Big History*

Marnie Hughes-Warrington
Macquarie University, Sydney

ABSTRACT

In a 1991 article for the Journal of World History, David Christian argued that world historians should widen the temporal and disciplinary scope of their field to take in current scientific theories about the origins of life, the planet and even the Universe. Since then, 'big history' – as he coined it – has become the subject of vibrant historiographical discussions in teaching and research programs in Australia, the United States, Russia and the Netherlands. In this article, I trace the emergence of big history over the last fifteen years and explore the varied theoretical propositions of its practitioners. Further, I demonstrate that, far from being a new branch of world history, big history can be usefully located in the ancient and long-lived tradition of universal history writing.

INTRODUCTION

It is a common complaint that 'world history' – as practised by historians – does not live up to the scope of its terms. Michael Geyer and Charles Bright, for instance, have argued that the 'central challenge of a renewed world history at the end of the twentieth century' is to tell of the world's past in a global age (Geyer and Bright 2000: 566). Some have interpreted this as a call for the study of human interactions through frameworks wider than that of the nation state, while others see it as an invitation to consider something bigger: the origins and evolution of the Earth and its inhabitants. For a small but growing number of historians, though, even the shift from world to global history is not enough.

Social Evolution & History, Vol. 4 No. 1, March 2005 7–21

What they seek is way beyond the commonly perceived boundaries of history and, thus, the comfort zone of many historians. For them, history must tell the biggest story of all, that of the origins and evolution of human beings, life, the Earth and the Universe – hence, 'big history'.

Unlike the big bang, big history does not begin with a single point. 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. How it reached those trained in areas traditionally considered far away from the sciences was via the vast outpouring of popular science publications that followed. Of particular relevance are those works in which writers draw together separate fields, such as the big bang (cosmology) and the origins of life (biology) (for example, Asimov 1987; Cloud 1978; Delsemme 1998; Kutter 1987; McSween and Swimm 1997; and Berry 1992). Such works evidently revealed the possibilities of interdisciplinary studies and suggested a bigger project uniting the sciences and humanities.

THE EMERGENCE OF BIG HISTORY

It is only with the publication of works by Christian and Spier in the 1990s that we begin to see big history assume a historiographical profile. Christian's interest in big history first emerged, rather pragmatically, during a lively staff meeting in 1988 at Macquarie University, Sydney, where he taught until 2001. At that meeting, Christian suggested that first year classes should 'start at the beginning'. Thinking more about that suggestion, he became intrigued by the questions 'What is the whole of history?' and 'Where does human history begin?' and was led back to the point where there is no evidence or certainty about 'before': the big bang, some 13 billion years ago. In 1989, 'HIST112: An Introduction to World History' began and, two years later, his 'The Case for "Big History"' appeared in the *Journal of World History* (Christian 1991: 223–238). That Christian came to big history via teaching rather than theory shows very clearly in his various writ-

ings on the subject: he readily adopts and adapts ideas from an incredibly varied range of sources without the fear of someone trained to know his historiographical boundaries. Even his decision to describe what he was doing as 'big history' suggests a 'work in progress':

> When I first used the label, 'big history', in the early 1990s, I felt it was simple and catchy; and it helped me avoid some simple circumlocutions. In retrospect, I fear the label was also grandiose, portentous, and somewhat pretentious. So I need to make it clear… that I use the phrase with some hesitation. I continue to use it because it has acquired some currency in the last ten years, and… I can't think of anything better (Christian 2002: n. 5).

Though Christian's account of the past, present and future shifts continually, his work is at base a 'map of reality' or 'a single, and remarkably coherent story, a story whose general shape turns out to be that of a Creation Myth, even if its contents draw on modern scientific research' (Christian 2004: 100, 3). The 'modern creation myth' begins with the origins of the Universe (as suggested in the big bang theory) and goes on to tell about the origins of the stars and planets, the Earth and life, human beings and societies and ends with speculations about our cosmic future.

Ostensibly, creation myths are about the past, about origins, about how things began. Looking more closely, though, creation myths provide coordinates within which people can think about what they are and might be in wider contexts. In this sense, they are like maps. Maps are not pictures of the world as we see it with our eyes. They offer a stylized, simplified and selective model of our world. Why? Because the function of a map is to help us navigate. This view suggests an instrumentalist understanding of knowledge in big history: knowledge is best thought of not as a description of reality that is more or less accurate than other descriptions, but rather as the mental equivalent of a tool. If knowledge helps us to navigate through a particular context, we are likely to consider it true or good knowledge. This suggests a second feature of maps. Maps are not just selections, they are selections *by*

and *for* a particular group. A map of Thailand will not help a tourist in Sydney. The nebular theory of solar system formation might have been met with disinterest in Upper Palaeolithic societies. 'Usefulness' is a relative concept. So there is more than one map of the world, more than one creation myth. Some are compatible. Some show signs of hybridity, like the incorporation of satellite phones into central Australian Dreaming stories. Some are incompatible. It is worth asking in an age of globalization, though, whether all these maps will ever merge, or whether one will come to dominate all others. To date, Christian has not answered this question.

This talk of what philosophers would call 'standpoint epistemology', or situatedness, suggests a third feature of maps. In order that we may start to use them, there must be the equivalent of the words 'you are here'. Big history thus aims to help people to consider where and who they are. But, like maps too, big history suggests future paths of action and possible consequences. In doing so, it raises issues concerning individual and collective responsibility.

Christian's use of the words 'creation myth' is bound to make historians uncomfortable, because myth and history are thought to be antithetical. 'Myth' is commonly taken to refer to either mistaken or primitive beliefs. Myths belong not only to the long distant past but to all archaic and underdeveloped manners of understanding the world, no matter when or where they occur. Myth is therefore seen as something that we outgrow and leave behind as we become more knowledgeable or more culturally or technically sophisticated. In recent years, though, postmodern critics such as Barthes, Foucault, Derrida, Kristeva and Lyotard have argued that the representation of phenomena, past and present, in the form of coherent stories, be they 'the origins of life', the 'big bang theory' or 'the rise of the West', turns history into a mythology which serves to reinforce the power of a select group: white, educated males. The fabrication of continuity and unity between past and present disguises chaotic origins, accidental transformations and ruptures. Myths are props that are accepted uncritically by a culture and serve to found or affirm its self-conception. Postmodern writ-

ers thus remind us that the way in which we talk about the origins of the Universe, or of life, or of modern society is not natural, but man-made (Barthes 1972: 142–146; Hobsbawm and Ranger 1985; and McNeill 1986). Christian, too, holds that myths are stories that are unchallenged by the vast majority of people. He sees them as playing a more positive role than props, though, for without them he believes that we are left only with what the French sociologist Émile Durkheim, referred to as *anomie*: the sense of not fitting in. Of course, many a postmodernist would argue that 'fitting in' is exactly the problem.

BIG HISTORIES TODAY

Christian's historiographical reflections on big history are very much focused on those who engage with it: it is a project in which past, present and future must be drawn together for understanding of self and of others. Spier's historiographical writings, on the other hand, concentrate more on patterns in the subject matter. Spier was introduced to big history by Johan Goudsblom, who in turn first learned about it from David Christian. Spier and Goudsblom introduced a big history course to the University of Amsterdam in the 1995–1996 academic year, and Spier has convened the course since Goudsblom's retirement in 1998. Goudsblom has written about the way the course was set up in *Stof Waar Honger uit Onstond* (2001: 31–44), but their 'Big History Project' will be better known to English readers through Spier's *The Structure of Big History* (1996, revised as *Geschiedenis in het Groot: Een alomvattende visie*, 1999). Drawing on his training in historical sociology, Spier argues that 'regimes' are the organizing principle of big history. The term 'regime' enjoys such a wide usage in sociology that it is difficult to attribute any technical meaning to it at all. Turning to the ideas of Mart Bax, Abram de Swann and Johan Goudsblom, though, Spier suggests that all uses of the term refer to 'more or less commonly shared behavioural standards', 'patterns of constraint and self-restraint' and 'an interdependency constellation of all people who conform more or less to a certain social order' (Spier 1994; and Spier 1996: 5). Such definitions clearly refer to

human behaviour, so in order for the term to be useful in big history, he extends its meaning to 'a more or less regular but ultimately unstable pattern that has a certain temporal permanence' (Spier 1996: 14). Spier detects such patterns at all levels of complexity and in a wide range of places and times, from the fundamental atomic forces, through hunter-gatherer societies, to the orbits of the planets.

As Spier himself notes, there is clearly an alignment between 'regimes' and what Christian – drawing on Stephen Jay Gould – calls 'equilibrium systems'. These are systems, as Christian writes,

> that achieve a temporary but always precarious balance, undergo periodic crises, re-establish new equilibria, but eventually succumb to the larger forces of imbalance represented by the principle of 'entropy' (Christian quoted in Spier 1996: 3).

In more recent writings by Christian, though, the concept of 'equilibrium systems' has disappeared. He is still interested in patterns and the 'constantly shifting waltz of chaos and complexity', as *Maps of Time* attests, but does not want to stake out a technical term or system of structures as Spier does.

Christian and Spier, like all 'big historians', are interested in patterns of balance and imbalance between order and disorder, but they express their interest through different conceptual frames. Drawing on Marshall Hodgson's concept of 'transmutations', for instance, Mears suggests that in human history, for instance, we see three radical periods of imbalance that led to the introduction of deep changes in the organization of societies: the revolution of the Upper Palaeolithic, the advent of complex societies and the global integration of human societies (Mears n.d.). Vélez, too, is interested in radical transformations on the path to 'humanity' (Vélez 1994). Nazaretyan, in *Intelligence in the Universe: Origin, Formation, Prospects* (1991) and *Civilization Crises within the Context of Universal History* (2001), argues that in all contexts of historical change – the Universe, the Earth, biota – we see punctuated equilibria, but that, overall, history shows a directional tendency towards 'negentropy'. Chaisson also looks to entropy, but realizes its implications more fully through physics. In *Cosmic*

Evolution (2000), Chaisson notes that the Universe appears to be getting more complex: after the big bang, elementary particles came together to form simple atoms; gravitational attraction among atoms laid the foundations for galaxies; within galaxies, stars and planetary systems differentiated; and in these, with the emergence of the heavier elements, complex chemical, biological and ultimately cultural entities arose. Extending Erwin Schrödinger's claims in *What is Life?* (1944), Chaisson argues that this increase in complexity *is* consistent with the second law of thermodynamics. The second law, in its statistical-mechanical interpretation, suggests that disorder (the opposite of complexity) increases in *closed* systems, but as structures like galaxies, stars and organisms are in an *open* system, they are able to generate and sustain complexity by exporting enough disorder to the surrounding environment to more than make up for internal gains. For Chaisson, complexity is to be found as energy density. He analyses the flows of energy through various objects and shows how these flows seem to be related to the complexity of the objects. The greater the energy flow, the greater the complexity. And through a table and a series of graphs, he shows that complexity increases from atoms to galaxies to societies and therefore also increases over time. This is what is meant by ‘cosmic evolution’.

As the case of entropy shows, conceptual frames and emphases vary among big history practitioners. Indeed, apart from a common interest in the large-scale patterns in the history of the Universe, the Earth and life, it might be difficult to identify them as ‘big historians’ at all. Of help here is Wittgenstein's family resemblances view of concepts. On this view, 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’. Just as there may be no feature or set of features common to all members of a family, there may be a distribution of facial characteristics which allows a person to be recognized as a member of the family:

> They form a family the members of which have family likenesses. Some of them have the same nose, others the same

> eyebrows and others again the same way of walking; and these likenesses overlap. The idea of a general concept being a common property of its particular instances connects up with other primitive, too simple, ideas of the structure of language (Wittgenstein 1958: 17).

Conceptual matters aside, where are we to locate big history in 'the house of history'? Recently, Christian has spoken of big history as 'macrohistory'. Might this offer us a clue? Historiographically, 'macrohistory' refers to the study of large-scale social systems or social patterns (Galtung and Inayatullah 1997). On the face of it, this definition would certainly fit well with the sociological orientation of both Spier's and Johan Gousblom's works. In stretching 'regimes' beyond the 'social', though, they step way beyond the territory of sociology. It is for that reason, I believe, that 'macrohistory' is not big enough to encompass big history.

Big history can, I believe, be more fruitfully located in the tradition of universal history that began with the new internationalism fostered by Alexander the Great. Writers like Diodorus of Sicily (c. 90–21 BCE) claimed that peoples of different times and places could be connected by universal history into one body through the efforts of historians, 'ministers of Divine Providence':

> For just as Providence, having brought the orderly arrangement of the visible stars and the nature of men together into one common relationship… so likewise the historians, in recording the common affairs of the inhabited world as though they were those of a single state, have made of their treatises a single reckoning of past events… (Diodorus of Sicily 1968: 7)

This idea of a 'single reckoning of past events' was readily adapted in an eschatological fashion by Christian and Islamic writers such as St Augustine of Hippo (*City of God*, [413–426 CE] 1998), Paulus Orosius ([c.417] 1964), Bishop Otto of Freysing ([1146] 1966), Ibn Khaldun ([1357–1358] 1958), and Jacques Bénigne Bossuet ([1681] 1976). Growing information about the non-European world from the sixteenth century onwards revealed the limitations of monotheistic narratives, but they did not end the universal history tradition. Rather, in the hands of Giambattista Vico

([1744] 1976) and later Johann Gottfried Herder ([1784–1791] 1993), Immanuel Kant ([1784] 1963), G. W. F. Hegel ([1822–1831] 1956) and Leopold von Ranke ([1884] 1973), universal history was transformed into a 'new science' with a philosophical foundation. These writers searched for the presuppositions that shaped human actions and concluded either – as in the case of Vico – that history revealed a circular or spiral pattern of birth, life, decline and regrowth, or – as in the case of Hegel – the progressive realization of freedom. Later in the nineteenth century, Marx inverted Hegel's philosophical program, suggesting that the material conditions of life shape human consciousness and society, not the other way round ([1844–1847] 1977), and Spengler tracked the birth, growth and decline of eight cultures, Western Europe included (1926). Spengler's work enjoyed enormous popular success, but increasingly universal history was marginalized in the discipline. The epic works of H. G. Wells (1920), Arnold Toynbee (1934–1961) and Pitirim Sorokin (1937–1941) were judged to be overly speculative and insufficiently attentive to detail. Some felt as Pieter Geyl did about Toynbee:

> One follows [Toynbee] with the excitement with which one follows an incredibly supple and audacious tight-rope walker. One feels inclined to exclaim: '*C'est magnifique, mais ce n'est pas l'histoire*' (Geyl 1949: 43).

Many dismissed these writers as an embarrassment to a discipline trying both to put itself on a scientific footing and to recover the experiences of ordinary people, people traditionally passed over in silence in surveys of 'civilization'. To most historians, universal history was like a rogue relative that no one wants to talk about.

Histories on a larger scale did not of course disappear in the latter half of the twentieth century, as the world- and macro-historical works of William McNeill, Marshall Hodgson, Andre Gunder Frank, Immanuel Wallerstein, Fernand Braudel, Philip Curtin, Peter Stearns, Alfred Crosby, Eric Wolf and Clive Ponting testify. But the perception was that single, all-encompassing, unified histories – which seemed to fit Lyotard's description of 'grand narratives' – could not withstand methodological or ethical scru-

tiny. Allen Megill, for instance, concludes his entry on universal history in the *Encyclopedia of Historians and Historical Writing* in the following fashion:

> One historiographical strategy in what is now called 'world history' is the making of limited comparisons between different parts of the world that the historian selects for comparison in the hope of generating insight. Such work, however, is clearly not universal history as it was known in the past, but a mark of its absence (1999: 1245).

Absent but for big history, that is. The interest that big historians have in a 'single… coherent story' marks them out as universal historians, and indeed Nazaretyan prefers to identify himself by that label. But they have also adapted universal history in at least two important ways. First, big history stretches much further backwards in time than any earlier universal history. This is clear from the introduction to even the most recent universal histories such as H. G. Wells's *The Outline of History*. Wells's history begins with the geology of the Earth: prior to that there is no history, for space is 'cold, lifeless, and void' (1920: 4). Wells is not unusual in this conclusion, for up until about forty years ago, the majority of people – including scientists – believed that, overall, the Universe was static, unchanging, steady. This understanding of the Universe as fixed and unchanging only began to break down in the face of some important scientific findings – work on 'red shift' stimulated by Edwin Hubble, the detection of cosmic microwave background radiation by Arno Penzias and Robert Wilson in 1965 and work in nuclear and high-energy particle physics. Now, all but a tiny number of scientists believe that the Universe has an origin – an explosive event dubbed the 'big bang' some 13 billion years ago – that it is expanding and cooling and thus changing, and that it will continue to do so long into the future. The big bang is the agreed starting point for big historians as it is for physicists, because nothing can be known with any certainty about 'before'.

Second, big history veers away from the high cultural focus and total anthropocentrism of earlier universal histories. Traditionally, universal historians – if they consider the sciences at all –

have presented the origins and evolution of the Earth and life as a prologue to human history. Rocks and 'lower' forms of life are merely the warm-up act to 'us', where 'us' commonly means educated males. Recent research in the historical sciences reveals the weakness of claims that humans are special, apart, the pinnacle of life. For example, microbiology has revealed our dependency on microbes for survival; evolutionary biology, that we are not outside evolution and thus safe from extinction; and cosmology, that ours is not the only system of planets. Big history relocates humans in the biota, on the Earth, in the Universe. In doing so, it reveals how small, destructive and recent a phenomenon we are. Such a view of humanity appears to clash with the conventional historiographical desire to seek out the individual, to seek out agency. Indeed, it could be argued that by adopting such a large focus, the 'human' is lost in history. That it clashes suggests a problem with how we understand 'history'. Big history cannot be added as an extension to the 'house of history' without upsetting its foundations (Northrup 2003). This is because history has naturalized the view of humans as autonomous, discrete 'selves' suggested by writers like Immanuel Kant. It is as if the lens through which we view the past has got stuck at a certain magnification – the 'viewing individual actions' lens – and that over time we have forgotten that other lenses are available. Big history invites us to consider the past over different scales and helps us to see new patterns, like those of 'regimes', 'punctuated equilibrium', 'negentropy' or 'cosmic evolution'. It is like stepping back from the rocks and being rewarded with a view of the Nazca lines. Thus it is with big history, I believe, that we see the realization of W. H. McNeill's claim that historians can contribute to what Edward Wilson calls 'consilience', the unity of knowledge (McNeill 1998: 1–15; and Wilson 1998).

NOTE

* This article is a slightly amended and updated version of a paper that first appeared in *Historically Speaking* 4 (2): 16–17, 20. It is reproduced with the kind permission of the editors, Donald Yerxa and Joseph Lucas. I would like to thank Akop Nazaretyan for encouraging me to publish the article in this forum. I am also indebted to Eric Chaisson, David Christian, Frank Clarke, Johan Goudsblom,

William H. McNeill, John Mears, Fred Spier and Antonio Vélez for their generous assistance, though of course any errors are my own.

REFERENCES

Asimov, I.
1987. *Beginnings: The Story of Origins*. New York, NY: Walker and Company.

Augustine
1998. *City of God against the Pagans*. New York: Cambridge University Press.

Barthes, R.
1972. *Mythologies*. New York, NY: Hill and Wang.

Berry, T., and Swimme, B.
1992. *The Universe Story*. San Francisco, CA: Harper.

Bossuet, J. B.
1976. *Discourse on Universal History*. Chicago, IL: Chicago University Press.

Chaisson, E.
1981. *Cosmic Dawn: The Origins of Matter and Life*. New York, NY: W. W. Norton.
1977. The Scenario of Cosmic Evolution. *Harvard Magazine* November–December: 21–33.
1987. *The Life Era: Cosmic Selection and Conscious Evolution*. New York, NY: W. W. Norton.
2000. *Cosmic Evolution: The Rise of Complexity in Nature*. Cambridge, MA: Harvard University Press.

Christian, D.
1989. The Longest Durée: A History of the Last 15 Billion Years. *Australian Historical Association Bulletin* 59–60: 27–36.
1991. The Case for 'Big History'. *Journal of World History* 2 (2): 223–238.
2002. *The Play of Scales: Macrohistory.* Unpublished ms. presented at the annual conference of the American Historical Association.
2004. *Maps of Time: An Introduction to 'Big History'*. Berkeley, CA: University of California Press.

Cloud, P.
1978. *Cosmos, Earth and Man*. Cambridge, MA: Yale University Press.

Delsemme, A.
1998. *Our Cosmic Origins*. Cambridge: Cambridge University Press.

Diodorus of Sicily
1968. *Library of History*. London: Loeb.

Galtung, J., and Inayatullah, S. (eds.)
1997. *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*. Westport, CT: Praeger.

Geyer, M., and Bright, C.
2000. World History in a Global Age. In Dunn, R. (ed.), *The New World History* (pp. 564–573). New York, NY: Bedford.

Geyl, P.
1949. *The Pattern of the Past: Can We Determine it?* (with A. Toynbee and P. Sorokin). Boston, MA: Beacon.

Goudsblom, J.
2001. *Stof Waar Honger uit Ontstond* [Dutch]. Amsterdam: Meuelenhoff.

Hegel, G. W. F.
1956. *The Philosophy of History*. New York, NY: Dover.

Herder, J. G.
1993. Yet Another Philosophy of History. In Bunge, M. (ed.), *Against Pure Reason: Writings on Religion, Language and History* (pp. 38–58). Minneapolis, MN: Augsburg Fortress.

Hobsbawm, E., and Ranger, T. (eds.)
1985. *The Invention of Tradition*. Cambridge: Cambridge University Press.

Ibn Khaldun
1958. *The Muqaddimah*. Princeton, NJ: Princeton University Press.

Kant, I.
1963. Idea for a Universal History from a Cosmopolitan Point of View. In Beck, L. W. (ed.), *On History* (pp. 11–26). New York, NY: Macmillan.

Kutter, G. S.
1987. *The Universe and Life*: *Origins and Evolution*. New York, NY: Jones and Bartlett.

Marx, K.
1977. The German Ideology. In McLellan, D. (ed.), *Karl Marx: Selected Writings* (pp. 159–191). Oxford: Oxford University Press.

McNeill, W. H.

1986. *Mythistory and Other Essays*. Chicago, IL: University of Chicago Press.

1998. History and the Scientific Worldview. *History and Theory* 37 (1): 1–15.

McSween, H., and Swimm, B.

1997. *Fanfare for Earth: The Origin of Our Planet and Life*. New York: St. Martins.

Mears, J.

n.d. *To Be Human: A Perspective on our Common History*. Unpublished ms.

Nazaretyan, A. P.

1991. *Intelligence in the Universe: Origins, Formation and Prospects: Essays on Interdisciplinary Evolution*. Moscow: Nedra.

2001. *Civilisation Crises within the Context of Universal History: Self-Organization, Psychology and Futurology*. Moscow: Nedra.

n.d. *Big (Universal) History, Pre-crisis Psychology, and Some Prospects for the Twenty-First Century*. Unpublished ms.

Northrup, D.

2003. When Does World History Begin? (And Why Should We Care?) *History Compass*

(http://www.history-compass.com/Pilot/world/World_WhyArticle.htm).

Otto, Bishop of Freysing

1966. *The Two Cities: A Chronicle of Universal History to the Year 1146 AD*. Mierow, New York: Octagon.

Paulus Orosius

1964. *Seven Books of History against the Pagans*. Washington, DC: Catholic University of America Press.

Ranke, L. von

1973. The Role of the Particular and the General in the Study of Universal History. In Iggers, G. G., and Molkte (eds.), *The Theory and Practice of History* (pp. 57–59). Indianapolis, MN: Bobbs Merrill.

Schrödinger, E.

1944. *What is Life?* Cambridge: Cambridge University Press.

Sorokin, P.

1937–1941. *Social and Cultural Dynamics*. New York, NY: American Book Company.

Spier, F.

1994. *Norbert Elias's Theory of Civilizing Processes Again Under Discussion: An Exploration of the Sociology of Regimes*. Paper for the XIIIth World Congress of Sociology, Germany.

1996. *The Structure of Big History: From the Big Bang until Today*. Amsterdam: Amsterdam University Press. Revised as *Geschiedenis in het Groot: Een alomvattende visie*. Amsterdam: Amsterdam University Press, 1999.

Toynbee, A.

1934–1961. *A Study of History*. London: Oxford University Press.

Vélez, A.

1994. *Del big bang al Homo sapiens*. Medellín: Editorial Universidad de Antioquia.

Vico, G.

1976. *The New Science of Giambattista Vico*. Ithaca, NJ: Cornell University Press.

Wells, H. G.

1920. *The Outline of History*. London: George Newnes.

Wilson, E. O.

1998. *Consilience: The Unity of Knowledge*. London: Abacus.

Wittgenstein, L.

1958. *The Blue and the Brown Books*. Oxford: Blackwell.