sciences. He writes “Environmental historians can help rejuvenate historical research in general by serving as diplomats reporting from other terrains, exploring information that lies beyond the borders of text-bound historians.”²⁸⁶ Crosby believes environmental historians

are avant-garde in the agility with which they leap over the concertina wire that divides the humanities from the sciences. They expect to read articles and books on geology, demography, meteorology, epidemiology, or agronomy and, after some struggle, to understand them.²⁸⁷

It is because of this consilience that Alfred Crosby remarked in a 2009 presentation at the World History Association that environmental history had essentially been absorbed within the Big History lexicon.²⁸⁸ At the same time, Richardo Duchesno has used Crosby’s *The Measure of Reality* (1997) as a critique against Big History.²⁸⁹ This is because Crosby’s book places the crucial turn in European history in the high middle ages, before the voyages of exploration and the Scientific Revolution. Something had already changed in Europe and Crosby, the retro-Big Historian, has noted it. According to Duchesno this cultural contingency undermines the Big History depiction of geographic and biological determinism.

Big historians have been perfectly open about the environmental point-of-view their history demonstrates. Marnie Hughes-Warrington has written that Big History allows students to make environmental connections.²⁹⁰ R.J. Barendse, however, ridicules the environmental rationale, writing sarcastically “in other words, we should be rewriting

²⁸⁶ J. R. McNeill, “Drunks, Lampposts, and Environmental History” *Environmental History*, Vol. 10, No. 1 (Jan. 2005), 65.

²⁸⁷ Crosby, 1995, 1189

²⁸⁸ Crosby, 2009.

²⁸⁹ Duchesno, “Authors Forum on *Maps of Time*,” (Feb 15, 2005).

²⁹⁰ Hughes-Warrington, “Authors Forum on *Maps of Time*,” (Feb. 9, 2005).

the whole of human history in order to now reduce, say, the level of CO2 emissions.”²⁹¹ On this note Stremlin places a similar emphasis on Big History’s assertion of universalism, stating his anxiety that “our claims of universalism are really cover for our desire to rule over them and to determine their true needs, to tell them how they should live.” This places another concern about Eurocentrism and political ideology drowning out debate in Big History.²⁹²

Conclusions

This chapter established the historiographical complexity of the twentieth century macrohistorical frameworks and their connections to Big History. The question of cyclical historical trajectories was reflected upon in the works of Spengler and Toynbee. Both historians limited the study of history to more “manageable” historical units (culture and civilizations). These units were utilized by McNeill, though he proceeded to break them down and emphasize diffusion between civilizations as the mechanism of historical change. This diffusion was later adapted by Wallerstein into a larger historical unit based on economic structures called world systems

Braudel helped formulate history as a series of scales, with human history placed within the context of geologic time and immense geographic space. Finally, the environmental historians elucidated a form of history that worked to decenter humankind from historical narratives while also maintaining the primacy of human interactions with the environment. Also the use of scientific information by historians under the *Annales* and environmental schools made the consilient nature of these works clearer. All demonstrated contemporary political concerns, such as the desire for peaceful

²⁹¹ Barendse, “Authors Forum on *Maps of Time*,” (Feb 12, 2005).

²⁹² Stremlin, “Authors Forum on *Maps of Time*,” (Feb 15, 2005).

international relations, environmental awareness, and the building of frameworks for interdisciplinary systems of knowledge. Big historians adapted these works and inherited their themes to construct a large-scale view of human history. The literature on Big History's origins, meanwhile, notes concerns regarding the transnational and ideological underpinnings embedded in large-scale twentieth century histories.

Chapter 3

*"How could adding another 13 billion years... possibly help?"*²⁹³

The Modern Scientific Meta-Narratives, Paradigms, and Big History, 1859 to 2010

This chapter will explore the relationship between Big History and modern scientific paradigms. The underlying rationale for the Big History project is that historians and scientists finally have the requisite amount of knowledge to construct rigorous large scale narratives open to scientific scrutiny. The challenge has been finding a framework to construct a bridge between the interdisciplinary aspects of modern historiography outlined in Chapter Two and the totality of the universal historical models developed in Chapter One. The final piece in the Big History structure is the goal of developing a paradigm that explains both human and non-human history in the same terms. The implications of this transition involve a range of thematic issues: cosmopolitanism, environmentalism, creation myth, units of analysis, and unities of knowledge.

First I will outline how the modern chasm between history and science developed in the nineteenth century and how in many respects it remains present in contemporary historiography. Additionally, I will argue that an understanding of the history of science acts in a way that restores a sense of humanity on scales where such agency seems impossible. This chapter also surveys the scientific meta-narratives. These narratives emerged in the 1970s and were constructed by a variety of physicists and biologists. Here

²⁹³ Heather Streets, (Feb 9, 2005), "Authors Forum on *Maps of Time*," *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=DpiH7ksTi5Qx5fFnRzafQ&user=&pw=>.

the relevant works are those of Preston Cloud, Stephen Swimme, Brian Berry, and astrophysicist Eric Chaisson. I argue they provide the essential structural foundation for Big History by employing scientific paradigms. The first is Edwin Hubble's theory of the Big Bang and the entire field of modern cosmology. This is joined by Darwinian evolution under the more recent framework of punctuated equilibrium as proposed by Stephen Jay Gould and Niles Eldridge. The argument will be that these two paradigms provide the scientific basis of a closed system and a means of periodizing history.

This chapter will then conclude with the central organizing principle of Big History: complexity in adaptive systems and how it can be measured through energy flows. The chapter will demonstrate how complexity has become the key means for developing a dynamic Big History. This is the key story in the intellectual evolution of Big History's first twenty years. Simply put, each era in Big History represents the emergence of a new form of complexity and therein can be found the empirical underpinning for the entire edifice.

The literature of Big History's origins is important in understanding its relationship to science. Fred Spier writes

During the nineteenth and especially the twentieth century, natural scientists also began to adopt historical approaches. This started within geology and biology, and later astronomy. This made it possible for the first time to construct a science-based big history that also included human history.²⁹⁴

In this regard, Christian makes the case that scientists who write large-scale narratives are doing history without realizing it and without the acknowledgment of other historians.²⁹⁵

²⁹⁴ Spier, "The Ghost of Big History is Roaming the Earth!" 253.

²⁹⁵ Christian, "History and Science After the Chronometric Revolution," 448.

As to the historicity of these narratives, Spier writes “Being natural scientists, they paid only scant attention to human history.”²⁹⁶

Hughes-Warrington identifies Big History’s origins most emphatically with the scientific narratives. “Probably the strongest claim we can make on its origins is that it arose in the context of the enormous growth of historical sciences such as cosmology, evolutionary biology, evolutionary psychology and geology in the 1980s.”²⁹⁷ The 2004 review of *Maps of Time* in *Library Journal* also couches Big History within these recent works.²⁹⁸ Big History thus represents a fusion not simply between world history and cosmic evolution, but general historical and scientific approaches. The public interest in the narratives scientists produced caught Christian’s attention in the same decade. In reference to Stephen Hawking’s *A Brief History of Time* (1988) Christian has noted “the book’s commercial success shows how widespread is the desire for such a vision.”²⁹⁹

Science and History

The notion of a break between science and history in the nineteenth century is misleading. It is more accurate to think of those disciplines as emerging into their modern contexts. This was due to the power of new scientific data, specifically information which indicated the earth was much older than the several thousand years of the medieval universal histories which made modern scientific data incompatible with history. Although Big History (taking a cue from environmental history) has set forth to historicize non-human “pre-history” history, it must be remembered that prior to the modern period all history in the Western tradition was human history, because in the

²⁹⁶ Spier, “The Ghost of Big History is Roaming the Earth!” 254.

²⁹⁷ Hughes-Warrington, “Big History,” 200.

²⁹⁸ Greg Sapp, “Review of *Maps of Time*,” *Library Journal* (Jan. 2004): 150.

²⁹⁹ Christian, “Adopting a Global Perspective,” 60.

monotheistic religions humankind appeared at the sixth day of creation.

In his book *On Deep History and the Brain*, Dan Smail argues for a theoretical redefinition of human history. This involves shifting the beginning of the narrative from first appearance of writing in ancient Sumeria (filling in the Garden of Eden) to an incorporation of human history in the Paleolithic era.³⁰⁰ The macro-narrative would instead be structured around the development of the human brain.³⁰¹ Smail's refers to this approach as Deep History.³⁰² For the purposes of this chapter, however, the importance of Smail's argument is that the Biblical framework held such a powerful intellectual hold over historians that it survived the collapse of Christian universal histories.³⁰³ This had the result of keeping humanity at the center of the historical narrative. The great intellectual sleight of hand made by nineteenth-century historians was to find a way to maintain this idea and also made it appear scientific. This history was focused very narrowly on written documents as the only source for historical inquiry because such sources were the only reliable means of dating human events. On this basis Von Ranke concluded

One should exclude entirely that which usually is taken over in world history from geological deduction and form the results of natural history about the creation of the world, the solar system and the earth. By our method we find out nothing about these topics; it is permissible to confess our ignorance.³⁰⁴

This statement illustrates the chasm between science and history formed because historians simply were not using methods that related to these other fields. The

³⁰⁰ Daniel Smail, *On Deep History and the Brain* (Berkeley CA: University of California Press, 2008).

³⁰¹ We might imagine this is an idea R.G. Collingwood could have gotten behind. The brain, after all, is the origin of human consciousness!

³⁰² A human-centered approach not to be confused with Big History.

³⁰³ This is an argument Peter Gay also suggests in *The Enlightenment*.

³⁰⁴ Leopold Von Ranke, *The Theory and Practice of History*, trans. Wilma A. Iggers (New York: Routledge, 2011), 45.

underlying rationale for not using modern scientific information was that much of it predated the appearance of human writing and therefore appeared ahistorical.

There is thus a direct line from the Rankean school of evidence based on written sources to Collingwood's definition of history as the unfolding of human consciousness and the human consciousness only. The modern histories outlined in chapter two showed clearly the reliance on textual sources did not last long, though they are still the mainstay of historical inquiry. But the larger idea of history as located squarely in the Holocene is still omnipresent. Craig Benjamin sums up the Rankean effect on historiography when he writes

Von Ranke could scarcely have imagined the role that paleontology, archaeology, radiometric dating and DNA analysis would come to play in unlocking the secrets of prehistory, but his insistence upon documents as the only acceptable form of evidence was a powerful and inhibiting influence upon decisions about the parameters of world history in the nineteenth and twentieth century.³⁰⁵

In defense of the Rankean approach, the use of textual evidence is profoundly important because it represents the framework necessary to verify historical works. Although this had a limiting effect on historicism, it was nevertheless a rigorous and proto-scientific means for writing history.

In his article "The Essential Difference Between History and Science," Raymond Martin explains the modern intellectual gulf continues because historians believe science cannot adequately explain individual human agency.³⁰⁶ Scientists look for patterns in

³⁰⁵ Craig Benjamin, "Beginnings and Endings," 98.

³⁰⁶ Raymond Martin, "The Essential Difference Between History and Science" *History and Theory*, Vol. 36, No. 1, (1997): 1-2.

matter and nature, while historians add the unpredictable element of individual consciousness. Big History seems to side-step this issue by examining larger patterns, such as world systems. David Christian explains “there are... aspects of human history that cannot be adequately handled using the familiar mantras of agency and contingency.”³⁰⁷ The sense of agency the Big History narrative thus evokes seems to be one of collective action by large groups.

The history of science was first popularized by Thomas Kuhn in *The Structure of Scientific Revolutions*. The historical record Kuhn and other historians of science found was one where research was heavily influenced by the circumstances under which it takes place and the specific belief systems of the individuals involved.³⁰⁸ Steven Shapin further clarified this argument in his book *The Scientific Revolution*, writing “that science is a historically situated and social activity and that it is to be understood in relation to the *contexts* in which it occurs.”³⁰⁹ This statement illustrates that scientists operate under the same kind of pressures and prejudices as the historians previously examined. But whereas historians of world history, environmental history, and the *Annales*, sought to make history more scientific, historians of science came to realize that the reverse can also be true: science can instead be historicized.

This aspect of Big History relates to how the narrative is framed. David Darling, in his book *Deep Time*, writes “The whole epic journey through Deep Time is, in part, a celebration of what science has discovered or conjectured about where the cosmos came

³⁰⁷ David Christian, “Contingency, Pattern and the S-curve in Human History,” *World History Connected*. Vol. 6, No. 3 (October 2009) <http://worldhistoryconnected.press.illinois.edu/6.3/christian.html>.

³⁰⁸ Kuhn, 2-6.

³⁰⁹ Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996), 9.

from and where it is going.”³¹⁰ Other writers have put together similar works, such as Bill Bryson’s *A Short History of Nearly Everything* (2003). Bryson’s book was produced for a general audience and is heavily anecdotal, weaving fairly humorous stories about the scientists who helped formulate the theories that make up the *meta-narrative*. In his introduction, Bryson sets out with the aim of creating a science text for people who hate science textbooks.³¹¹ In other words, he humanizes science. Christian even mentions Bryson’s work as “wonderful” in his lecture series.³¹² Joseph Adams also recommended *A Short History* as a companion piece to *Maps of Time* in his “Authors forum” commentary on *Maps of Time*.³¹³

Daniel Boorstin’s *The Discoverers* (1983) is yet another example of this plot in narrative form. In *The Discoverers* Boorstin maps out a series of case studies detailing how modern science and modern history came to exist as independent disciplines. In so doing he proclaims “My hero is Man the Discoverer.”³¹⁴ Boorstin also delves into the basic structures that make up human societies, the experience of time through clocks and calendars, and the inner workings of the human psyche. This represents an alternate version of macrohistory, organized as though the writers of Diderot’s *Encyclopédie* also revealed how they came to know the information contained in their entries. *The Discoverers*, however, suffers from a disjointed feel because Boorstin constantly shifts back and forth through time. It therefore lacks the linear coherence of the narrative Big History presents through chronology.

³¹⁰ David Darling, *Deep Time* (New York: Decorte Press, 1989), 46.

³¹¹ Bill Bryson, *A Short History of Nearly Everything* (New York: Broadway Book, 2003), 5.

³¹² David Christian “Big History: The Big Bang, Life on Earth, and the Rise of Humanity - Lecture 4: Evidence and the Nature of Science,” (Chantilly, VA: Teaching Co., 2008).

³¹³ Joseph Adams, (Feb. 8, 2005), “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=0AARPjX50Evd3Hbl0wDkSA&user=&pw=>.

³¹⁴ Daniel J. Boorstin, *The Discoverers* (New York: Random House, 1983), xv.

The idea of a parallel history of science is found in the work of Western historian Kevin Ferlund. In “Star: The American West, Modern Cosmology, and Big History” Ferlund frames the role of scientific development as it took place in the American West within a Big History context. Ferlund illustrates how important the frontier was in expanding the scientific understanding of the natural world, from the journey of Lewis and Clark to Edwin Hubble’s identification of the red shift while at California’s Mt. Wilson observatory. Ferlund writes “The rise of astronomy in the West made the modern exploration of the universe possible. In fact, astronomical observations began driving theory, giving astronomy a new prestige in relationship to cosmology.”³¹⁵ Ferlund’s article also illustrates means by which individual historians with diverse backgrounds can find ways of approaching Big History.

Big History also maintains the sense that modern science has revealed the true nature of reality—a common presentist theme noted in previous traditions. As Christian writes in *Maps* “our predictions may themselves shape the future. We must learn to... accept that we are the collective authors of its next chapter.”³¹⁶ Christian thus takes the larger eschatological view that the newly revealed scientific word will finally allow people to become true historical agents, and not merely the pattern driven pawns of previous periods. The history of science reveals that the most important event in the preceding five hundred years—at least on the human scale—has been humankind’s discovery of the universe.

The Modern Scientific Meta-Narratives

Big History’s nearest antecedent is not in works of history, but rather in

³¹⁵ Kevin Ferlund, “Star: The American West, Modern Cosmology, and Big History” *Montana: The Magazine of Western History* (Summer 2009), 32. According to Ferlund, Hubble’s work was conducted in California because the clear night air of the southwest made it ideal for such observations.

³¹⁶ Christian, *Maps of Time*, 472.

contemporary scientific meta-narratives. Craig Benjamin writes “In the 1960s and 70s it was the scientific community that initially re-embraced the meta-narrative” due to the emergence of certain agreed-upon scientific paradigms among the divergent disciplines.³¹⁷ These paradigms pointed to certain consilient patterns among the varying fields. Fred Spier associates this movement taking place during the 1980s, when geologists, astrophysics, and astronomers began to use modern techniques to create new syntheses.³¹⁸ In this context Big History is also part of a reaction to the scientists building frameworks with the appearance of macrohistorical intentions. For Christian these paradigms represent a Second Chronometric Revolution (Ranke’s use of documents to determine positive dates was the First). This second revolution entails scientific methods used to create precise dates before the advent of writing and before the appearance of humans.³¹⁹

Preston Cloud’s *Cosmos, Earth, and Man* (1978) is the outstanding example of the first “modern” Big History—coming some twenty-six years before Christian’s *Maps of Time*. The purpose of the book was to “further long-standing interests in the broader generalities of history, geography, biology, chemistry, and astronomy.”³²⁰ Cloud created a four-stage periodization that is roughly analogous to the basic scales of Big History. He begins with the evolution of the universe, moves to the formation of the earth, the emergence of life and the development of multicellular life forms.

³¹⁷ Craig Benjamin, “Forum on Big History,” 2009.

³¹⁸ Fred Spier, *Big History and the Future of Humanity*, 15.

³¹⁹ David Christian, “History and Science After the Chronometric Revolution”, 441-4.

³²⁰ Preston Cloud. *Cosmos, Earth, and Man: A Short History of the universe* (New Haven, Conn.: Yale University Press, 1978), xiii.

Cloud does not reach humanity until page 247 of his 363 page tome.³²¹ These chapters then generally focus on what makes humans distinct from other species, such as use of technology and human physiology. The approach tends to be more anthropological and biological than historical and Cloud does not broach the historical aspects of human society that Big History does. There is no material on state formation, economic patterns, or cultural activity. There is, however, an overarching concern with the environment and humankind's place in it. Cloud writes "Man can never escape the fact that he is a piece of the biosphere." He goes on to refer to the Earth as a spaceship—a closed-system view commensurate with Clive Ponting's depiction of the Earth as an island.³²²

Cosmos is also notable for its speculations on the future, a feature Big History has adapted. Cloud, however, goes further than Big historians in suggesting solutions to contemporary problems. In many ways his text reads like a 1970s version of H.G. Wells. The high points of Cloud's ten point plan include "encouraging" two children families, equal distribution of the world's goods, encouraging ethnic and religious diversity, and the establishment of a US Department of the Future (in conjunction with the United Nations) to manage world resources and international relations.³²³ Both the cosmopolitan ideal and theme of government by experts is thus alive and well in Cloud's meta-narrative.

This view of resource scarcity is one Fred Spier continues to reflect in 2010, writing "people will have to make do with fewer material means and will move over

³²¹ For reference Christian gets to humans on page of 139 of the 642 page *Maps of Time*; Brown arrives on page 38 of her 288 page work.

³²² Cloud, 328.

³²³ *Ibid*, 354-6.

shorter distances.”³²⁴ Cloud, Christian, and Spier all cite the Club of Rome’s report *Limits to Growth* (1972) as the prevailing model of future expectations.³²⁵ Spier believes “general message is still correct” despite criticism that the exponential modeling in *Limits* predicting availability of future resources (such as peak oil in 1992) have not occurred.³²⁶ Here big historians do not seem to be keeping up with the most up-to-date information with regard to demographics. Cloud’s use of *Limits to Growth* was certainly cutting edge in the late 1970s, but in the 2010s its appearance is notably dated.

Other examples of the scientific meta-narrative abound. Brian Swimme and Thomas Berry’s *The Universe Story* (1992) was utilized by Cynthia Brown as a primary text (along with Ponting’s *Green History of the World*) of her inaugural Big History course. The goal of *Universe* was to develop “a comprehensive story of the universe” which “sufficiently assimilated data to bring about a new period in our comprehension of ourselves.”³²⁷ *Universe* employs the image of the cell as a means of comparing all structures in the universe, from stars to cities. It does this by showing how each consists of elements that demonstrate a clear division of labor. This division is another way of expressing the idea of emergent properties or regimes as Fred Spier terms them in *The Structure of Big History*.³²⁸ In this way the sum of the parts make up more than what a merely a reductionist analysis would suggest. The use of the cell as a metaphor is important in understanding how these meta-narratives attempt connections between different scales and fields of knowledge.

³²⁴ Spier, *Big History and the Future of Humanity*, 200.

³²⁵ Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William W. Behrens III, *Limits to Growth* (New York: Universe Books, 1972).

³²⁶ Spier, *Big History and the Future of Humanity*, 195-6.

³²⁷ Brian Swimme and Thomas Berry, *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era—A Celebration of the Unfolding of the Cosmos* (San Francisco: Harpers, 1992), 1-2.

³²⁸ Fred Spier, *The Structure of Big History: From the Big Bang until Today* (Amsterdam: Amsterdam University Press, 1996).

Once again environmental concerns are a key factor in *Universe*, because part of the comprehension the authors suggests involves the realization that humankind is now so dominant that it can decide the Earth's future. The authors write "The full expression of this new orientation would bring about a movement beyond the United Nations to a United Species as the comprehensive community to which we will all belong." This is the decentering of humanity writ large by "thinking about the humans as a species among species."³²⁹

Chaisson's extremely important contribution to Big History will be explored further below. But for the purposes of this section it will be necessary to address Chaisson's contribution to the scientific meta-narrative, or as he calls it the evolutionary epic. His *Epic of Evolution* (2005) devises a seven-stage framework for analyzing the history of the universe, beginning with the "Particle Epoch" in the first three minutes following the Big Bang to the "Cultural Epoch" that represents human history. These stages unfold according to what Chaisson calls the arrow of time—"that manifest yet indefinable flow against which cosmic evolution unfolds."³³⁰ This means the intellectual concept of a linear timeline that originated with the Bible has now been confirmed by modern Physics.

Themes embedded in Chaisson's analysis include both cosmopolitanism and the importance of humanity in history. On the former, he calls for "a worldly ethic... including a mandate for society to embrace global morality and planetary citizenship as a means to survival."³³¹ With regard to the human era, Chaisson calls it "an event in spacetime" because "technological life-forms" have begun to manipulate "matter more

³²⁹ Ibid, 4; 260. It is unclear now a species with so much power can also attempt to unilaterally suppress that power.

³³⁰ Eric Chaisson, *Epic of Evolution: Seven Ages of the Cosmos* (New York: Columbia University Press, 2005), 434.

³³¹ Ibid, 440.

than matter influences life...”³³² This statement moves humanity beyond its interactions with the environment toward the notion that these interactions are so fundamentally different that they are difficult to make comparisons. Chaisson also addresses the issue of human agency when he writes “The Universe itself may not be making progress, but we sentient beings most certainly are while discerning it.”³³³ Such an observation once again brings back the idea of the discovery of the scientific meta-narrative as the key story of human history—one that portends a fundamentally new phase in human consciousness. Chaisson’s impact on Big History is so important Barry Rodrigue has called his 1975 class on “Cosmic Evolution” the first Big History course.³³⁴

The striking similarity between the meta-scientific narratives and Big History was noted by Ricardo Duchesne in the 2005 debate over *Maps of Time* on H-World. Duchesne refers to Big History as “the product of historians taking the history of the universe the prehistory of humans and then combining it with History.” He goes on to call to *Maps of Time* as a combination of *Cosmos, Earth, and Man, Patterns in Prehistory* (Robert J. Wenke, 1990), and a world history textbook—“bing you have Big History.”³³⁵ In Duchesne’s view what Christian did in *Maps of Time* was to bring just the last few thousand—and mostly last few hundred—years in to the larger scientific narrative. Duchesne further elaborates “what’s important in big history is not the addition of the last fraction; it is the invasion of the fraction by the really big part, the scientific part, the history of the universe and the prehistory of humankind!” Christian has expressed agreement with this sentiment, responding to Duchesne’s posting that Big History is

³³² Ibid, 436.

³³³ Ibid, 434.

³³⁴ Rodrigue, 135.

³³⁵ Ricardo Duchesne, (Feb 15, 2005) “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-orld&month=0502&week=c&msg=GOptD%2bQnrtSG/VhI%2b6IBag&user=&pw=>.

more or less an attempt to make the scientific narrative “accessible to historians.” He further elaborates that

When scientists do big history (and they do), they often miss the messiness of human history... it was important to integrate a historian’s sense of the unpredictability and contingency of human history into the more cut and dried accounts generally offered by scientists, because I believe historians may have something to teach the scientists about contingency and unpredictability!³³⁶

This comment makes clear Christian believes scientific narratives are fundamentally flawed in their approach to humankind. Big History’s intrusion into science is the corrective measure.

The Big Bang and Big History³³⁷

The Big Bang theory has numerous theoretical antecedents prior to the twentieth century but its modern, scientific model takes its form due to the observations of Edwin Hubble in the 1920s and 30s.³³⁸ Hubble’s work is extremely complex; very simply it dealt with analyzing star charts using Cepheid variation (the brightness of stars). Through this method Hubble noticed that most of the variation seemed to exist outside the Milky Way, which implied that the universe consisted of more than one galaxy. But it also had further implications. As David Christian notes in *Maps of Time* “remarkably, star spectra can tell us whether a star is moving toward or away from us, and at what speed.”³³⁹ The phenomenon is known as the red shift because stars further away from earth emit light

³³⁶ David Christian, (Feb 16, 2005) “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=vPvFcb3ps72NjsEhuMJ%2bsQ&user=&pw=>.

³³⁷ It should also be noted that Big History takes its name from the big bang—a title bestowed by Christian in passing merely as a joke (one he finds “continuously embarrassing”). Other critics have also ridiculed the name. Nevertheless the name has stuck. See Christian, *H-World* (Feb 16, 2005).

³³⁸ Antecedents run from the Ionian Enlightenment to Edgar Allan Poe! Hubble’s observations confirmed a theory already suggested Georges Lemaître in 1927. For concise history See Alexander S. Sharov and Igor Novikov, *Edwin Hubble, The Discoverer of the Big Bang*, trans. Vitaly Kisin (Cambridge: Cambridge University Press, 1993), 47-56.

³³⁹ Christian, *Maps of Time*, 30.

waves closer to the red end of the color spectrum.

Hubble and those who followed his work were thus able to measure the expansion of the universe. Since it appeared to be occurring in every direction this spreading out suggested the universe had once been smaller. Christian writes “If we follow this logic back in time, we will soon see that at some point in the distant past, the universe must have been infinitesimally small... Hubble had found a way of measuring the age of the universe!”³⁴⁰ Hubble’s estimates led him to conclude the universe was two billion years old—a figure widely criticized because it made the universe younger than contemporary geological estimates of the age of the earth. The figures have since been revised upward to 13.7 billion years and seem commensurate with other dating techniques.³⁴¹ The development of nuclear physics since the 1940s and the discovery of cosmic background radiation in 1964 only added to the consensus view among astronomers and physicists that the theory was the best possible way of explaining cosmic evolution.

The crucial conceptual development with regard to Big History was that the Big Bang Theory meant the universe had a definitive beginning. This was an idea lost in the collapse of the universal histories derived from the Biblical narrative. As Christian writes in *Maps of Time*, “Big Bang cosmology described a universe with a beginning and history, so it turned cosmology into a historical science...”³⁴² Kevin Ferlund has further elaborated on this point, noting “There was now a single point of origin and a single time space continuum for all things.”³⁴³ The past could now be historicized apart from the human or terrestrial events. It is because of the theory Big History can put forward the

³⁴⁰ Ibid, 31.

³⁴¹ For other techniques, such as carbon-14, DNA, and asteroid impacts in see Matthew Hedman, *The Age of Everything: How Science Explores the Past* (Chicago: University of Chicago Press), 2007.

³⁴² Ibid, 23.

³⁴³ Ferlund, 39.

concept that everything is now historical. In this framework history appears to be something akin to cosmic background radiation. Since the universe is a closed system, history is omnipresent throughout.

Numerous objections to the Big Bang theory have been raised. The name itself, coined derisively by steady state theorist Fred Hoyle, was meant to make the theory appear ridiculous. The steady state theory by contrast proposes an eternal universe, one that is subject to changing conditions, but nevertheless has no true beginning. Adherents to the steady state system question the calculations cosmologists have made for the expansion of the universe, but the theory itself has faded under the dearth of new information supporting the Big Bang. However at a deeper level this debate appears to be yet another manifestation of the linear versus cyclical directionality outlined in previous chapters. In *The Discovery of Time* (1965) Stephen Toulmin and June Goodfield establish this intellectual argument has origins in Greek philosophy. The authors note

In Plato's *Timaeus*, we have the nearest thing in pre-Christian philosophy to a 'Big-Bang' cosmology, in Aristotle the outlines of a 'Steady-State' theory: the Stoics, in turn, pioneered a 'Cyclical Cosmos', while the Epicurians saw the development of the world rather as a random, One-Way Process.³⁴⁴

This suggests in some ways scientific models gain acceptance based upon how readily they fit into preconceived cosmologies.

The inherent problem with the Big Bang model from an empirical standpoint is it lacks a cause. Both science and history exist on the principle of a basic cause and effect framework. In the Big Bang there is an effect, but no reason (at least none so far discerned) for its initiation. We have a chicken without an egg. Don Ostowski points out

³⁴⁴ Stephen Toulmin and June Goodfield, *The Discovery of Time* (New York: Harper & Row, 1965), 50.

the Big Bang “violates the principles of uniformity... for it says that at some point... the laws of physics did not apply.”³⁴⁵ Cloud dismisses this, writing “It is the ultimate or penultimate question of first causes, belonging to metaphysics and theology.”³⁴⁶ He then suggests the multiverse theory as a possible answer. Of course this sidesteps the issue and merely reanimates the question. If this in the case, where did the multiverse come from? Big History remains agnostic on this point. The consensus of the panel on “Issues in Big History” at the WHA conference in 2009 was that it is pointless to speculate on issues for which there is no evidence.³⁴⁷ On the period before the Big Bang physics can say nothing.

Christian has cited modern cosmology for fulfilling two Big History purposes: decentering humanity from history and providing history with a beginning.³⁴⁸ In the 2005 “Authors forum on *Maps of Time*” some contributors questioned the Big Bang model. Boris Stremelin suggested Big History might lean too much on Big Bang theory “This sort of model appeals to a traditional Western mind-set” in the tradition of Bishop Usher's history “or it's secularized version, in which history proper begins with the dawn of civilization and ends with communism or with globalization.”³⁴⁹ Fred Spier rigorously defended Big Bang cosmology, but stated even were it to be falsified such a development would not seriously endanger the Big History project because “steady states have their histories too.”³⁵⁰ I propose such an event would be a serious challenge to the viability of the entire project, leaving history with no true beginning and with an arbitrary framework

³⁴⁵ Don Ostowski, (Feb. 17, 2005), “Authors Forum on *Maps of Time*,” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=KDYKRTTZSfz9K7rve/aUJA&user=&pw=>.

³⁴⁶ Cloud, 25.

³⁴⁷ “Issues in Big History” Panel, *World History Association Conference* (Salem, MA, June 26, 2009).

³⁴⁸ Christian, “World History in Context,” 439.

³⁴⁹ Boris Stremelin, (Feb 15, 2005) “Authors Forum on *Maps of Time*,” *H-World*. <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=9RxcIFLh2a3wy1Id1xepQ&user=&pw=>.

³⁵⁰ Fred Spier, (Feb 15, 2005) “Authors Forum on *Maps of Time*” *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=21dr6as%2b088UNN7hnQALOA&user=&pw=>.

for analysis. The Big History framework requires a closed system.

Natural Selection, Punctuated Equilibrium and Big History

As with the Big Bang, evolution also has its intellectual predecessors.³⁵¹ But unlike Big Bang cosmology, the issue here is not so much first causes, but rather continuous complexity. How life initially emerged—which leading speculation attributes largely to chemical process—is not as important as how life has continued and changed since the emergence of multicellular organisms. For the purposes of this section the focus will be on evolution through Darwin’s paradigm of natural selection.³⁵² Preston Cloud speculated natural selection may actually have played a role in the advent of life itself, writing “a similar kind of natural selection may have taken place in screening out elements and compounds that are well suited for the construction of organisms, thus channeling chemical evolution toward the emergence of life.”³⁵³ Until laboratory experiments (or other findings) validate this theory the exact process cannot be known. But unlike the cause of the Big Bang, it is open to speculation.

Following most directly on the work of Lamarck and Malthus, Darwin developed his theory of natural selection in *The Origin of the Species* (1859) after decades of research and conceptualization.³⁵⁴ An early fascination with breeding pigeons seems to be primarily responsible for his interest in evolution. As Christian points out, Darwin “understood that humans were quite capable of altering species through artificial selection.”³⁵⁵ Darwin’s later observations of various species (again, mostly birds) in the

³⁵¹ For excellent examples see Niles Eldredge, *Time Frames: The Evolution of Punctuated Equilibria* (Princeton, N.J.: Princeton University Press, 1985); also *Darwin: Norton Critical Edition* (New York: W.W Norton & Company, 2001), 31-61.

³⁵² Charles Darwin, *Origin of Species* in *Darwin, A Norton Critical Edition*, 111-135.

³⁵³ Cloud, 146.

³⁵⁴ Darwin, 67-87.

³⁵⁵ Christian, *Maps of Time*, 86.

Galapagos led him to formulate the theory that the features of a species were inherited and over time the individuals most likely to reproduce were ones in possession of traits already best suited to their environments. Natural selection thus presents the basic model that over many generations populations change based on characteristics passed down from a common ancestor. Later discoveries of genetic inheritability and information encoded in DNA have confirmed this process. The encoding is not perfect and as Christian notes “allows for the small variations necessary if evolution is to occur.”³⁵⁶

Evolution through natural selection altered the model of historical change. Collingwood wrote that “*The Origin of Species* thus figures as the book which first informed everybody that the old idea of nature as a static system had been abandoned.”³⁵⁷ According to Toumlin and Goodfield evolution was the principle “aspect of a larger intellectual transformation, which was reshaping men’s attitudes towards cosmology and human history...”³⁵⁸ After *Origin*

men could interpret the world of geology, paleontology and zoology in a new, *historical* way. Many things which had hitherto seemed miraculous proved to be ‘only natural’: the organic world, too, could be brought within the system of uniform forces and causes...³⁵⁹

Graeme Snooks also suggests the importance of *Origin* is that evolution in humanity was only implied because it “was written without reference to mankind at all.”³⁶⁰ Darwin made the direct connection in *The Descent of Man* (1871).

Christian’s thesis on Collective Learning is built out of the concept of the adaptive process. He writes “collective learning is so powerful an adaptive mechanism

³⁵⁶ Ibid, 92.

³⁵⁷ Collingwood, 129.

³⁵⁸ Toumlin & Goodfield, 232.

³⁵⁹ Ibid, 211.

³⁶⁰ Graeme Donald Snooks, “The Origin of Life on Earth: A New General Dynamic Theory”(Advances in Space Research, Vol. 36 (2005): 7.

that there is a case for arguing that it plays an analogous role in human history to that of natural selection in the histories of other organisms.”³⁶¹ In this framework collective learning is the cause of change and innovation in human history. He goes on to note that collective learning makes humans unique on a galactic level because it must be so rare.³⁶² Christian later defended his use of collective learning against criticism, stating “I am now prepared to try out the argument that “collective learning” may offer a paradigm for human history as powerful as the paradigm of “natural selection” in the biological realm.”³⁶³

Critics of Big History, however, have disagreed with use of collective learning as a paradigm. The review of *Maps of Time* in the *San Francisco Chronicle*, for example, argues that Christian’s history lacks coherence “since the forces that drive change at one scale are not the forces that drive change at smaller scales, a unified theory remains elusive.”³⁶⁴ In the article “Supersize History” Robert Wilson echoes this sentiment, claiming “Christian provides no overarching theory to unite the history of the universe and human history.”³⁶⁵ Graeme Snooks, a leading critic of Big History since the 1990s, concurs that Christian fails to use Darwin when it comes to human history. But this is because of a larger critique Snooks has with natural selection and his belief it cannot be used to explain human history.³⁶⁶

Darwin’s idea of gradual change in species over time has since been upset by findings in the fossil record. These discoveries induced Stephen J. Gould and Niles

³⁶¹ Christian, “World History in Context,” 446.

³⁶² *Ibid.*, 456.

³⁶³ Christian, “Authors Forum on *Maps of Time*,” Feb 10, 2005.

³⁶⁴ Mason, 2004.

³⁶⁵ Robert Wilson, “Supersize History,” *Journal of Geography*, Vol. 31 (2005): 564.

³⁶⁶ Graeme Donald Snooks, “Big History or Big Theory? Uncovering the Laws of Life,” *Social Evolution & History*. Vol. 4, Issue 1, (2005): 166-8.

Eldridge to add a corollary to natural selection by way of punctuated equilibrium. Punctuated equilibrium rejects the framework of cumulative change in species. In this system species are subject to sudden changes due largely to exogenous factors. The theory is that species are biological steady states only in a vacuum, but not in a state of nature. Niles Eldridge writes, “at base, it says that once a species evolves, it will usually not undergo great change as it continues its existence—contrary to prevailing expectation...”³⁶⁷ This is very much a kind of biological variation of Thomas Kuhn’s thesis of paradigm shifts.

Eldridge further suggests punctuated equilibrium pushes back against the idea of progressive evolution. He implies the latter is something of a meme influenced by the experience of human history, and that species instead prefer to seek stable environments.³⁶⁸ He lays out four basic macro evolutionary patterns: trends, adaptive radiations, arrested evolution, and steady state.³⁶⁹ Cloud expressed a similar notion in 1978, writing

It is one of the fundamental rules of nature that any disturbance of a balanced state, be that state within a single organism or the global ecosystem, leads to reactions, sometimes catastrophic, that tend eventually to restore balance—a fever, for instance, or a hurricane.³⁷⁰

This view is not comparably dissimilar from the idea Spengler and Toynbee presented of civilizations as organisms in states of atrophy. Indeed, in 1991 Christian applied it to all human history, calling it “the story of one such equilibrium system, which exists on the

³⁶⁷ Eldredge, 15.

³⁶⁸ Ibid, 143.

³⁶⁹ Ibid, 176.

³⁷⁰ Cloud, 3.

scale of a million or so years.”³⁷¹ But Big History applies punctuated equilibrium not merely to biology but to each era in the narrative. Historical change occurs when systems at each scale are disrupted.

The story of life on earth as depicted in Big History is best encapsulated by Spier, writing “The history of life over the past 4 billion years can be summarized as biological evolution in continuous interaction with its planetary and cosmic environment.”³⁷² This is the basic model for Big History until the narrative reaches the advent of humanity. Once there the central issue of the scientific meta-narrative is whether it remains coherent. Craig Benjamin writes

Some world historians have welcomed the involvement of evolutionary biologists in explaining human evolution, although they tend to leave Darwinian evolution behind once language has evolved, and articulate instead a cultural evolutionary theory.³⁷³

In other words, as soon as humanity makes its first appearance in the macro-narrative, scientific analysis is superseded by anthropological and sociological methods are used to describe aspects of human nature. The tension is reflected in the reaction to *Maps of Time* as reviewers have pointed out that Christian’s use of natural selection as a paradigm for historical change disappears with the appearance of physiologically modern humans some 300,000 to 200,000 years ago.³⁷⁴ From that point Christian’s paradigm of collective learning takes over. In this regard punctuated equilibrium does not quite provide the full paradigm necessary for Big History to tell a coherent narrative.

³⁷¹ Christian, “The Case for Big History” *Journal of World History*, Vol. 2, No. 2, (1991): 238.

³⁷² Spier, *Big History and the Future of Humanity*, 82.

³⁷³ Benjamin, “Beginnings and Endings,” 102-3.

³⁷⁴ Ian Garrick Mason, “Review of *Maps of Time*,” *San Francisco Chronicle* (Feb 1, 2004) http://www3.sympatico.ca/ian.g.mason/David_Christian.htm.

Complexity and Energy Flows

That goal is most successfully achieved in the adoption of complexity theory. David Christian did not mention it as part of his framework in his 1989 or 1991 articles on Big History. In fact, it was Fred Spier who introduced the concept after a visit to the Santa Fe Institute in a 1996 conference on complexity in adaptive systems. Thereafter Spier relied heavily on the work of Eric Chaisson to further develop this approach and weld it to his previous framework of regimes. In his 2005 article “How Big History Works: Energy Flows and the Rise and Demise of Complexity” Spier writes “regimes are not only very useful for describing big history, but also for explaining it.”³⁷⁵ Spier envisions Big History as the emergence of various complex regimes over the course of 13.7 billion years. At its most basic level Big History is the “rise and demise of complexity at all possible scales.”³⁷⁶

Before exploring how Spier uses complexity, I will define complexity as developed by Eric Chaisson. According to Chaisson

Neither inanimate matter nor animate life can proceed from a simple to a complex state without energy. Complex objects have some organization, and organization of any kind requires energy—for formation, for maintenance, and for further change. Even when structured and highly evolved, no advanced form of matter, whether stars or people, can sustain itself without a regular flow of energy. This energy is a fuel, a food of sorts.³⁷⁷

Much of Chaisson’s work has been an attempt to calculate energy flows through a variety

³⁷⁵ Fred Spier, “How Big History Works: Energy Flows and the Rise and Demise of Complexity,” *Social Evolution & History*, Vol. 4, No. 1, (March 2005), 1. Spier’s use of the word *regime* is borrowed from his anthropological work on Peruvian religious practices. He found this useful in terms of outlining the structure of Big History, but it has its origins in Dutch sociology. See Fred Spier, *Religious Regimes in Peru: Religion and State Developments in a Long-Term Perspective and the Effects in the Andean Village of Zurite* (Amsterdam: Amsterdam University Press, 1992).

³⁷⁶ Spier, *Big History and the Future of Humanity*, 3.

³⁷⁷ Chaisson, 281.

of complex systems. These systems exist in three orders of complexity: inanimate nature, biological, and cultural. In this framework the likely emergence of the second stage (life) was a chemical process which, in Spier's words managed "to create and maintain the conditions suitable for its own existence by actively sucking in matter and energy flows" through mechanisms such as DNA.³⁷⁸ Culture takes this complexity to another level by allowing humanity to develop non-biological avenues to manipulate energy, such as technology, fire control, domestication, and more recently fossil fuels. Chaisson's calculations involve estimating "the amount of energy passing through a given system per unit time per unit mass."³⁷⁹ These figures lead Chaisson to conclude greater amounts of energy pass through the earth's biosphere than through the sun, and greater amounts still pass through human society than the biosphere.³⁸⁰

In Chaisson's estimation cosmic evolution occurs because complex systems can create the conditions for new complexity through their emergent properties. In this way "Galaxies gave rise to the environments suited for the birth of stars, some stars spawned environments conducive to the formation of planets, and at least one planet forced an environment ripe for the origin of life."³⁸¹ Before concluding this framework represents some kind of cosmic teleology, it must be noted that greater and greater amounts of energy leads not only to greater complexity, but also to greater frailty. The upper level of complexity in modern civilization may in fact result in increased entropy by spectacularly collapsing. Thus, while individual stars use less energy than people (as defined by Chaisson) people inevitably burn out much faster than stars because complex energy

³⁷⁸ Spier, "How Big History Works: Energy Flows and the Rise and Demise of Complexity," 2.

³⁷⁹ Chaisson, 193.

³⁸⁰ *Ibid*, 296.

³⁸¹ *Ibid*, 296.

flows are fairly easy to disrupt. This leads to entropy as the nemesis of complexity because most of the universe is simple and according to the second law of thermodynamics the amount of usable energy in the universe decreases over time.³⁸²

Spier believes Chaisson's calculations allow us "to compare all forms of complexity systemically."³⁸³ This facilitates the construction of a hierarchy of complexity through flows of energy. The importance of humanity in this context is noted by Spier, who writes that although "humans may seem vanishingly small, according to Chaisson we have generated by far the biggest free energy rate densities in the known universe."³⁸⁴ In this way it is possible to interpret the human impact on the environment and the commensurate species die-offs as the result of human control over energy flows.³⁸⁵ The doomsday scenarios outlined in Big History's possible futures are that the second law of thermodynamics will ultimately return the planet to a state of equilibrium when humankind's control over energy flows comes to an end.

Akop Nazaretyan has criticized Big History for following the heat-death concept of future entropy.³⁸⁶ Both Nazaretyan and Graeme Snooks have suggested there is fatalism at the heart of Big History regarding an inevitable return to energy equilibrium. Snooks suggests a concept called the Dynamic-Systems theory as an alternate grand paradigm. Instead of an over-arching concern for environmental issues, Snooks calls for society to "crash" through the evolutionary ceiling with technology and escaping the trap of entropic scientific narratives.

The idea of complexity though energy consumption seems coherent on every

³⁸² See Christian's appendix on "Chaos" in *Maps of Time*, 505-11.

³⁸³ Spier, *Big History and the Future of Humanity*, 31.

³⁸⁴ Spier, "How Big History Works: Energy Flows and the Rise and Demise of Complexity," 3.

³⁸⁵ *Ibid.*, 11.

³⁸⁶ Akop Nazaretyan, "Western and Russian Traditions of Big History: A Philosophical Insight," *Journal for General Philosophy of Science*. Vol. 36 (Spring, 2005): 72. See also Snook's *The Dynamic Society* (1995).

scale of the Big History narrative. For example, according to Spier the Big History version of the American Revolution is this:

After Europeans had become firmly established along the Atlantic seaboard of North America and were no longer dependant on matter or energy flows from Europe, a considerable number of them succeeded in getting rid of their colonial masters.³⁸⁷

Therefore issues of taxation, economic development, and inalienable rights were merely manifestations of the ultimate cause: the political power energy independence brought to colonial American society.

David Christian later adapted complexity theory in *Maps of Time*. Collective learning in human history is therefore the mechanism through which increased human consumption of energy is possible. Collective learning allows humans the capacity for greater social and creative capital in order to build increasingly complex cultural entities. Most reviewers keyed in on Christian's use of complexity as one of his overarching themes. Interestingly, Spier critiqued this aspect of *Maps of Maps*. Spier believes the "chapters on human history are slightly less coherent" because "the closer we come to the present the less systematically" Christian uses energy flows to gauge human complexity. To Spier these chapters focus more on networks of exchange and collective learning "yet they tend to somewhat obscure larger patterns of energy flows."³⁸⁸ Christian admits in the *Maps of Time* forum on H-World that he came late to Chaisson's work and did not incorporate it as fully as he might have.³⁸⁹

Christian's later writing on Big History, such as his 2006 article "Progress:

³⁸⁷ Ibid, 16.

³⁸⁸ Fred Spier, "The Ghost of Big History is Roaming the Earth!" *History and Theory*, Vol. 44 (May 2005): 262.

³⁸⁹ David Christian, (Feb 16, 2005) "Authors Forum on *Maps of Time*" *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=lx&list=h-world&month=0502&user=&pw=>. Christian first cited Chaisson's work in "World History in Context" (2003).

Directionality or Betterment,” have made greater use of the complexity paradigm.³⁹⁰ This is intellectually important because it relates back to the question of progress in universal history. The Big History narrative has essentially supplanted the idea of progress by replacing it with complexity as systemically measured through flows of energy.

Conclusion

This chapter proposed the historicization of science as a way to modern scientific knowledge with modern historical methods. The exploration of scientific meta-narratives reveals their startlingly close structural and intellectual connections to Big History. Contemporary political concerns, such as cosmopolitanism and environmentalism, also have an impact on the implications of modern large-scale narratives. Big History’s adoption of certain scientific paradigms then presents a structural framework that bookends the narrative and also provides scientific mechanisms for change. Most crucial of all, complexity theory through measurements of energy flows establishes a much-needed paradigm breakthrough. This new paradigm is necessary for Big History to develop consistent intellectual threads across its varied scales and multiple disciplinary fields.

The literature on Big History’s origins suggests the necessity of a coherent mechanism for historical change working on each scales. Complexity appears to provide such a mechanism. But the greater issue of consensus in Big History is important. Don Ostowski, however, raised issues with Big History’s adoption of consensus in its approach to science. He writes “when do we gloss over dissenting views and focus only on the consensus view on any topic? And when do we discuss dissenting views along

³⁹⁰ David Christian, “Progress: Directionality or Betterment” *Historically Speaking*, Vol. 7, Iss. 5 (May-June 2006): 24-5.

with the consensus view?”³⁹¹ Wolf Schafer also evinces concern over whether “the impressive results of contemporary scientific and historical research assembled in *Maps of Time* serve a semi-religious purpose.” He calls “the ensuing mismatch between modern questions and modern answers... both perfect and ironic.”³⁹²

On the historicization of science, Anthony Grafton refers to *Maps of Time* as more for the “general reader” than an academic. He is also skeptical of the claim that “the science are really moving toward a unified picture of the world.”³⁹³ R.J. Barendse, however, is particularly critical of how historians can present science in a professional fashion. “I’m not sure about whether it is history,” he writes. Barendse goes on to question whether a book like *Maps of Time* can be used in any kind of science courses or if scientists even know what Big History is. If not then “what’s the use of teaching this?” Barendse derisively compares a historian teaching about evolution to “having a brain-surgeon fix your plumbing...” He also expresses concern that Big History could lead to turf wars among academics and actually close dialogue between the hard and soft sciences.³⁹⁴

Hughes-Warrington responded to Barendse’s comments on *H-World* by describing how her Big History course was run using six scientists from within the department. “None of them frame their contribution as a ‘dummie’s’ effort.” She goes on to emphasize that “If we patronized our audience, we wouldn’t last long” and that none of

³⁹¹ Don Ostowski, (Feb 17, 2005), “Authors Forum on Maps of Time,” H-World, [http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=KDYKRTTZSfz9K7rve/aUJA&user=&pw=.](http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=c&msg=KDYKRTTZSfz9K7rve/aUJA&user=&pw=)

³⁹² Wolf Schafer, “Big History, the Whole Story and Nothing Less?” *Canadian Journal of History*, Vol. XL, (Autumn, 2006): 320.

³⁹³ Grafton, 2004, 379.

³⁹⁴ Barendse, Feb 12, 2005. In reply Fred Spier accused Barendse of not actually knowing anything about Big History and suggests he read up on it or sit in on a course.

her science majors find Big History patronizing.³⁹⁵ However, the question of just who the target audience is for Big History remains important.

Christian's responded to Barendse's comments with a plea for openness. He writes "at present there are very few opportunities for students to even explore the possibility that there is an underlying coherence to modern knowledge."³⁹⁶ Steve Mulhberger is much more conciliatory, suggesting there are many different ways to write history and "if by reaching occasionally for Big History we tread on the territory of physicists, all the better."³⁹⁷

³⁹⁵ Hughes-Warrington, "Authors Forum on Map of Time," Feb. 12, 2005.

³⁹⁶ Christian, "Authors Forum on *Maps of Time*," Feb 16, 2005.

³⁹⁷ Steve Muhlberger, (Feb 13, 2005), "Authors Forum on *Maps of Time*," *H-World*, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx=vx&list=h-world&month=0502&week=b&msg=IEI0dd/SiatSmxzZjuj%2bw&user=&pw=>.

Conclusions

“...history's mansions have many rooms.”³⁹⁸

The Past, Present, and Future of Big History

No text about Big History would be complete without considering its future as a field. As I have demonstrated in the preceding chapters, Big History is like a ball of twine made up of multiple historiographic and intellectual threads. My concluding analysis is that in scrutinizing the background to Big History readers and students are led to different and sometimes contradictory conclusions. These conclusions relate to Big History's implications for education, unification of knowledge, contemporary political concerns, historical directionality and human agency at macrohistorical scales, and finally the use of creation myths in a scientific narrative. Coming to terms with these ambiguities, as the literature on Big History's origins amply shows, is necessary for the field's future development.

I have argued that Big History utilizes complexity as a governing paradigm to connect its multi-varied scales. But can complexity also be utilized for the purpose of original research at the graduate level? Can a doctoral thesis be written on Big History? My initial conclusion was that complexity theory is a new method for analyzing history in general and is analogous with the Rankean call for positivism in the nineteenth-century. But any type of original research requires mastering all the scales of Big History as a prerequisite. An individual must first possess a firm grounding in a voluminous amount of knowledge culled from many areas. This herculean task is a problem I personally encountered in researching this thesis. It is also in line with Robert O'Hara's review of

³⁹⁸ Ostowski, Feb 12, 2005.

Maps of Time. O'Hara calls Christian's proposed top-down approach to history into question. He writes the book "cannot readily serve as an introductory history text, since readers must already be in possession of a good deal of knowledge about the past in order to appreciate many of the examples given."³⁹⁹

This leads to my conclusion that Big History, at least at this stage, is more plausible as a pedagogical tool. In this way Big History acts as an umbrella under which all other disciplines can find shade. Under the new framework history is neither first nor last. History, rather, is everywhere and everything. It is the thread between all these different fields and the only means to tie them together. The result is to show history as a kind of bookend for modern education. Big History by implication would have to essentially take over the current university system. The most practical transition to Big History research may be for the students to receive a thorough grounding in it (along the lines of John Mears' 1986 outline) when they first arrive in university as undergraduates. They would then move on to specialized disciplines, in just the same way (to borrow David Christian's language) someone would understand the details of a map by zooming in. This is all based on a very front-loaded assertion, inherited from the tradition of universal history, that knowledge needs to be unified in the first place. As I have shown the critics of Big History continue to dispute this rationale. But it seems evident to me that a full research agenda for Big History cannot be contemplated until a basic pedagogical platform has been constructed to support it. What Big History requires is its own university.

The idea of unifying knowledge is a thematic goal that goes beyond education at the university level. Consilience under Big History must now be linked to the question of

³⁹⁹ O'Hara, 119.

whether complexity theory does in fact connect the divergent areas of Big History. Both Graeme Snooks and Akop Nazaretyan have disputed the Big History adoption of entropy as “the end of history.” By extension this criticism can be interpreted to undermine the narrative of human history representing an upper level complexity which will inevitably breakdown. Snooks’ argument is that the Big History narrative does not depict human groups ever really falling into entropy (the Easter Island example notwithstanding).⁴⁰⁰ In particular the last two hundred years of explosive economic and technological expansion may demonstrate just the opposite. According to Snooks, not only has humankind escaped the Malthusian population trap, it might also have beaten the second law of thermodynamics. I am not trying to defend this criticism of Big History, merely offering it as a relevant critique of the implications the Big historians have formulated.

This idea dovetails into the general political consequences of the Big History narrative (those outside the university). In Big History the environmental and cosmopolitan themes are intertwined, with the latter being proposed as part of the solution to the former. The environmental aspect to Big History is largely informed by the modern environmental histories and scientific narratives (although as my thesis demonstrated intellectual strains of broad-based skepticism with modernity go back to Spengler and, indeed, Ibn Khaldun). While some reviewers have referred to Big History as “agnostic” on the subject of the environmental implications of human habitation, such a conclusion is not sustainable in my opinion.⁴⁰¹ Big History clearly merges with mainline environmental critiques of modern industrial economies and with the overall

⁴⁰⁰ Snooks, 160-2.

⁴⁰¹ Schafer, 326.

view of the deleterious impact human existence has had on the environment since the Paleolithic era.

Big History presents a wealth of empirical evidence to make these facts readily apparent. But the larger question relates to how this environmental impact matters going forward. Big History's scales indicate that a collective human response is unlikely to yield tangible results. Attempting to curb carbon emissions to elevate global climate change, for example, may be like trying to place a band-aid on a limb attached by only a flap of skin. The damage (or more appropriately changes) that have been wrought cannot be undone without massive disruptions to human life-ways. The morality of Snooks' and Nazaretyan's contention that humanity should continue doing what it has been doing—and in their prospective use of technology to “crash” through the evolutionary ceiling—can certainly be called into question (as can the very feasibility of such an endeavor). However, I concur with their larger critique that Big History puts forward the narrative of humans amassing greater and greater amounts of energy. It therefore appears more likely to me that this is what humans will continue to attempt to do regardless of the implications.

The fatalism that critics identified in the Big History narrative relates to both the perceived lack of human agency in history and the overall irrelevance of humanity in the Big History scheme of things. Big History does follow in the Enlightenment tradition in which a wide breadth of knowledge endows the individual with the power of historical agency. In this way Big History emphasizes the urgency of the present, while at the same time the historical significance of the current age is called into question. This approach triggers the same problem that was previously encountered in Biblical prophecy,

Christian eschatology, the Enlightenment narrative of rationality and freedom, Marx's historical dialectic, and Wells' desire for global unity. All these works analyzed history to varying degrees of success and coherence in order to make projections about where history was trending. Unfortunately all were either partially or completely incorrect. It seems human history—from the individual actors to collective groups—remains too complex to make such predictions. Collingwood's argument that history terminates in the present is thus not without validity. Big historians have also noted this degree of human complexity in their predictions for the future. What is missing is the effects humanity might potentially have at other scales, from biological to the cosmic. In other words, can another important aspect of humanity reside in its ability to transcend the paradigms of each of these scales? This is a possibility that should be considered further by Big historians.

Finally the purpose of a modern creation myth under a scientific framework must be reconciled. As noted previously by Big historians and their critics, such a goal seems oxymoronic. But it does fit with the premise of Big History as a kind of secular faith and resonates in some Big historians invocation of religious metaphors. One creation story replaces another, just as various mechanisms for historical change supplanted previous one in the universal histories. Such a rationalization for myth, however, suggests a deeper level human desire for origins within the human psyche—the need for a singular and final answer. This trait should probably replace religion on the list of the universal attributes of humankind, along with fire control and language.

The great accomplishment of the first twenty years of Big History was to assemble a paradigm for human history that marries history and science, though as Big

historians admit, the model is subject to revision. Big History achieved this, but as the Big historians have noted (and to their intellectual credit) it is all subject to revision. Toward this end it is vital that the various threads of Big History's origins continue to be teased out by academics and students alike. The foundations of Big History must be perpetually examined and reexamined to make certain the edifice remains structurally coherent for the future.

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